

Notice: This form may be used to comply with the requirements of s. NR 716.14 (2), Wis. Adm. Code; however, use of this form is not required. An alternate format may be used. The rule requires that notification be provided to 1) property owners when someone else is conducting the sampling, 2) to occupants of property belonging to the responsible person, and 3) to owners and occupants of property that does not belong to the responsible person but has been affected by contamination arising on his or her property. Notification is required within 10 business days of receiving the sample results. Personal information collected will be used for program administration and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31-19.39, Wis. Stats.].

NOTE: Under s. NR 716.14, Wis. Adm. Code, the responsible party must also submit sample results and other required information to the DNR. We recommend that copies of the sample results notifications be included with that submittal, along with all attachments. Using the same format used for data presentation for a closure request may be helpful to all parties. See s. NR 716.14, Wis. Adm. Code for the full list of information to be submitted to the DNR.

Notification of Property Owners and Occupants:

This notification form has been provided to you in order to provide the results of environmental sampling that has been conducted on property that you own or occupy. Samples were collected in accordance with the methods identified in the site investigation work plan, in accordance with s. NR. 716.09 and 716.13, Wis. Adm. Code. This sampling was conducted as a result of contamination originating at the following location.

Site Information

Site Name		DNR ID # (BRRTS #)	
Enbridge Energy Superior Terminal		02-16-589282	
Address	City	State	ZIP Code
2800 East 21st Street	Superior	WI	54880

Responsible Party

The person(s) responsible for completing this environmental investigation is:

Property Owner

Enbridge Energy, Limited Partnership (Enbridge)

Address	City	State	ZIP Code
11 East Superior Street, Suite 125	Duluth	MN	55802

Contact Person

Karl Beaster, PG, Senior Environmental Advisor

Person or company that collected samples

Phone Number (include area code)
 (715) 718-1040

AECOM

Sample Results (Results Attached)

Reason for Sampling: Routine Other (define) Site Investigation

The contaminants that have been identified at this time on property that you own or occupy include:

Contaminant	In Soil?		In Groundwater?	
	Yes	No	Yes	No
Gasoline	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Diesel or Fuel Oil	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Solvents	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Heavy Metals	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Pesticides	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Other: <u>PFAS</u>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

This sampling event included sampling of a drinking water well. <input type="radio"/> Yes <input checked="" type="radio"/> No
If yes, the sampled drinking water well had detectable contaminants. <input type="radio"/> Yes <input type="radio"/> No

Contaminants in Vapor

	Yes	No
Indoor Air	<input type="radio"/>	<input checked="" type="radio"/>
Sub-slab	<input type="radio"/>	<input checked="" type="radio"/>
Exterior Soil Gas	<input type="radio"/>	<input checked="" type="radio"/>

Site Investigation Sample Results Notification

Form 4400-249 (R 03/14)

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Attached are:

- A map that shows the locations from which samples were collected. (The map needs to meet the requirements of s. NR 716.15 (4), Wis. Adm. Code.)
- A data table with specific contaminant levels at each sample location and whether or not the sample results exceed state standards.
- A copy of the laboratory results.

You are not identified as the person that is responsible for this contamination. However, your cooperation is important. Property owners may become legally responsible for contamination if they do not allow access to the person that is responsible so that person may complete the environmental investigation and clean up activities.

Option for written exemption: You have the option of requesting a written liability exemption from the DNR for contamination that originated on another property, or on property that you lease. To do this, you must present an adequate environmental assessment of your property and pay a \$700 fee for review of this information. If you are interested in this option, please see DNR publication # RR 589, "When Contamination Crosses a Property Line - Rights and Responsibilities of Property Owners", available at: dnr.wi.gov/files/PDF/pubs/rr/rr589.pdf.

Contact Information

Please address questions regarding this notification, or requests for additional information to the contact person listed above, or to one of the following contacts:

Environmental Consultant

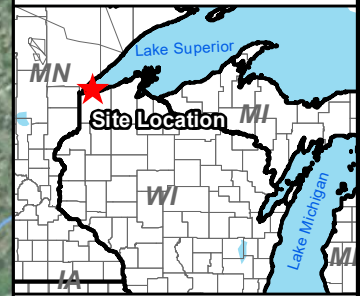
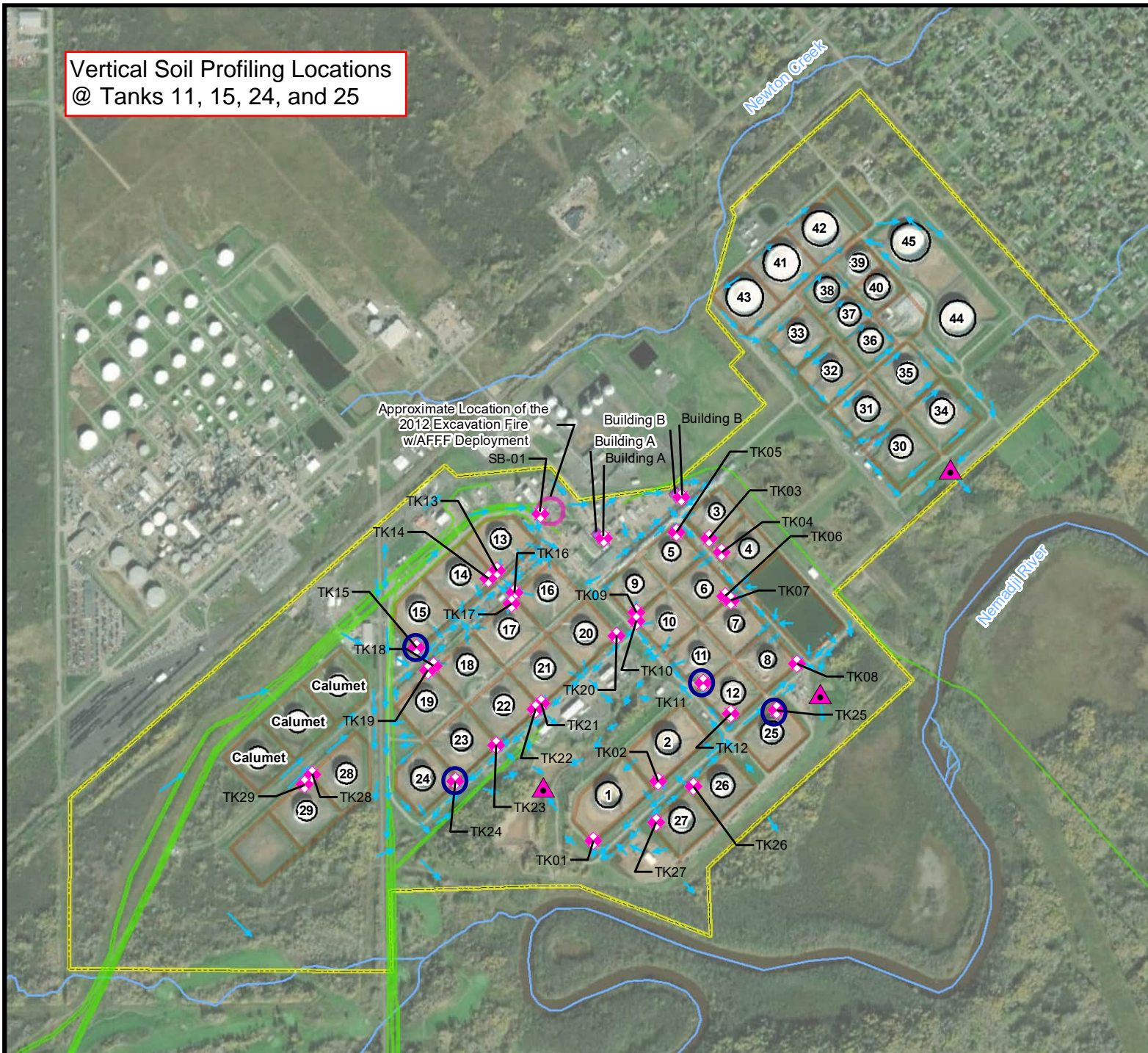
Company Name		Contact Person Last Name	First Name	
AECOM		Linnemanstons	Leo	
Address		City	State	ZIP Code
1350 Deming Way, Suite 100		Middleton	WI	53562
Phone # (inc. area code)	Email			
(608) 828-8208	leo.linnemanstons@aecom.com			

Select which agency: Natural Resources Agriculture, Trade and Consumer Protection

State of Wisconsin Department of Natural Resources

Contact Person Last Name	First Name	Phone # (inc. area code)		
Sager	John	(715) 919-7239		
Address	City	State	ZIP Code	
1701 North 4th Street	Superior	WI	54880	
Email				
john.sager@wisconsin.gov				

Vertical Soil Profiling Locations
@ Tanks 11, 15, 24, and 25



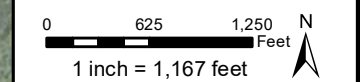
Vertical Soil Profile Samples

Enbridge Energy Superior Terminal
2800 East 21st Street
Superior, Wisconsin

Legend

- Sample location
- WPDES Outfalls
- Containment Berm
- Surface Flow Direction
- Storage Tank
- Enbridge Pipelines
- Terminal Property Boundary
- Rivers/Streams

Sample Locations



Prepared by:



200 Indiana Avenue
Stevens Point WI, USA
www.AECOM.com

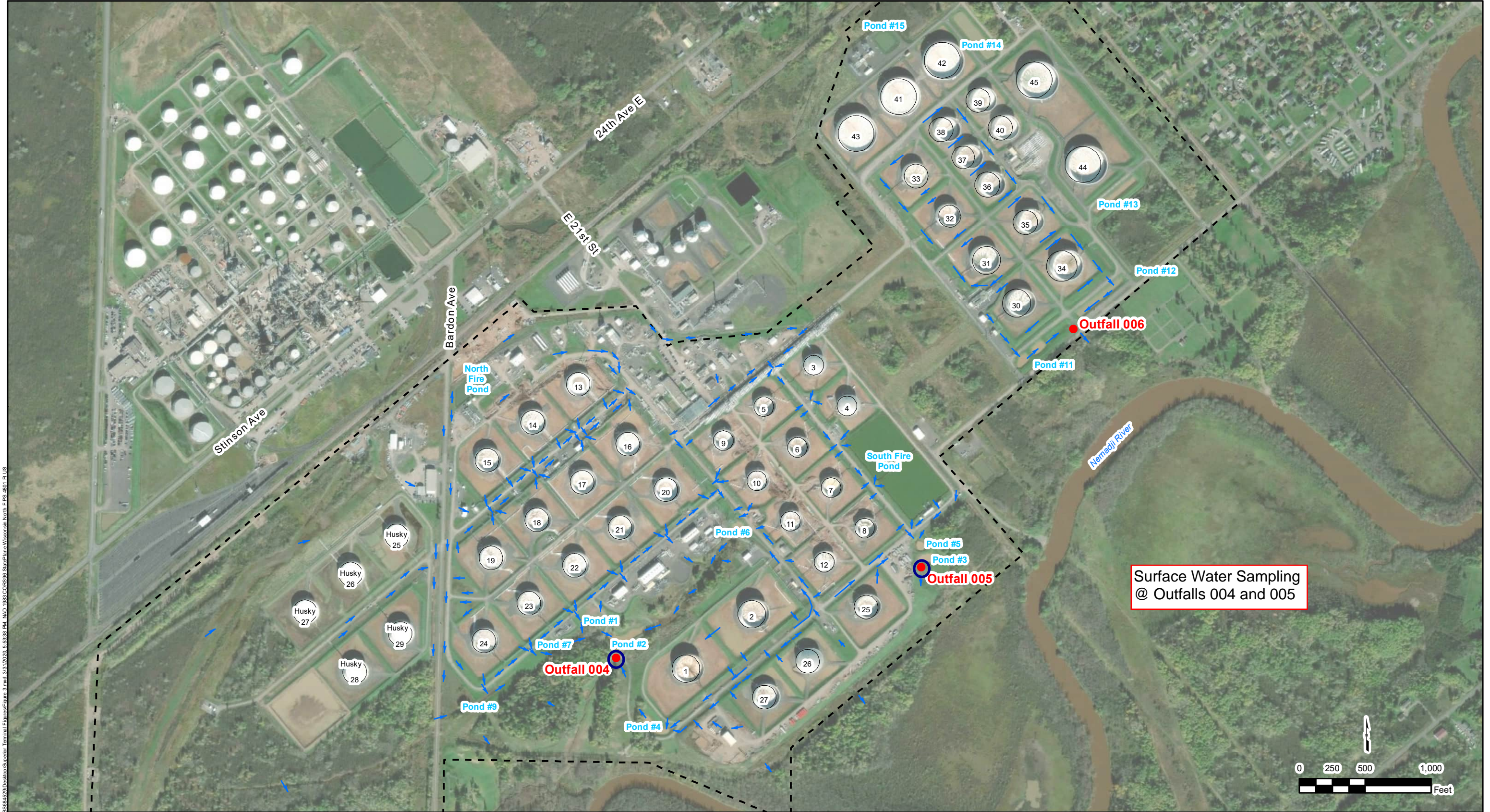
Drawn: AA 10/28/2022

Approved: CS 10/28/2022

Scale: 1:14,000

Project No: 60683192

Figure No: 1



Surface Water Sampling
@ Outfalls 004 and 005

- Outfall Location
- ➔ Surface Flow Direction
- Superior Terminal Property Boundary

○ Sample Locations

Drawn: 3/31/2020
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, City of Superior 2008, 1 ft. LIDAR DEM

	<p>WSP USA Inc. 302 W SUPERIOR ST SUITE 70 DULUTH, MN 55802 TEL: +1 218 336 2285</p>	<p>SUPERIOR TERMINAL SUPERIOR, WI PREPARED ON BEHALF OF ENBRIDGE ENERGY, LIMITED PARTNERSHIP</p>	<p>FIGURE 2</p>
	<p>SURFACE WATER SAMPLING LOCATIONS</p>		

WSP Office - Duluth, MN - Source: C:\Users\juss68452\Desktop\Superior Terminal\Figures\Figure 3.mxd, 3/31/2020, 4:55:38 PM, NAD_1983_CORS98_StatePlane_Wisconsin_North_FIPS_4901_Ft_US

PFAS Soil Boring Results
Enbridge Superior Terminal (BRRTS# 02-16-589282)
Superior, Wisconsin

				Tank 11 Containment Berm Area					Tank 15 Containment Berm Area - Soil Boring SB01				NR 720 Residual Contaminant Levels		
				0-1 ft	1-2 ft	2-3 ft	2-3 ft	3-4 ft	0-1 ft	1-2 ft	2-3 ft	3-4 ft	Non-Industrial Direct Contact	Industrial Direct Contact	Soil to Groundwater Pathway
Field ID:				PR-TK11-SB01 (0-1)	PR-TK11-SB01 (1-2)	PR-TK11-SB01 (2-3)	PR-TK11-SB01 (2-3)-Dup	PR-TK11-SB01 (3-4)	PR-TK15-SB01 (0-1)	PR-TK15-SB01 (1-2)	PR-TK15-SB01 (2-3)	PR-TK15-SB01 (3-4)			
Sample Date:				7/10/2023	7/10/2023	7/10/2023	7/10/2023	7/10/2023	7/10/2023	7/10/2023	7/10/2023	7/10/2023	7/10/2023		
Abbr	Analyte	Cas Number	Units												
Carboxylic Acids:															
PFBA	Perfluorobutanoic acid	375-22-4	ug/kg	0.59	0.13	0.038 J	0.039 J	0.48	1.2	0.55	0.27	0.050 J	--	--	--
PFPeA	Perfluoropentanoic acid	2706-90-3	ug/kg	3.4	0.76	0.22	0.23	0.31	8.2	4.3	1.9	0.31	--	--	--
PFHxA	Perfluorohexanoic acid	307-24-4	ug/kg	1.4	0.27	0.11 J	0.11 J	0.20	3.4	2.3	1.1	0.18	--	--	--
PFHpA	Perfluoroheptanoic acid	375-85-9	ug/kg	0.53	0.13 J	< 0.045	< 0.045	0.047 J	0.83	0.44	0.14	< 0.048	--	--	--
PFOA	Perfluorooctanoic acid	335-67-1	ug/kg	0.49	< 0.10 U	< 0.041	< 0.041	< 0.051 U	1.0	0.40	< 0.073 U	< 0.043	1,260	16,400	--
PFNA	Perfluorononanoic acid	375-95-1	ug/kg	0.27	0.055 J	< 0.041	< 0.041	< 0.040	0.71	0.30	0.062 J	< 0.043	--	--	--
PFDA	Perfluorodecanoic acid	335-76-2	ug/kg	1.1	0.18	< 0.030	< 0.030	< 0.029	0.74	0.038 J	< 0.032	< 0.031	--	--	--
PFUnA	Perfluoroundecanoic acid	2058-94-8	ug/kg	1.8	0.10 J	< 0.039	< 0.039	< 0.039	1.4	0.055 J	< 0.042	< 0.041	--	--	--
PFDoA	Perfluorododecanoic acid	307-55-1	ug/kg	2.1	0.059 J	< 0.043	< 0.043	< 0.042	0.19	< 0.046	< 0.046	< 0.045	--	--	--
PFTTrDA	Perfluorotridecanoic acid	72629-94-8	ug/kg	0.53	< 0.042	< 0.042	< 0.042	< 0.041	1.5	0.057 J	< 0.044	< 0.044 UJ	--	--	--
PFTeDA	Perfluorotetradecanoic acid	376-06-7	ug/kg	0.34	< 0.045	< 0.045	< 0.045	< 0.044	0.061 J	< 0.048	< 0.048	< 0.047 UJ	--	--	--
PFHxDA	Perfluorohexadecanoic acid	67905-19-5	ug/kg	0.088 R	< 0.035	< 0.035	< 0.035 UJ	< 0.034	0.16 R	< 0.037	< 0.037	0.23 R	--	--	--
PFODA	Perfluorooctadecanoic acid	16517-11-6	ug/kg	< 0.041	< 0.043	< 0.043	< 0.043	< 0.042	0.061 J	< 0.046	< 0.045	0.095 J	--	--	--
Sulfonic Acids:															
PFBS	Perfluorobutanesulfonic acid	375-73-5	ug/kg	< 0.033	< 0.034	< 0.034	< 0.034	< 0.034	0.088 J	0.058 J	0.044 J	< 0.036	1,260,000	16,400,000	--
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4	ug/kg	0.064 J	< 0.031	< 0.031	< 0.031	< 0.031	0.041 J	0.048 J	< 0.033	< 0.033	--	--	--
PFHxS	Perfluorohexanesulfonic acid	355-46-4	ug/kg	1.6	0.43	0.28	0.29	0.27	0.39	0.33	0.095 J	< 0.030	--	--	--
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	ug/kg	0.13	< 0.036	< 0.036	< 0.036	< 0.036	< 0.037	< 0.039	< 0.039	< 0.038	--	--	--
PFOS	Perfluorooctanesulfonic acid	1763-23-1	ug/kg	50.5	14.9	4.4	4.5	0.68	8.8	0.72	0.055 J	< 0.041	1,260	16,400	--
PFNS	Perfluorononanesulfonic acid	68259-12-1	ug/kg	0.84	0.13	0.055 J	0.055 J	< 0.044	0.088 J	< 0.049	< 0.048	< 0.048	--	--	--
PFDS	Perfluorodecanesulfonic acid	335-77-3	ug/kg	1.5	0.069 J	< 0.037	< 0.037	< 0.036	< 0.037	< 0.039	< 0.039	< 0.039	--	--	--
PFDoS	Perfluorododecanesulfonic acid	79780-39-5	ug/kg	1.7	0.058 J	< 0.034	< 0.034	< 0.033	< 0.034	< 0.037	< 0.036	< 0.036	--	--	--
4:2 FTS	4:2 Fluorotelomer Sulfonic Acid	757124-72-4	ug/kg	< 0.029	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.032	< 0.032	< 0.032	--	--	--
6:2 FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	ug/kg	5.6	0.24	< 0.054	< 0.054	0.070 J	4.0	3.4	1.7	0.28	--	--	--
8:2 FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	ug/kg	8.7	0.30	< 0.057	< 0.057	< 0.056	1.9	0.097 J	< 0.061	< 0.060	--	--	--
10:2 FTS	10:2 Fluorotelomer Sulfonic Acid	120226-60-0	ug/kg	21.5	0.53	0.066 J	0.069 J	< 0.057	2.2	0.14	< 0.061	< 0.061	--	--	--
Sulfonamides, Sulfonamideacetic acids, Sulfonamidoethanols:															
PFOSA	Perfluorooctane sulfonamide	754-91-6	ug/kg	1.9	0.53	< 0.038	< 0.038	< 0.038	< 0.039	< 0.041	< 0.041	< 0.040	--	--	--
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8	ug/kg	0.072 R	< 0.036 R	< 0.036 R	< 0.035 R	< 0.035 R	< 0.036 R	< 0.038 R	< 0.038 R	< 0.037 R	--	--	--
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2	ug/kg	< 0.032 R	< 0.033 R	< 0.033 R	< 0.033 R	< 0.033 R	< 0.034 R	< 0.036 R	< 0.036 R	< 0.035 R	--	--	--
MeFOSAA	N-Methylperfluorooctanesulfonamidoacetic acid	2355-31-9	ug/kg	0.094 J	< 0.037	< 0.037	< 0.037	< 0.036	< 0.037	< 0.039	< 0.039	< 0.039	--	--	--
EtFOSAA	N-Ethylperfluorooctanesulfonamidoacetic acid	2991-50-6	ug/kg	< 0.051	< 0.053	< 0.053	< 0.052	< 0.051	< 0.053	< 0.056	< 0.056	< 0.055	--	--	--
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7	ug/kg	< 0.038	< 0.040	< 0.040	< 0.040	< 0.039	< 0.040	< 0.042 R	< 0.042 R	< 0.042 R	--	--	--
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2	ug/kg	< 0.041	< 0.042	< 0.042	< 0.042	< 0.041	< 0.042	< 0.045 R	< 0.045 R	< 0.044 R	--	--	--
Replacement Chemicals:															
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6	ug/kg	< 0.035	< 0.036	< 0.036	< 0.036	< 0.036	< 0.037	< 0.039	< 0.039	< 0.038	--	--	--
DONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4	ug/kg	< 0.046	< 0.047	< 0.047	< 0.047	< 0.046	< 0.048	< 0.051	< 0.050	< 0.050	--	--	--
9Cl-PF3ONS	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	756426-58-1	ug/kg	< 0.032	< 0.033	< 0.033	< 0.033	< 0.032	< 0.033	< 0.035	< 0.035	< 0.034	--	--	--
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9	ug/kg	< 0.032	< 0.033	< 0.033	< 0.033	< 0.032	< 0.033	< 0.035	< 0.035	< 0.035	--	--	--

Note:
 ug/kg - micrograms per kilogram.
 J - Estimated concentration (+/- indicate the direction of bias).
 R - Rejected due to severe deficiencies in meeting QC criteria.
 U - Qualified nondetect due to contamination
 Non-detects reported as < MDL.

NR 720 Residual Contaminant Levels, per December 2018 RCL spreadsheet, WDNR.

PFAS Soil Boring Results
Enbridge Superior Terminal (BRRS# 02-16-589282)
Superior, Wisconsin

Field ID: Sample Date:				Tank 24 Containment Berm Area - Soil Boring SB01					Tank 25 Containment Berm Area - Soil Boring SB01				NR 720 Residual Contaminant Levels		
				0-1 ft	0-1 ft	1-2 ft	2-3 ft	3-4 ft	0-1 ft	1-2 ft	2-3 ft	3-4 ft			
				PR-TK24-SB01 (0-1) 7/10/2023	PR-TK24-SB01 (0-1)-Dup 7/10/2023	PR-TK24-SB01 (1-2) 7/10/2023	PR-TK24-SB01 (2-3) 7/10/2023	PR-TK24-SB01 (3-4) 7/10/2023	PR-TK25-SB01 (0-1) 7/10/2023	PR-TK25-SB01 (1-2) 7/10/2023	PR-TK25-SB01 (2-3) 7/10/2023	PR-TK25-SB01 (3-4) 7/10/2023	Non-Industrial Direct Contact	Industrial Direct Contact	Soil to Groundwater Pathway
Abbr	Analyte	Cas Number	Units												
Carboxylic Acids:															
PFBA	Perfluorobutanoic acid	375-22-4	ug/kg	0.55	0.53	0.091 J	0.043 J	0.045 J	0.36	0.51	0.37	0.26	--	--	--
PFPeA	Perfluoropentanoic acid	2706-90-3	ug/kg	2.4	2.4	0.63	0.22	0.11 J	1.8	1.9	1.9	1.1	--	--	--
PFHxA	Perfluorohexanoic acid	307-24-4	ug/kg	1.2	1.3	0.36	0.096 J	0.061 J	1.2	1.5	1.9	1.4	--	--	--
PFHpA	Perfluoroheptanoic acid	375-85-9	ug/kg	0.69	0.70	0.12 J	< 0.045	< 0.047	0.25	0.23	0.22	0.14	--	--	--
PFOA	Perfluorooctanoic acid	335-67-1	ug/kg	0.76	0.84	0.11 J	< 0.041	< 0.042	0.32	0.38	0.42	0.26	1,260	16,400	--
PFNA	Perfluorononanoic acid	375-95-1	ug/kg	0.55	0.52	0.065 J	< 0.041	< 0.042	0.11 J	0.11 J	< 0.041	< 0.042	--	--	--
PFDA	Perfluorodecanoic acid	335-76-2	ug/kg	0.53	0.50	< 0.030	< 0.030	< 0.031	0.26	0.053 J	< 0.030	< 0.031	--	--	--
PFUnA	Perfluoroundecanoic acid	2058-94-8	ug/kg	2.1	1.8	< 0.040	< 0.039	< 0.041	0.47	0.084 J	< 0.040	< 0.041	--	--	--
PFDoA	Perfluorododecanoic acid	307-55-1	ug/kg	0.070 J	0.11 J	< 0.044	< 0.043	< 0.045	0.60	< 0.042	< 0.043	< 0.044	--	--	--
PFTTrDA	Perfluorotridecanoic acid	72629-94-8	ug/kg	0.34 J	0.81 J	< 0.042	< 0.042	< 0.043	1.5	0.058 J	< 0.042	< 0.043	--	--	--
PFTeDA	Perfluorotetradecanoic acid	376-06-7	ug/kg	< 0.045	< 0.045	< 0.045	< 0.045	< 0.047	0.25	< 0.044	< 0.045	< 0.046	--	--	--
PFHxDA	Perfluorohexadecanoic acid	67905-19-5	ug/kg	< 0.035	< 0.035	< 0.035	< 0.035	< 0.036	0.10 J+	< 0.034	< 0.035	< 0.036	--	--	--
PFODA	Perfluorooctadecanoic acid	16517-11-6	ug/kg	< 0.043	< 0.043	< 0.043	< 0.043	< 0.045	< 0.043	< 0.042	< 0.043	< 0.044	--	--	--
Sulfonic Acids:															
PFBS	Perfluorobutanesulfonic acid	375-73-5	ug/kg	0.039 J	0.038 J	< 0.035	0.035 J	< 0.036	0.12	0.18	0.31	0.29	1,260,000	16,400,000	--
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4	ug/kg	0.058 J	0.061 J	0.032 J	< 0.031	< 0.033	0.20	0.27	0.45	0.36	--	--	--
PFHxS	Perfluorohexanesulfonic acid	355-46-4	ug/kg	0.96	0.97	0.27	0.036 J	< 0.030	2.0	3.0	4.2	2.8	--	--	--
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	ug/kg	0.087 J	0.082 J	< 0.037	< 0.036	< 0.038	0.10 J	0.20	0.16	0.046 J	--	--	--
PFOS	Perfluorooctanesulfonic acid	1763-23-1	ug/kg	35.0	26.3	0.40	0.075 J	0.069 J	17.6	23.8	7.5	0.90	1,260	16,400	--
PFNS	Perfluorononanesulfonic acid	68259-12-1	ug/kg	0.16	0.16	< 0.046	< 0.045	< 0.047	0.095 J	0.046 J	< 0.046	< 0.047	--	--	--
PFDS	Perfluorodecanesulfonic acid	335-77-3	ug/kg	0.052 J	0.066 J	< 0.037	< 0.037	< 0.038	0.19	< 0.036	< 0.037	< 0.038	--	--	--
PFDoS	Perfluorododecanesulfonic acid	79780-39-5	ug/kg	< 0.035	< 0.035	< 0.035	< 0.034	< 0.036	0.21	< 0.033	< 0.034	< 0.035	--	--	--
4:2 FTS	4:2 Fluorotelomer Sulfonic Acid	757124-72-4	ug/kg	< 0.031	< 0.031	< 0.031	< 0.030	< 0.031	< 0.030	< 0.029	< 0.030	< 0.031	--	--	--
6:2 FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	ug/kg	< 0.055	0.072 J	< 0.055	< 0.054	< 0.056	3.4	3.8	2.6	0.35	--	--	--
8:2 FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	ug/kg	0.23 J-	0.34 J-	< 0.058	< 0.057	< 0.060	1.2	< 0.056	< 0.058	< 0.059	--	--	--
10:2 FTS	10:2 Fluorotelomer Sulfonic Acid	120226-60-0	ug/kg	0.42	0.54	< 0.058	0.059 J	< 0.060	6.8	0.078 J	< 0.058	< 0.060	--	--	--
Sulfonamides, Sulfonamideacetic acids, Sulfonamidoethanols:															
PFOSA	Perfluorooctane sulfonamide	754-91-6	ug/kg	0.13	0.10 J	< 0.039	< 0.038	< 0.040	0.33	0.24	< 0.039	< 0.040	--	--	--
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8	ug/kg	< 0.036 R	< 0.036 R	< 0.036 R	< 0.035 R	< 0.037 R	< 0.036 R	< 0.035 R	< 0.036 R	< 0.037 R	--	--	--
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2	ug/kg	< 0.034 R	< 0.034 R	< 0.034 R	< 0.033 R	< 0.035 R	< 0.034 R	< 0.033 R	< 0.034 R	< 0.035 R	--	--	--
MeFOSAA	N-Methylperfluorooctanesulfonamideacetic acid	2355-31-9	ug/kg	< 0.037	< 0.037	< 0.037	< 0.037	< 0.038	< 0.037	< 0.036	< 0.037	< 0.038	--	--	--
EtFOSAA	N-Ethylperfluorooctanesulfonamideacetic acid	2991-50-6	ug/kg	< 0.053	< 0.053	< 0.053	< 0.052	< 0.055	< 0.053	< 0.051	< 0.053	< 0.054	--	--	--
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7	ug/kg	< 0.040	< 0.040	< 0.040	< 0.040	< 0.041	< 0.040	< 0.039	< 0.040	< 0.041	--	--	--
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2	ug/kg	< 0.043	< 0.043	< 0.043	< 0.042	< 0.044	< 0.042	< 0.041	< 0.042	< 0.043	--	--	--
Replacement Chemicals:															
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6	ug/kg	< 0.037	< 0.037	< 0.037	< 0.036	< 0.038	< 0.037	< 0.035	< 0.037	< 0.037	--	--	--
DONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4	ug/kg	< 0.048	< 0.048	< 0.048	< 0.047	< 0.049	< 0.048	< 0.046	< 0.048	< 0.049	--	--	--
9Cl-PF3ONS	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	756426-58-1	ug/kg	< 0.033	< 0.033	< 0.033	< 0.033	< 0.034	< 0.033	< 0.032	< 0.033	< 0.034	--	--	--
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9	ug/kg	< 0.034	< 0.034	< 0.033	< 0.033	< 0.034	< 0.033	< 0.032	< 0.033	< 0.034	--	--	--

Note:
ug/kg - micrograms per kilogram.
J - Estimated concentration (+/- indicate the direction of bias).
R - Rejected due to severe deficiencies in meeting QC criteria.
U - Qualified nondetect due to contamination
Non-detects reported as < MDL.

NR 720 Residual Contaminant Levels, per December 2018 RCL spreadsheet, WDNR.

Table 2

PFAS Surface Water Results
 Enbridge Superior Terminal (BRRTS# 02-16-589282)
 Superior, Wisconsin

					Pond #2 - Outfall 004	Pond #3 - Outfall 005	Pond #3 - Outfall 005 Duplicate
					PR-PD02- SW01	PR-PD03- SW01	PR-PD03- SW01-DUP
					7/11/2023	7/11/2023	7/11/2023
Abbr	Analyte	Cas Number	Units	NR102.04 ⁽¹⁾			
Carboxylic Acids:							
PFBA	Perfluorobutanoic acid	375-22-4	ng/L	--	44.0	43.7	48.0
PFPeA	Perfluoropentanoic acid	2706-90-3	ng/L	--	174	150	147
PFHxA	Perfluorohexanoic acid	307-24-4	ng/L	--	76.2	138	138
PFHpA	Perfluoroheptanoic acid	375-85-9	ng/L	--	31.7	38.2	37.7
PFOA	Perfluorooctanoic acid	335-67-1	ng/L	95 ⁽²⁾	30.9	51.6	50.0
PFNA	Perfluorononanoic acid	375-95-1	ng/L	--	8.6	12.4	12.1
PFDA	Perfluorodecanoic acid	335-76-2	ng/L	--	2.7	6.4	6.4
PFUnA	Perfluoroundecanoic acid	2058-94-8	ng/L	--	6.5 J-	6.5 J-	6.7
PFDoA	Perfluorododecanoic acid	307-55-1	ng/L	--	< 0.48	< 0.47	< 0.47
PFTrDA	Perfluorotridecanoic acid	72629-94-8	ng/L	--	< 0.62	< 0.61	< 0.61
PFTeDA	Perfluorotetradecanoic acid	376-06-7	ng/L	--	< 0.59	< 0.58	< 0.59
PFHxDA	Perfluorohexadecanoic acid	67905-19-5	ng/L	--	< 0.45	< 0.44	< 0.44
PFODA	Perfluorooctadecanoic acid	16517-11-6	ng/L	--	< 0.61	< 0.60	< 0.60
Sulfonic Acids:							
PFBS	Perfluorobutanesulfonic acid	375-73-5	ng/L	--	3.9	17.4	17.4
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4	ng/L	--	3.2	24.5	24.7
PFHxS	Perfluorohexanesulfonic acid	355-46-4	ng/L	--	36.9	249	262
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	ng/L	--	0.96 J	10.2	10
PFOS	Perfluorooctanesulfonic acid	1763-23-1	ng/L	8	65.9	683	671
PFNS	Perfluorononanesulfonic acid	68259-12-1	ng/L	--	< 0.58	2.5	2.5
PFDS	Perfluorodecanesulfonic acid	335-77-3	ng/L	--	< 0.63	0.69 J	0.77 J
PFDoS	Perfluorododecanesulfonic acid	79780-39-5	ng/L	--	< 0.59	< 0.58	< 0.58
4:2 FTS	4:2 Fluorotelomer Sulfonic Acid	757124-72-4	ng/L	--	< 0.46	< 0.45	< 0.46
6:2 FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	ng/L	--	47.9 J-	78.6 J-	79.9 J-
8:2 FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	ng/L	--	3.7 J-	11.7 J-	11.4 J-
10:2 FTS	10:2 Fluorotelomer Sulfonic Acid	120226-60-0	ng/L	--	< 0.91	0.97 J	0.94 J
Sulfonamides, Sulfomidoacetic acids, Sulfonamidoethanols:							
PFOSA	Perfluorooctane sulfonamide	754-91-6	ng/L	--	< 0.71	5.4	4.8
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8	ng/L	--	< 0.55	< 0.54	< 0.54 R
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2	ng/L	--	< 0.57	< 0.56	< 0.56 R
MeFOSAA	N-Methylperfluorooctanesulfonamidoacetic acid	2355-31-9	ng/L	--	< 0.69	< 0.68	< 0.68
EtFOSAA	N-Ethylperfluorooctanesulfonamidoacetic acid	2991-50-6	ng/L	--	< 0.81	< 0.79	< 0.80
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7	ng/L	--	< 0.52	< 0.51	< 0.51
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2	ng/L	--	< 0.88	< 0.87	< 0.87
Replacement Chemicals:							
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6	ng/L	--	< 0.49	< 0.48	< 0.48
DONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4	ng/L	--	< 0.91	< 0.89	< 0.90
9Cl-PF3ONS	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	756426-58-1	ng/L	--	< 0.47	< 0.46	< 0.46
11Cl-PF3OUs	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9	ng/L	--	< 0.55	< 0.54	< 0.54

Note:
 ng/L - nanograms per liter.
 J - Estimated concentration (+/- indicate the direction of bias).
 R - Rejected due to serious deficiencies in meeting QC criteria.
 Non-detects reported as < LOD.

(1) Surface water quality criteria (SWQC) as listed in Water Quality Standards For Wisconsin Surface Waters under Chapter NR102.04, WAC.

(2) Because surface water from the site discharges to the Nemadji River, the SWQC for PFOA is 95 ng/L, which is for surface waters not classified as public water supplies under Chapter NR104, WAC.

Table 3

PFAS Field QC Blank Results
 Enbridge Superior Terminal (BRRS# 02-16-589282)
 Superior, Wisconsin

				Soil QC	--	Water QC
				Equipment Blank	Field Blank	Equipment Blank
				Field ID: PR-ERB-01-07102023	PR-FRB-01-07112023	PR-ERB-02-07112023
				Sample Date: 7/10/2023	7/11/2023	7/11/2023
Abbr	Analyte	Cas Number	Units			
Carboxylic Acids:						
PFBA	Perfluorobutanoic acid	375-22-4	ng/L	2.0 J	< 0.49	< 0.49
PFPeA	Perfluoropentanoic acid	2706-90-3	ng/L	< 0.90	< 0.81	< 0.81
PFHxA	Perfluorohexanoic acid	307-24-4	ng/L	6.7	< 0.90	< 0.90
PFHpA	Perfluoroheptanoic acid	375-85-9	ng/L	2.8	< 0.68	< 0.68
PFOA	Perfluorooctanoic acid	335-67-1	ng/L	21.2	< 0.85	< 0.85
PFNA	Perfluorononanoic acid	375-95-1	ng/L	1.3 J	< 0.79	< 0.78
PFDA	Perfluorodecanoic acid	335-76-2	ng/L	4.5	< 0.60	< 0.60
PFUnA	Perfluoroundecanoic acid	2058-94-8	ng/L	< 0.53	< 0.48	< 0.48
PFDoA	Perfluorododecanoic acid	307-55-1	ng/L	0.75 J	< 0.47	< 0.47
PFTriDA	Perfluorotridecanoic acid	72629-94-8	ng/L	< 0.68	< 0.62	< 0.61
PFTeDA	Perfluorotetradecanoic acid	376-06-7	ng/L	< 0.66	< 0.59	< 0.59
PFHxDA	Perfluorohexadecanoic acid	67905-19-5	ng/L	< 0.49	< 0.45	< 0.44
PFODA	Perfluorooctadecanoic acid	16517-11-6	ng/L	< 0.67	< 0.61	< 0.61
Sulfonic Acids:						
PFBS	Perfluorobutanesulfonic acid	375-73-5	ng/L	0.79 J	< 0.48	< 0.48
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4	ng/L	< 0.66	< 0.59	< 0.59
PFHxS	Perfluorohexanesulfonic acid	355-46-4	ng/L	1.4 J	< 0.53	< 0.52
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	ng/L	< 0.73	< 0.66	< 0.66
PFOS	Perfluorooctanesulfonic acid	1763-23-1	ng/L	10.9	< 0.66	< 0.66
PFNS	Perfluorononanesulfonic acid	68259-12-1	ng/L	< 0.64	< 0.58	< 0.58
PFDS	Perfluorodecanesulfonic acid	335-77-3	ng/L	< 0.70	< 0.63	< 0.63
PFDoS	Perfluorododecanesulfonic acid	79780-39-5	ng/L	< 0.65	< 0.58	< 0.58
4:2 FTS	4:2 Fluorotelomer Sulfonic Acid	757124-72-4	ng/L	< 0.51	< 0.46	< 0.46
6:2 FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2	ng/L	8.0 J-	< 0.67	< 0.66
8:2 FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4	ng/L	1.1 J-	< 0.50	< 0.50
10:2 FTS	10:2 Fluorotelomer Sulfonic Acid	120226-60-0	ng/L	< 1.0	< 0.91	< 0.90
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols:						
PFOSA	Perfluorooctane sulfonamide	754-91-6	ng/L	< 0.78	< 0.71	< 0.71
NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8	ng/L	< 0.60	< 0.55	< 0.54
NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2	ng/L	< 0.63	< 0.57	< 0.57
MeFOSAA	N-Methylperfluorooctanesulfonamidoacetic acid	2355-31-9	ng/L	1.1 J	< 0.69	< 0.68
EtFOSAA	N-Ethylperfluorooctanesulfonamidoacetic acid	2991-50-6	ng/L	< 0.89	< 0.81	< 0.80
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7	ng/L	0.69 J	< 0.52	< 0.51
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2	ng/L	< 0.97	< 0.88	< 0.88
Replacement Chemicals:						
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6	ng/L	< 0.54	< 0.49	< 0.49
DONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4	ng/L	< 1.0	< 0.91	< 0.90
9Cl-PF3ONS	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	756426-58-1	ng/L	< 0.51	< 0.47	< 0.46
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9	ng/L	< 0.61	< 0.55	< 0.55

Note:
 ug/L - micrograms per liter.
 R - Rejected due to serious deficiencies in meeting QC criteria.
 Non-detects reported as < MDL.



August 21, 2023

Leo Linnemanstons
AECOM
1555 N. RiverCenter Drive
Ste. 214
Milwaukee, WI 53212

RE: Project: 60702913 Superior Terminal PFA
Pace Project No.: 10661127

Dear Leo Linnemanstons:

Enclosed are the analytical results for sample(s) received by the laboratory on July 12, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Minneapolis

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

Sincerely,

Tina Soltani
tina.soltani@pacelabs.com
(612) 607-6384
Project Manager

Enclosures

cc: Darin Albrecht, AECOM



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8 Tribal Water Systems+Wyoming DW

Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

GMP+ Certification #: GMP050884

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Approval: via MN 027-053-137

Minnesota Petrofund Registration #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification (A2LA) #: R-036

North Dakota Certification (MN) #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

USDA Permit #: P330-19-00208

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**SAMPLE SUMMARY**

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10661127001	PR-TK11-SB01 (0-1)	Solid	07/10/23 13:25	07/12/23 11:45
10661127002	PR-TK11-SB01 (1-2)	Solid	07/10/23 13:30	07/12/23 11:45
10661127003	PR-TK11-SB01 (2-3)	Solid	07/10/23 13:35	07/12/23 11:45
10661127004	PR-TK11-SB01 (2-3)-Dup	Solid	07/10/23 13:35	07/12/23 11:45
10661127005	PR-TK11-SB01 (3-4)	Solid	07/10/23 13:40	07/12/23 11:45
10661127006	PR-TK15-SB01 (0-1)	Solid	07/10/23 14:55	07/12/23 11:45
10661127007	PR-TK15-SB01 (1-2)	Solid	07/10/23 15:00	07/12/23 11:45
10661127008	PR-TK15-SB01 (2-3)	Solid	07/10/23 15:05	07/12/23 11:45
10661127009	PR-TK15-SB01 (3-4)	Solid	07/10/23 15:10	07/12/23 11:45
10661127010	PR-TK24-SB01 (0-1)-Dup	Solid	07/10/23 14:00	07/12/23 11:45
10661127011	PR-TK24-SB01 (0-1)-Dup	Solid	07/10/23 14:00	07/12/23 11:45
10661127012	PR-TK24-SB01 (1-2)	Solid	07/10/23 14:05	07/12/23 11:45
10661127013	PR-TK24-SB01 (2-3)	Solid	07/10/23 14:10	07/12/23 11:45
10661127014	PR-TK24-SB01 (3-4)	Solid	07/10/23 14:15	07/12/23 11:45
10661127015	PR-TK25-SB01 (0-1)	Solid	07/10/23 12:35	07/12/23 11:45
10661127016	PR-TK25-SB01 (1-2)	Solid	07/10/23 12:40	07/12/23 11:45
10661127017	PR-TK25-SB01 (2-3)	Solid	07/10/23 12:45	07/12/23 11:45
10661127018	PR-TK25-SB01 (3-4)	Solid	07/10/23 12:50	07/12/23 11:45
10661127019	PR-ERB-01-07102023	Water	07/10/23 13:15	07/12/23 11:45
10661127020	PR-FRB-01-07112023	Water	07/11/23 10:30	07/12/23 11:45

REPORT OF LABORATORY ANALYSIS

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**SAMPLE ANALYTE COUNT**

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10661127001	PR-TK11-SB01 (0-1)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ, NBH	61	PASI-M
10661127002	PR-TK11-SB01 (1-2)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ, NBH	61	PASI-M
10661127003	PR-TK11-SB01 (2-3)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ	61	PASI-M
10661127004	PR-TK11-SB01 (2-3)-Dup	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ	61	PASI-M
10661127005	PR-TK11-SB01 (3-4)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ	61	PASI-M
10661127006	PR-TK15-SB01 (0-1)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ	61	PASI-M
10661127007	PR-TK15-SB01 (1-2)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ	61	PASI-M
10661127008	PR-TK15-SB01 (2-3)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ	61	PASI-M
10661127009	PR-TK15-SB01 (3-4)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ	61	PASI-M
10661127010	PR-TK24-SB01 (0-1)-Dup	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ, NBH	61	PASI-M
10661127011	PR-TK24-SB01 (0-1)-Dup	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ, NBH	61	PASI-M
10661127012	PR-TK24-SB01 (1-2)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ	61	PASI-M
10661127013	PR-TK24-SB01 (2-3)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ	61	PASI-M
10661127014	PR-TK24-SB01 (3-4)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ	61	PASI-M
10661127015	PR-TK25-SB01 (0-1)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ, NBH	61	PASI-M
10661127016	PR-TK25-SB01 (1-2)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ, NBH	61	PASI-M
10661127017	PR-TK25-SB01 (2-3)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ	61	PASI-M
10661127018	PR-TK25-SB01 (3-4)	ASTM D2974	JDL	1	PASI-M
		ENV-SOP-MIN4-0178	MJ	61	PASI-M
10661127019	PR-ERB-01-07102023	ENV-SOP-MIN4-0178	NBH	61	PASI-M

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SAMPLE ANALYTE COUNT

Project: 60702913 Superior Terminal PFA
Pace Project No.: 10661127

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10661127020	PR-FRB-01-07112023	ENV-SOP-MIN4-0178	NBH	61	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

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SUMMARY OF DETECTION

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10661127001	PR-TK11-SB01 (0-1)					
ASTM D2974	Percent Moisture	23.4	%	0.10	08/08/23 13:49	N2
ENV-SOP-MIN4-0178	10:2 FTS	21.5	ug/kg	1.2	08/08/23 17:14	
ENV-SOP-MIN4-0178	6:2 FTS	5.6	ug/kg	0.12	08/04/23 00:26	
ENV-SOP-MIN4-0178	8:2 FTS	8.7	ug/kg	0.12	08/04/23 00:26	
ENV-SOP-MIN4-0178	NMeFOSAA	0.094J	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	NMeFOSA	0.072J	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	Perfluorodecanoic acid	1.1	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	1.4	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	PFBA	0.59	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	PFDS	1.5	ug/kg	0.12	08/04/23 00:26	
ENV-SOP-MIN4-0178	PFDoS	1.7	ug/kg	0.12	08/04/23 00:26	
ENV-SOP-MIN4-0178	PFHpS	0.13	ug/kg	0.12	08/04/23 00:26	
ENV-SOP-MIN4-0178	PFHxDA	0.088J	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	PFNS	0.84	ug/kg	0.12	08/04/23 00:26	
ENV-SOP-MIN4-0178	PFOSA	1.9	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	PFPeA	3.4	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	PFPeS	0.064J	ug/kg	0.12	08/04/23 00:26	
ENV-SOP-MIN4-0178	Perfluorododecanoic acid	2.1	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	0.53	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	1.6	ug/kg	0.12	08/04/23 00:26	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	0.27	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	50.5	ug/kg	1.2	08/08/23 17:14	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	0.49	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	Perfluorotetradecanoic acid	0.34	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	Perfluorotridecanoic acid	0.53	ug/kg	0.13	08/04/23 00:26	
ENV-SOP-MIN4-0178	Perfluoroundecanoic acid	1.8	ug/kg	0.13	08/04/23 00:26	
10661127002	PR-TK11-SB01 (1-2)					
ASTM D2974	Percent Moisture	25.3	%	0.10	08/08/23 13:50	N2
ENV-SOP-MIN4-0178	10:2 FTS	0.53	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	6:2 FTS	0.24	ug/kg	0.12	08/04/23 00:33	
ENV-SOP-MIN4-0178	8:2 FTS	0.30	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	Perfluorodecanoic acid	0.18	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	0.27	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	PFBA	0.13	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	PFDS	0.069J	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	PFDoS	0.058J	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	PFNS	0.13	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	PFOSA	0.53	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	PFPeA	0.76	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	Perfluorododecanoic acid	0.059J	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	0.13J	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	0.43	ug/kg	0.12	08/04/23 00:33	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	0.055J	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	14.9	ug/kg	0.61	08/08/23 17:21	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	0.10J	ug/kg	0.13	08/04/23 00:33	
ENV-SOP-MIN4-0178	Perfluoroundecanoic acid	0.10J	ug/kg	0.13	08/04/23 00:33	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10661127003	PR-TK11-SB01 (2-3)					
ASTM D2974	Percent Moisture	24.9	%	0.10	08/08/23 13:50	N2
ENV-SOP-MIN4-0178	10:2 FTS	0.066J	ug/kg	0.13	08/04/23 00:40	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	0.11J	ug/kg	0.13	08/04/23 00:40	
ENV-SOP-MIN4-0178	PFBA	0.038J	ug/kg	0.13	08/04/23 00:40	
ENV-SOP-MIN4-0178	PFNS	0.055J	ug/kg	0.13	08/04/23 00:40	
ENV-SOP-MIN4-0178	PFPeA	0.22	ug/kg	0.13	08/04/23 00:40	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	0.28	ug/kg	0.12	08/04/23 00:40	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	4.4	ug/kg	0.12	08/04/23 00:40	
10661127004	PR-TK11-SB01 (2-3)-Dup					
ASTM D2974	Percent Moisture	25.6	%	0.10	08/08/23 13:50	N2
ENV-SOP-MIN4-0178	10:2 FTS	0.069J	ug/kg	0.13	08/04/23 00:47	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	0.11J	ug/kg	0.13	08/04/23 00:47	
ENV-SOP-MIN4-0178	PFBA	0.039J	ug/kg	0.13	08/04/23 00:47	
ENV-SOP-MIN4-0178	PFNS	0.055J	ug/kg	0.13	08/04/23 00:47	
ENV-SOP-MIN4-0178	PFPeA	0.23	ug/kg	0.13	08/04/23 00:47	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	0.29	ug/kg	0.12	08/04/23 00:47	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	4.5	ug/kg	0.12	08/04/23 00:47	
10661127005	PR-TK11-SB01 (3-4)					
ASTM D2974	Percent Moisture	24.4	%	0.10	08/08/23 13:50	N2
ENV-SOP-MIN4-0178	6:2 FTS	0.070J	ug/kg	0.12	08/04/23 00:54	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	0.20	ug/kg	0.13	08/04/23 00:54	
ENV-SOP-MIN4-0178	PFBA	0.48	ug/kg	0.13	08/04/23 00:54	
ENV-SOP-MIN4-0178	PFPeA	0.31	ug/kg	0.13	08/04/23 00:54	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	0.047J	ug/kg	0.13	08/04/23 00:54	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	0.27	ug/kg	0.12	08/04/23 00:54	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	0.68	ug/kg	0.12	08/04/23 00:54	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	0.051J	ug/kg	0.13	08/04/23 00:54	
10661127006	PR-TK15-SB01 (0-1)					
ASTM D2974	Percent Moisture	26.5	%	0.10	08/08/23 13:51	N2
ENV-SOP-MIN4-0178	10:2 FTS	2.2	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	6:2 FTS	4.0	ug/kg	0.12	08/04/23 05:46	
ENV-SOP-MIN4-0178	8:2 FTS	1.9	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	0.088J	ug/kg	0.12	08/04/23 05:46	
ENV-SOP-MIN4-0178	Perfluorodecanoic acid	0.74	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	3.4	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	PFBA	1.2	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	PFHxDA	0.16	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	PFNS	0.088J	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	PFODA	0.061J	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	PFPeA	8.2	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	PFPeS	0.041J	ug/kg	0.12	08/04/23 05:46	
ENV-SOP-MIN4-0178	Perfluorododecanoic acid	0.19	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	0.83	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	0.39	ug/kg	0.12	08/04/23 05:46	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	0.71	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	8.8	ug/kg	0.12	08/04/23 05:46	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10661127006	PR-TK15-SB01 (0-1)					
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	1.0	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	Perfluorotetradecanoic acid	0.061J	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	Perfluorotridecanoic acid	1.5	ug/kg	0.13	08/04/23 05:46	
ENV-SOP-MIN4-0178	Perfluoroundecanoic acid	1.4	ug/kg	0.13	08/04/23 05:46	
10661127007	PR-TK15-SB01 (1-2)					
ASTM D2974	Percent Moisture	29.7	%	0.10	08/08/23 13:51	N2
ENV-SOP-MIN4-0178	10:2 FTS	0.14	ug/kg	0.14	08/04/23 05:53	
ENV-SOP-MIN4-0178	6:2 FTS	3.4	ug/kg	0.13	08/04/23 05:53	
ENV-SOP-MIN4-0178	8:2 FTS	0.097J	ug/kg	0.14	08/04/23 05:53	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	0.058J	ug/kg	0.12	08/04/23 05:53	
ENV-SOP-MIN4-0178	Perfluorodecanoic acid	0.038J	ug/kg	0.14	08/04/23 05:53	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	2.3	ug/kg	0.14	08/04/23 05:53	
ENV-SOP-MIN4-0178	PFBA	0.55	ug/kg	0.14	08/04/23 05:53	
ENV-SOP-MIN4-0178	PFPeA	4.3	ug/kg	0.14	08/04/23 05:53	
ENV-SOP-MIN4-0178	PFPeS	0.048J	ug/kg	0.13	08/04/23 05:53	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	0.44	ug/kg	0.14	08/04/23 05:53	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	0.33	ug/kg	0.13	08/04/23 05:53	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	0.30	ug/kg	0.14	08/04/23 05:53	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	0.72	ug/kg	0.13	08/04/23 05:53	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	0.40	ug/kg	0.14	08/04/23 05:53	
ENV-SOP-MIN4-0178	Perfluorotridecanoic acid	0.057J	ug/kg	0.14	08/04/23 05:53	
ENV-SOP-MIN4-0178	Perfluoroundecanoic acid	0.055J	ug/kg	0.14	08/04/23 05:53	
10661127008	PR-TK15-SB01 (2-3)					
ASTM D2974	Percent Moisture	30.4	%	0.10	08/08/23 13:51	N2
ENV-SOP-MIN4-0178	6:2 FTS	1.7	ug/kg	0.13	08/04/23 06:00	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	0.044J	ug/kg	0.12	08/04/23 06:00	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	1.1	ug/kg	0.14	08/04/23 06:00	
ENV-SOP-MIN4-0178	PFBA	0.27	ug/kg	0.14	08/04/23 06:00	
ENV-SOP-MIN4-0178	PFPeA	1.9	ug/kg	0.14	08/04/23 06:00	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	0.14	ug/kg	0.14	08/04/23 06:00	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	0.095J	ug/kg	0.13	08/04/23 06:00	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	0.062J	ug/kg	0.14	08/04/23 06:00	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	0.055J	ug/kg	0.13	08/04/23 06:00	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	0.073J	ug/kg	0.14	08/04/23 06:00	
10661127009	PR-TK15-SB01 (3-4)					
ASTM D2974	Percent Moisture	29.7	%	0.10	08/08/23 13:51	N2
ENV-SOP-MIN4-0178	6:2 FTS	0.28	ug/kg	0.13	08/04/23 06:08	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	0.18	ug/kg	0.14	08/04/23 06:08	
ENV-SOP-MIN4-0178	PFBA	0.050J	ug/kg	0.14	08/04/23 06:08	
ENV-SOP-MIN4-0178	PFHxDA	0.23	ug/kg	0.14	08/04/23 06:08	
ENV-SOP-MIN4-0178	PFODA	0.095J	ug/kg	0.14	08/04/23 06:08	
ENV-SOP-MIN4-0178	PFPeA	0.31	ug/kg	0.14	08/04/23 06:08	
10661127010	PR-TK24-SB01 (0-1)-Dup					
ASTM D2974	Percent Moisture	27.2	%	0.10	08/08/23 13:51	N2
ENV-SOP-MIN4-0178	10:2 FTS	0.42	ug/kg	0.13	08/04/23 06:22	

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SUMMARY OF DETECTION

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10661127010	PR-TK24-SB01 (0-1)-Dup					
ENV-SOP-MIN4-0178	8:2 FTS	0.23	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	0.039J	ug/kg	0.12	08/04/23 06:22	
ENV-SOP-MIN4-0178	Perfluorodecanoic acid	0.53	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	1.2	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	PFBA	0.55	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	PFDS	0.052J	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	PFHpS	0.087J	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	PFNS	0.16	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	PFOSA	0.13	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	PFPeA	2.4	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	PFPeS	0.058J	ug/kg	0.12	08/04/23 06:22	
ENV-SOP-MIN4-0178	Perfluorododecanoic acid	0.070J	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	0.69	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	0.96	ug/kg	0.12	08/04/23 06:22	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	0.55	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	35.0	ug/kg	1.2	08/08/23 17:28	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	0.76	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	Perfluorotridecanoic acid	0.34	ug/kg	0.13	08/04/23 06:22	
ENV-SOP-MIN4-0178	Perfluoroundecanoic acid	2.1	ug/kg	0.13	08/04/23 06:22	
10661127011	PR-TK24-SB01 (0-1)-Dup					
ASTM D2974	Percent Moisture	25.9	%	0.10	08/08/23 13:52	N2
ENV-SOP-MIN4-0178	10:2 FTS	0.54	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	6:2 FTS	0.072J	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	8:2 FTS	0.34	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	0.038J	ug/kg	0.12	08/04/23 06:29	
ENV-SOP-MIN4-0178	Perfluorodecanoic acid	0.50	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	1.3	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	PFBA	0.53	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	PFDS	0.066J	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	PFHpS	0.082J	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	PFNS	0.16	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	PFOSA	0.10J	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	PFPeA	2.4	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	PFPeS	0.061J	ug/kg	0.12	08/04/23 06:29	
ENV-SOP-MIN4-0178	Perfluorododecanoic acid	0.11J	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	0.70	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	0.97	ug/kg	0.12	08/04/23 06:29	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	0.52	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	26.3	ug/kg	1.2	08/08/23 17:43	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	0.84	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	Perfluorotridecanoic acid	0.81	ug/kg	0.13	08/04/23 06:29	
ENV-SOP-MIN4-0178	Perfluoroundecanoic acid	1.8	ug/kg	0.13	08/04/23 06:29	
10661127012	PR-TK24-SB01 (1-2)					
ASTM D2974	Percent Moisture	24.5	%	0.10	08/08/23 13:52	N2
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	0.36	ug/kg	0.13	08/04/23 06:37	
ENV-SOP-MIN4-0178	PFBA	0.091J	ug/kg	0.13	08/04/23 06:37	

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SUMMARY OF DETECTION

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
10661127012	PR-TK24-SB01 (1-2)					
ENV-SOP-MIN4-0178	PFPeA	0.63	ug/kg	0.13	08/04/23 06:37	
ENV-SOP-MIN4-0178	PFPeS	0.032J	ug/kg	0.12	08/04/23 06:37	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	0.12J	ug/kg	0.13	08/04/23 06:37	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	0.27	ug/kg	0.12	08/04/23 06:37	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	0.065J	ug/kg	0.13	08/04/23 06:37	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	0.40	ug/kg	0.12	08/04/23 06:37	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	0.11J	ug/kg	0.13	08/04/23 06:37	
10661127013	PR-TK24-SB01 (2-3)					
ASTM D2974	Percent Moisture	24.3	%	0.10	08/08/23 13:52	N2
ENV-SOP-MIN4-0178	10:2 FTS	0.059J	ug/kg	0.13	08/04/23 06:44	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	0.035J	ug/kg	0.12	08/04/23 06:44	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	0.096J	ug/kg	0.13	08/04/23 06:44	
ENV-SOP-MIN4-0178	PFBA	0.043J	ug/kg	0.13	08/04/23 06:44	
ENV-SOP-MIN4-0178	PFPeA	0.22	ug/kg	0.13	08/04/23 06:44	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	0.036J	ug/kg	0.12	08/04/23 06:44	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	0.075J	ug/kg	0.12	08/04/23 06:44	
10661127014	PR-TK24-SB01 (3-4)					
ASTM D2974	Percent Moisture	28.2	%	0.10	08/08/23 13:53	N2
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	0.061J	ug/kg	0.14	08/04/23 08:29	
ENV-SOP-MIN4-0178	PFBA	0.045J	ug/kg	0.14	08/04/23 08:29	
ENV-SOP-MIN4-0178	PFPeA	0.11J	ug/kg	0.14	08/04/23 08:29	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	0.069J	ug/kg	0.13	08/04/23 08:29	
10661127015	PR-TK25-SB01 (0-1)					
ASTM D2974	Percent Moisture	25.4	%	0.10	08/08/23 13:53	N2
ENV-SOP-MIN4-0178	10:2 FTS	6.8	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	6:2 FTS	3.4	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	8:2 FTS	1.2	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	0.12	ug/kg	0.12	08/04/23 08:36	
ENV-SOP-MIN4-0178	Perfluorodecanoic acid	0.26	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	1.2	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	PFBA	0.36	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	PFDS	0.19	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	PFDoS	0.21	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	PFHpS	0.10J	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	PFHxDA	0.10J	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	PFNS	0.095J	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	PFOSA	0.33	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	PFPeA	1.8	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	PFPeS	0.20	ug/kg	0.12	08/04/23 08:36	
ENV-SOP-MIN4-0178	Perfluorododecanoic acid	0.60	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	0.25	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	2.0	ug/kg	0.12	08/04/23 08:36	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	0.11J	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	17.6	ug/kg	0.61	08/08/23 17:50	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	0.32	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	Perfluorotetradecanoic acid	0.25	ug/kg	0.13	08/04/23 08:36	

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SUMMARY OF DETECTION

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10661127015	PR-TK25-SB01 (0-1)					
ENV-SOP-MIN4-0178	Perfluorotridecanoic acid	1.5	ug/kg	0.13	08/04/23 08:36	
ENV-SOP-MIN4-0178	Perfluoroundecanoic acid	0.47	ug/kg	0.13	08/04/23 08:36	
10661127016	PR-TK25-SB01 (1-2)					
ASTM D2974	Percent Moisture	23.9	%	0.10	08/08/23 13:53	N2
ENV-SOP-MIN4-0178	10:2 FTS	0.078J	ug/kg	0.12	08/04/23 08:43	
ENV-SOP-MIN4-0178	6:2 FTS	3.8	ug/kg	0.12	08/04/23 08:43	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	0.18	ug/kg	0.11	08/04/23 08:43	
ENV-SOP-MIN4-0178	Perfluorodecanoic acid	0.053J	ug/kg	0.13	08/04/23 08:43	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	1.5	ug/kg	0.13	08/04/23 08:43	
ENV-SOP-MIN4-0178	PFBA	0.51	ug/kg	0.13	08/04/23 08:43	
ENV-SOP-MIN4-0178	PFHpS	0.20	ug/kg	0.12	08/04/23 08:43	
ENV-SOP-MIN4-0178	PFNS	0.046J	ug/kg	0.12	08/04/23 08:43	
ENV-SOP-MIN4-0178	PFOSA	0.24	ug/kg	0.13	08/04/23 08:43	
ENV-SOP-MIN4-0178	PFPeA	1.9	ug/kg	0.13	08/04/23 08:43	
ENV-SOP-MIN4-0178	PFPeS	0.27	ug/kg	0.12	08/04/23 08:43	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	0.23	ug/kg	0.13	08/04/23 08:43	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	3.0	ug/kg	0.12	08/04/23 08:43	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	0.11J	ug/kg	0.13	08/04/23 08:43	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	23.8	ug/kg	1.2	08/08/23 17:57	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	0.38	ug/kg	0.13	08/04/23 08:43	
ENV-SOP-MIN4-0178	Perfluorotridecanoic acid	0.058J	ug/kg	0.13	08/04/23 08:43	
ENV-SOP-MIN4-0178	Perfluoroundecanoic acid	0.084J	ug/kg	0.13	08/04/23 08:43	
10661127017	PR-TK25-SB01 (2-3)					
ASTM D2974	Percent Moisture	25.9	%	0.10	08/08/23 13:53	N2
ENV-SOP-MIN4-0178	6:2 FTS	2.6	ug/kg	0.13	08/04/23 08:50	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	0.31	ug/kg	0.12	08/04/23 08:50	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	1.9	ug/kg	0.13	08/04/23 08:50	
ENV-SOP-MIN4-0178	PFBA	0.37	ug/kg	0.13	08/04/23 08:50	
ENV-SOP-MIN4-0178	PFHpS	0.16	ug/kg	0.13	08/04/23 08:50	
ENV-SOP-MIN4-0178	PFPeA	1.9	ug/kg	0.13	08/04/23 08:50	
ENV-SOP-MIN4-0178	PFPeS	0.45	ug/kg	0.12	08/04/23 08:50	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	0.22	ug/kg	0.13	08/04/23 08:50	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	4.2	ug/kg	0.12	08/04/23 08:50	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	7.5	ug/kg	0.12	08/04/23 08:50	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	0.42	ug/kg	0.13	08/04/23 08:50	
10661127018	PR-TK25-SB01 (3-4)					
ASTM D2974	Percent Moisture	28.6	%	0.10	08/08/23 13:53	N2
ENV-SOP-MIN4-0178	6:2 FTS	0.35	ug/kg	0.13	08/04/23 08:58	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	0.29	ug/kg	0.12	08/04/23 08:58	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	1.4	ug/kg	0.13	08/04/23 08:58	
ENV-SOP-MIN4-0178	PFBA	0.26	ug/kg	0.13	08/04/23 08:58	
ENV-SOP-MIN4-0178	PFHpS	0.046J	ug/kg	0.13	08/04/23 08:58	
ENV-SOP-MIN4-0178	PFPeA	1.1	ug/kg	0.13	08/04/23 08:58	
ENV-SOP-MIN4-0178	PFPeS	0.36	ug/kg	0.13	08/04/23 08:58	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	0.14	ug/kg	0.13	08/04/23 08:58	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	2.8	ug/kg	0.12	08/04/23 08:58	

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SUMMARY OF DETECTION

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10661127018	PR-TK25-SB01 (3-4)					
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	0.90	ug/kg	0.13	08/04/23 08:58	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	0.26	ug/kg	0.13	08/04/23 08:58	
10661127019	PR-ERB-01-07102023					
ENV-SOP-MIN4-0178	6:2 FTS	8.0	ng/L	2.1	08/05/23 16:37	
ENV-SOP-MIN4-0178	8:2 FTS	1.1J	ng/L	2.1	08/05/23 16:37	
ENV-SOP-MIN4-0178	NMeFOSAA	1.1J	ng/L	2.2	08/05/23 16:37	
ENV-SOP-MIN4-0178	NMeFOSE	0.69J	ng/L	2.2	08/05/23 16:37	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	0.79J	ng/L	1.9	08/05/23 16:37	
ENV-SOP-MIN4-0178	Perfluorodecanoic acid	4.5	ng/L	2.2	08/05/23 16:37	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	6.7	ng/L	2.2	08/05/23 16:37	
ENV-SOP-MIN4-0178	PFBA	2.0J	ng/L	2.2	08/05/23 16:37	
ENV-SOP-MIN4-0178	Perfluorododecanoic acid	0.75J	ng/L	2.2	08/05/23 16:37	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	2.8	ng/L	2.2	08/05/23 16:37	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	1.4J	ng/L	2.0	08/05/23 16:37	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	1.3J	ng/L	2.2	08/05/23 16:37	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	10.9	ng/L	2.0	08/05/23 16:37	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	21.2	ng/L	2.2	08/05/23 16:37	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK11-SB01 (0-1) Lab ID: 10661127001 Collected: 07/10/23 13:25 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	23.4	%	0.10	0.10	1		08/08/23 13:49		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	21.5	ug/kg	1.2	0.56	10	07/25/23 14:13	08/08/23 17:14	120226-60-0	
11CI-PF3OUdS	<0.032	ug/kg	0.12	0.032	1	07/25/23 14:13	08/04/23 00:26	763051-92-9	
4:2 FTS	<0.029	ug/kg	0.12	0.029	1	07/25/23 14:13	08/04/23 00:26	757124-72-4	
6:2 FTS	5.6	ug/kg	0.12	0.052	1	07/25/23 14:13	08/04/23 00:26	27619-97-2	
8:2 FTS	8.7	ug/kg	0.12	0.056	1	07/25/23 14:13	08/04/23 00:26	39108-34-4	
9CI-PF3ONS	<0.032	ug/kg	0.12	0.032	1	07/25/23 14:13	08/04/23 00:26	756426-58-1	
ADONA	<0.046	ug/kg	0.12	0.046	1	07/25/23 14:13	08/04/23 00:26	919005-14-4	
HFPO-DA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 00:26	13252-13-6	
NEtFOSAA	<0.051	ug/kg	0.13	0.051	1	07/25/23 14:13	08/04/23 00:26	2991-50-6	
NEtFOSA	<0.032	ug/kg	0.13	0.032	1	07/25/23 14:13	08/04/23 00:26	4151-50-2	
NEtFOSE	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 00:26	1691-99-2	
NMeFOSAA	0.094J	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:26	2355-31-9	
NMeFOSA	0.072J	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 00:26	31506-32-8	
NMeFOSE	<0.038	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 00:26	24448-09-7	
Perfluorobutanesulfonic acid	<0.033	ug/kg	0.11	0.033	1	07/25/23 14:13	08/04/23 00:26	375-73-5	
Perfluorodecanoic acid	1.1	ug/kg	0.13	0.029	1	07/25/23 14:13	08/04/23 00:26	335-76-2	
Perfluorohexanoic acid	1.4	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 00:26	307-24-4	
PFBA	0.59	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:26	375-22-4	
PFDS	1.5	ug/kg	0.12	0.036	1	07/25/23 14:13	08/04/23 00:26	335-77-3	
PFDoS	1.7	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 00:26	79780-39-5	
PFHpS	0.13	ug/kg	0.12	0.035	1	07/25/23 14:13	08/04/23 00:26	375-92-8	
PFHxDA	0.088J	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 00:26	67905-19-5	
PFNS	0.84	ug/kg	0.12	0.044	1	07/25/23 14:13	08/04/23 00:26	68259-12-1	
PFODA	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 00:26	16517-11-6	
PFOSA	1.9	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 00:26	754-91-6	
PFPeA	3.4	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:26	2706-90-3	
PFPeS	0.064J	ug/kg	0.12	0.030	1	07/25/23 14:13	08/04/23 00:26	2706-91-4	
Perfluorododecanoic acid	2.1	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 00:26	307-55-1	
Perfluoroheptanoic acid	0.53	ug/kg	0.13	0.044	1	07/25/23 14:13	08/04/23 00:26	375-85-9	
Perfluorohexanesulfonic acid	1.6	ug/kg	0.12	0.028	1	07/25/23 14:13	08/04/23 00:26	355-46-4	
Perfluorononanoic acid	0.27	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 00:26	375-95-1	
Perfluorooctanesulfonic acid	50.5	ug/kg	1.2	0.38	10	07/25/23 14:13	08/08/23 17:14	1763-23-1	
Perfluorooctanoic acid	0.49	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 00:26	335-67-1	
Perfluorotetradecanoic acid	0.34	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 00:26	376-06-7	
Perfluorotridecanoic acid	0.53	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 00:26	72629-94-8	
Perfluoroundecanoic acid	1.8	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 00:26	2058-94-8	
Surrogates									
13C2-PFDoA (S)	91	%	25-150		1	07/25/23 14:13	08/04/23 00:26		
13C2-PFTA (S)	64	%	25-150		1	07/25/23 14:13	08/04/23 00:26		
13C24:2FTS (S)	137	%	25-150		1	07/25/23 14:13	08/04/23 00:26		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK11-SB01 (0-1) Lab ID: 10661127001 Collected: 07/10/23 13:25 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	109	%	25-150		1	07/25/23 14:13	08/04/23 00:26		
13C28:2FTS (S)	140	%	25-150		1	07/25/23 14:13	08/04/23 00:26		
13C2PFHxDA (S)	6	%	25-150		1	07/25/23 14:13	08/04/23 00:26		S0
13C3-PFBS (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 00:26	375-73-5	
13C3-PFHxS (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 00:26	355-46-4	
13C3HFPO-DA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 00:26		
13C4-PFBA (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 00:26	375-22-4	
13C4-PFHpA (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 00:26	375-85-9	
13C5-PFHxA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 00:26	307-24-4	
13C5-PFPeA (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 00:26	2706-90-3	
13C6-PFDA (S)	93	%	25-150		1	07/25/23 14:13	08/04/23 00:26	335-76-2	
13C7-PFUdA (S)	96	%	25-150		1	07/25/23 14:13	08/04/23 00:26	2058-94-8	
13C8-PFOA (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 00:26	335-67-1	
13C8-PFOS (S)	71	%	25-150		1	07/25/23 14:13	08/04/23 00:26	1763-23-1	
13C8-PFOSA (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 00:26	754-91-6	
13C9-PFNA (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 00:26	375-95-1	
d3-MeFOSAA (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 00:26	2355-31-9	
d3-NMeFOSA (S)	6	%	10-150		1	07/25/23 14:13	08/04/23 00:26	31506-32-8	S0
d5-EtFOSAA (S)	104	%	25-150		1	07/25/23 14:13	08/04/23 00:26	2991-50-6	
d5-NEtFOSA (S)	7	%	10-150		1	07/25/23 14:13	08/04/23 00:26	4151-50-2	S0
d7-NMeFOSE (S)	50	%	10-150		1	07/25/23 14:13	08/04/23 00:26	24448-09-7	
d9-NEtFOSE (S)	59	%	10-150		1	07/25/23 14:13	08/04/23 00:26	1691-99-2	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK11-SB01 (1-2) Lab ID: 10661127002 Collected: 07/10/23 13:30 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	25.3	%	0.10	0.10	1		08/08/23 13:50		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	0.53	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 00:33	120226-60-0	
11CI-PF3OUdS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 00:33	763051-92-9	
4:2 FTS	<0.030	ug/kg	0.12	0.030	1	07/25/23 14:13	08/04/23 00:33	757124-72-4	
6:2 FTS	0.24	ug/kg	0.12	0.054	1	07/25/23 14:13	08/04/23 00:33	27619-97-2	
8:2 FTS	0.30	ug/kg	0.13	0.057	1	07/25/23 14:13	08/04/23 00:33	39108-34-4	
9CI-PF3ONS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 00:33	756426-58-1	
ADONA	<0.047	ug/kg	0.12	0.047	1	07/25/23 14:13	08/04/23 00:33	919005-14-4	
HFPO-DA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:33	13252-13-6	
NEtFOSAA	<0.053	ug/kg	0.13	0.053	1	07/25/23 14:13	08/04/23 00:33	2991-50-6	
NEtFOSA	<0.033	ug/kg	0.13	0.033	1	07/25/23 14:13	08/04/23 00:33	4151-50-2	
NEtFOSE	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 00:33	1691-99-2	
NMeFOSAA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 00:33	2355-31-9	
NMeFOSA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:33	31506-32-8	
NMeFOSE	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 00:33	24448-09-7	
Perfluorobutanesulfonic acid	<0.034	ug/kg	0.12	0.034	1	07/25/23 14:13	08/04/23 00:33	375-73-5	
Perfluorodecanoic acid	0.18	ug/kg	0.13	0.030	1	07/25/23 14:13	08/04/23 00:33	335-76-2	
Perfluorohexanoic acid	0.27	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:33	307-24-4	
PFBA	0.13	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 00:33	375-22-4	
PFDS	0.069J	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 00:33	335-77-3	
PFDoS	0.058J	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 00:33	79780-39-5	
PFHpS	<0.036	ug/kg	0.12	0.036	1	07/25/23 14:13	08/04/23 00:33	375-92-8	
PFHxDA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 00:33	67905-19-5	
PFNS	0.13	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 00:33	68259-12-1	
PFODA	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 00:33	16517-11-6	
PFOSA	0.53	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 00:33	754-91-6	
PFPeA	0.76	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 00:33	2706-90-3	
PFPeS	<0.031	ug/kg	0.12	0.031	1	07/25/23 14:13	08/04/23 00:33	2706-91-4	
Perfluorododecanoic acid	0.059J	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 00:33	307-55-1	
Perfluoroheptanoic acid	0.13J	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 00:33	375-85-9	
Perfluorohexanesulfonic acid	0.43	ug/kg	0.12	0.029	1	07/25/23 14:13	08/04/23 00:33	355-46-4	
Perfluorononanoic acid	0.055J	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 00:33	375-95-1	
Perfluorooctanesulfonic acid	14.9	ug/kg	0.61	0.19	5	07/25/23 14:13	08/08/23 17:21	1763-23-1	
Perfluorooctanoic acid	0.10J	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 00:33	335-67-1	
Perfluorotetradecanoic acid	<0.045	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 00:33	376-06-7	
Perfluorotridecanoic acid	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 00:33	72629-94-8	
Perfluoroundecanoic acid	0.10J	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 00:33	2058-94-8	
Surrogates									
13C2-PFDoA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 00:33		
13C2-PFTA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 00:33		
13C24:2FTS (S)	124	%	25-150		1	07/25/23 14:13	08/04/23 00:33		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK11-SB01 (1-2) Lab ID: 10661127002 Collected: 07/10/23 13:30 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 00:33		
13C28:2FTS (S)	118	%	25-150		1	07/25/23 14:13	08/04/23 00:33		
13C2PFHxDA (S)	64	%	25-150		1	07/25/23 14:13	08/04/23 00:33		
13C3-PFBS (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 00:33	375-73-5	
13C3-PFHxS (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 00:33	355-46-4	
13C3HFPO-DA (S)	97	%	25-150		1	07/25/23 14:13	08/04/23 00:33		
13C4-PFBA (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 00:33	375-22-4	
13C4-PFHpA (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 00:33	375-85-9	
13C5-PFHxA (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 00:33	307-24-4	
13C5-PFPeA (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 00:33	2706-90-3	
13C6-PFDA (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 00:33	335-76-2	
13C7-PFUdA (S)	96	%	25-150		1	07/25/23 14:13	08/04/23 00:33	2058-94-8	
13C8-PFOA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 00:33	335-67-1	
13C8-PFOS (S)	81	%	25-150		1	07/25/23 14:13	08/04/23 00:33	1763-23-1	
13C8-PFOSA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 00:33	754-91-6	
13C9-PFNA (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 00:33	375-95-1	
d3-MeFOSAA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 00:33	2355-31-9	
d3-NMeFOSA (S)	2	%	10-150		1	07/25/23 14:13	08/04/23 00:33	31506-32-8	S0
d5-EtFOSAA (S)	108	%	25-150		1	07/25/23 14:13	08/04/23 00:33	2991-50-6	
d5-NEtFOSA (S)	1	%	10-150		1	07/25/23 14:13	08/04/23 00:33	4151-50-2	S0
d7-NMeFOSE (S)	33	%	10-150		1	07/25/23 14:13	08/04/23 00:33	24448-09-7	
d9-NEtFOSE (S)	33	%	10-150		1	07/25/23 14:13	08/04/23 00:33	1691-99-2	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK11-SB01 (2-3) Lab ID: 10661127003 Collected: 07/10/23 13:35 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	24.9	%	0.10	0.10	1		08/08/23 13:50		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	0.066J	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 00:40	120226-60-0	
11CI-PF3OUdS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 00:40	763051-92-9	
4:2 FTS	<0.030	ug/kg	0.12	0.030	1	07/25/23 14:13	08/04/23 00:40	757124-72-4	
6:2 FTS	<0.054	ug/kg	0.12	0.054	1	07/25/23 14:13	08/04/23 00:40	27619-97-2	
8:2 FTS	<0.057	ug/kg	0.13	0.057	1	07/25/23 14:13	08/04/23 00:40	39108-34-4	
9CI-PF3ONS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 00:40	756426-58-1	
ADONA	<0.047	ug/kg	0.12	0.047	1	07/25/23 14:13	08/04/23 00:40	919005-14-4	
HFPO-DA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:40	13252-13-6	
NEtFOSAA	<0.053	ug/kg	0.13	0.053	1	07/25/23 14:13	08/04/23 00:40	2991-50-6	
NEtFOSA	<0.033	ug/kg	0.13	0.033	1	07/25/23 14:13	08/04/23 00:40	4151-50-2	
NEtFOSE	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 00:40	1691-99-2	
NMeFOSAA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 00:40	2355-31-9	
NMeFOSA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:40	31506-32-8	
NMeFOSE	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 00:40	24448-09-7	
Perfluorobutanesulfonic acid	<0.034	ug/kg	0.12	0.034	1	07/25/23 14:13	08/04/23 00:40	375-73-5	
Perfluorodecanoic acid	<0.030	ug/kg	0.13	0.030	1	07/25/23 14:13	08/04/23 00:40	335-76-2	
Perfluorohexanoic acid	0.11J	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:40	307-24-4	
PFBA	0.038J	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 00:40	375-22-4	
PFDS	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 00:40	335-77-3	
PFDoS	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 00:40	79780-39-5	
PFHpS	<0.036	ug/kg	0.12	0.036	1	07/25/23 14:13	08/04/23 00:40	375-92-8	
PFHxDA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 00:40	67905-19-5	
PFNS	0.055J	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 00:40	68259-12-1	
PFODA	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 00:40	16517-11-6	
PFOSA	<0.038	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 00:40	754-91-6	
PFPeA	0.22	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 00:40	2706-90-3	
PFPeS	<0.031	ug/kg	0.12	0.031	1	07/25/23 14:13	08/04/23 00:40	2706-91-4	
Perfluorododecanoic acid	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 00:40	307-55-1	
Perfluoroheptanoic acid	<0.045	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 00:40	375-85-9	
Perfluorohexanesulfonic acid	0.28	ug/kg	0.12	0.029	1	07/25/23 14:13	08/04/23 00:40	355-46-4	
Perfluorononanoic acid	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 00:40	375-95-1	
Perfluorooctanesulfonic acid	4.4	ug/kg	0.12	0.039	1	07/25/23 14:13	08/04/23 00:40	1763-23-1	
Perfluorooctanoic acid	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 00:40	335-67-1	
Perfluorotetradecanoic acid	<0.045	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 00:40	376-06-7	
Perfluorotridecanoic acid	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 00:40	72629-94-8	
Perfluoroundecanoic acid	<0.039	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 00:40	2058-94-8	
Surrogates									
13C2-PFDoA (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 00:40		
13C2-PFTA (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 00:40		
13C24:2FTS (S)	130	%	25-150		1	07/25/23 14:13	08/04/23 00:40		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK11-SB01 (2-3) Lab ID: 10661127003 Collected: 07/10/23 13:35 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 00:40		
13C28:2FTS (S)	110	%	25-150		1	07/25/23 14:13	08/04/23 00:40		
13C2PFHxDA (S)	38	%	25-150		1	07/25/23 14:13	08/04/23 00:40		
13C3-PFBS (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 00:40	375-73-5	
13C3-PFHxS (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 00:40	355-46-4	
13C3HFPO-DA (S)	100	%	25-150		1	07/25/23 14:13	08/04/23 00:40		
13C4-PFBA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 00:40	375-22-4	
13C4-PFHpA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 00:40	375-85-9	
13C5-PFHxA (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 00:40	307-24-4	
13C5-PFPeA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 00:40	2706-90-3	
13C6-PFDA (S)	96	%	25-150		1	07/25/23 14:13	08/04/23 00:40	335-76-2	
13C7-PFUdA (S)	99	%	25-150		1	07/25/23 14:13	08/04/23 00:40	2058-94-8	
13C8-PFOA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 00:40	335-67-1	
13C8-PFOS (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 00:40	1763-23-1	
13C8-PFOSA (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 00:40	754-91-6	
13C9-PFNA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 00:40	375-95-1	
d3-MeFOSAA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 00:40	2355-31-9	
d3-NMeFOSA (S)	3	%	10-150		1	07/25/23 14:13	08/04/23 00:40	31506-32-8	S0
d5-EtFOSAA (S)	103	%	25-150		1	07/25/23 14:13	08/04/23 00:40	2991-50-6	
d5-NEtFOSA (S)	1	%	10-150		1	07/25/23 14:13	08/04/23 00:40	4151-50-2	S0
d7-NMeFOSE (S)	17	%	10-150		1	07/25/23 14:13	08/04/23 00:40	24448-09-7	
d9-NEtFOSE (S)	14	%	10-150		1	07/25/23 14:13	08/04/23 00:40	1691-99-2	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK11-SB01 (2-3)-Dup Lab ID: 10661127004 Collected: 07/10/23 13:35 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	25.6	%	0.10	0.10	1		08/08/23 13:50		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	0.069J	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 00:47	120226-60-0	
11CI-PF3OUdS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 00:47	763051-92-9	
4:2 FTS	<0.030	ug/kg	0.12	0.030	1	07/25/23 14:13	08/04/23 00:47	757124-72-4	
6:2 FTS	<0.054	ug/kg	0.12	0.054	1	07/25/23 14:13	08/04/23 00:47	27619-97-2	
8:2 FTS	<0.057	ug/kg	0.13	0.057	1	07/25/23 14:13	08/04/23 00:47	39108-34-4	
9CI-PF3ONS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 00:47	756426-58-1	
ADONA	<0.047	ug/kg	0.12	0.047	1	07/25/23 14:13	08/04/23 00:47	919005-14-4	
HFPO-DA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:47	13252-13-6	
NEtFOSAA	<0.052	ug/kg	0.13	0.052	1	07/25/23 14:13	08/04/23 00:47	2991-50-6	
NEtFOSA	<0.033	ug/kg	0.13	0.033	1	07/25/23 14:13	08/04/23 00:47	4151-50-2	
NEtFOSE	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 00:47	1691-99-2	
NMeFOSAA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 00:47	2355-31-9	
NMeFOSA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 00:47	31506-32-8	
NMeFOSE	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 00:47	24448-09-7	
Perfluorobutanesulfonic acid	<0.034	ug/kg	0.12	0.034	1	07/25/23 14:13	08/04/23 00:47	375-73-5	
Perfluorodecanoic acid	<0.030	ug/kg	0.13	0.030	1	07/25/23 14:13	08/04/23 00:47	335-76-2	
Perfluorohexanoic acid	0.11J	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:47	307-24-4	
PFBA	0.039J	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 00:47	375-22-4	
PFDS	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 00:47	335-77-3	
PFDoS	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 00:47	79780-39-5	
PFHpS	<0.036	ug/kg	0.12	0.036	1	07/25/23 14:13	08/04/23 00:47	375-92-8	
PFHxDA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 00:47	67905-19-5	
PFNS	0.055J	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 00:47	68259-12-1	
PFODA	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 00:47	16517-11-6	
PFOSA	<0.038	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 00:47	754-91-6	
PFPeA	0.23	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 00:47	2706-90-3	
PFPeS	<0.031	ug/kg	0.12	0.031	1	07/25/23 14:13	08/04/23 00:47	2706-91-4	
Perfluorododecanoic acid	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 00:47	307-55-1	
Perfluoroheptanoic acid	<0.045	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 00:47	375-85-9	
Perfluorohexanesulfonic acid	0.29	ug/kg	0.12	0.029	1	07/25/23 14:13	08/04/23 00:47	355-46-4	
Perfluorononanoic acid	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 00:47	375-95-1	
Perfluorooctanesulfonic acid	4.5	ug/kg	0.12	0.039	1	07/25/23 14:13	08/04/23 00:47	1763-23-1	
Perfluorooctanoic acid	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 00:47	335-67-1	
Perfluorotetradecanoic acid	<0.045	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 00:47	376-06-7	
Perfluorotridecanoic acid	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 00:47	72629-94-8	
Perfluoroundecanoic acid	<0.039	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 00:47	2058-94-8	
Surrogates									
13C2-PFDoA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 00:47		
13C2-PFTA (S)	65	%	25-150		1	07/25/23 14:13	08/04/23 00:47		
13C24:2FTS (S)	119	%	25-150		1	07/25/23 14:13	08/04/23 00:47		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK11-SB01 (2-3)-Dup Lab ID: 10661127004 Collected: 07/10/23 13:35 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 00:47		
13C28:2FTS (S)	110	%	25-150		1	07/25/23 14:13	08/04/23 00:47		
13C2PFHxDA (S)	12	%	25-150		1	07/25/23 14:13	08/04/23 00:47		S0
13C3-PFBS (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 00:47	375-73-5	
13C3-PFHxS (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 00:47	355-46-4	
13C3HFPO-DA (S)	97	%	25-150		1	07/25/23 14:13	08/04/23 00:47		
13C4-PFBA (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 00:47	375-22-4	
13C4-PFHpA (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 00:47	375-85-9	
13C5-PFHxA (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 00:47	307-24-4	
13C5-PFPeA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 00:47	2706-90-3	
13C6-PFDA (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 00:47	335-76-2	
13C7-PFUdA (S)	94	%	25-150		1	07/25/23 14:13	08/04/23 00:47	2058-94-8	
13C8-PFOA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 00:47	335-67-1	
13C8-PFOS (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 00:47	1763-23-1	
13C8-PFOSA (S)	81	%	25-150		1	07/25/23 14:13	08/04/23 00:47	754-91-6	
13C9-PFNA (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 00:47	375-95-1	
d3-MeFOSAA (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 00:47	2355-31-9	
d3-NMeFOSA (S)	2	%	10-150		1	07/25/23 14:13	08/04/23 00:47	31506-32-8	S0
d5-EtFOSAA (S)	98	%	25-150		1	07/25/23 14:13	08/04/23 00:47	2991-50-6	
d5-NEtFOSA (S)	1	%	10-150		1	07/25/23 14:13	08/04/23 00:47	4151-50-2	S0
d7-NMeFOSE (S)	19	%	10-150		1	07/25/23 14:13	08/04/23 00:47	24448-09-7	
d9-NEtFOSE (S)	16	%	10-150		1	07/25/23 14:13	08/04/23 00:47	1691-99-2	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK11-SB01 (3-4) Lab ID: 10661127005 Collected: 07/10/23 13:40 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	24.4	%	0.10	0.10	1		08/08/23 13:50		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	<0.057	ug/kg	0.12	0.057	1	07/25/23 14:13	08/04/23 00:54	120226-60-0	
11CI-PF3OUdS	<0.032	ug/kg	0.12	0.032	1	07/25/23 14:13	08/04/23 00:54	763051-92-9	
4:2 FTS	<0.030	ug/kg	0.12	0.030	1	07/25/23 14:13	08/04/23 00:54	757124-72-4	
6:2 FTS	0.070J	ug/kg	0.12	0.053	1	07/25/23 14:13	08/04/23 00:54	27619-97-2	
8:2 FTS	<0.056	ug/kg	0.12	0.056	1	07/25/23 14:13	08/04/23 00:54	39108-34-4	
9CI-PF3ONS	<0.032	ug/kg	0.12	0.032	1	07/25/23 14:13	08/04/23 00:54	756426-58-1	
ADONA	<0.046	ug/kg	0.12	0.046	1	07/25/23 14:13	08/04/23 00:54	919005-14-4	
HFPO-DA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:54	13252-13-6	
NEtFOSAA	<0.051	ug/kg	0.13	0.051	1	07/25/23 14:13	08/04/23 00:54	2991-50-6	
NEtFOSA	<0.033	ug/kg	0.13	0.033	1	07/25/23 14:13	08/04/23 00:54	4151-50-2	
NEtFOSE	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 00:54	1691-99-2	
NMeFOSAA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:54	2355-31-9	
NMeFOSA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 00:54	31506-32-8	
NMeFOSE	<0.039	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 00:54	24448-09-7	
Perfluorobutanesulfonic acid	<0.034	ug/kg	0.11	0.034	1	07/25/23 14:13	08/04/23 00:54	375-73-5	
Perfluorodecanoic acid	<0.029	ug/kg	0.13	0.029	1	07/25/23 14:13	08/04/23 00:54	335-76-2	
Perfluorohexanoic acid	0.20	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 00:54	307-24-4	
PFBA	0.48	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:54	375-22-4	
PFDS	<0.036	ug/kg	0.12	0.036	1	07/25/23 14:13	08/04/23 00:54	335-77-3	
PFDoS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 00:54	79780-39-5	
PFHpS	<0.036	ug/kg	0.12	0.036	1	07/25/23 14:13	08/04/23 00:54	375-92-8	
PFHxDA	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 00:54	67905-19-5	
PFNS	<0.044	ug/kg	0.12	0.044	1	07/25/23 14:13	08/04/23 00:54	68259-12-1	
PFODA	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 00:54	16517-11-6	
PFOSA	<0.038	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 00:54	754-91-6	
PFPeA	0.31	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 00:54	2706-90-3	
PFPeS	<0.031	ug/kg	0.12	0.031	1	07/25/23 14:13	08/04/23 00:54	2706-91-4	
Perfluorododecanoic acid	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 00:54	307-55-1	
Perfluoroheptanoic acid	0.047J	ug/kg	0.13	0.044	1	07/25/23 14:13	08/04/23 00:54	375-85-9	
Perfluorohexanesulfonic acid	0.27	ug/kg	0.12	0.028	1	07/25/23 14:13	08/04/23 00:54	355-46-4	
Perfluorononanoic acid	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 00:54	375-95-1	
Perfluorooctanesulfonic acid	0.68	ug/kg	0.12	0.038	1	07/25/23 14:13	08/04/23 00:54	1763-23-1	
Perfluorooctanoic acid	0.051J	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 00:54	335-67-1	
Perfluorotetradecanoic acid	<0.044	ug/kg	0.13	0.044	1	07/25/23 14:13	08/04/23 00:54	376-06-7	
Perfluorotridecanoic acid	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 00:54	72629-94-8	
Perfluoroundecanoic acid	<0.039	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 00:54	2058-94-8	
Surrogates									
13C2-PFDoA (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 00:54		
13C2-PFTA (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 00:54		
13C24:2FTS (S)	105	%	25-150		1	07/25/23 14:13	08/04/23 00:54		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK11-SB01 (3-4) Lab ID: 10661127005 Collected: 07/10/23 13:40 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	70	%	25-150		1	07/25/23 14:13	08/04/23 00:54		
13C28:2FTS (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 00:54		
13C2PFHxDA (S)	66	%	25-150		1	07/25/23 14:13	08/04/23 00:54		
13C3-PFBS (S)	71	%	25-150		1	07/25/23 14:13	08/04/23 00:54	375-73-5	
13C3-PFHxS (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 00:54	355-46-4	
13C3HFPO-DA (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 00:54		
13C4-PFBA (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 00:54	375-22-4	
13C4-PFHpA (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 00:54	375-85-9	
13C5-PFHxA (S)	73	%	25-150		1	07/25/23 14:13	08/04/23 00:54	307-24-4	
13C5-PFPeA (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 00:54	2706-90-3	
13C6-PFDA (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 00:54	335-76-2	
13C7-PFUdA (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 00:54	2058-94-8	
13C8-PFOA (S)	74	%	25-150		1	07/25/23 14:13	08/04/23 00:54	335-67-1	
13C8-PFOS (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 00:54	1763-23-1	
13C8-PFOSA (S)	74	%	25-150		1	07/25/23 14:13	08/04/23 00:54	754-91-6	
13C9-PFNA (S)	76	%	25-150		1	07/25/23 14:13	08/04/23 00:54	375-95-1	
d3-MeFOSAA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 00:54	2355-31-9	
d3-NMeFOSA (S)	1	%	10-150		1	07/25/23 14:13	08/04/23 00:54	31506-32-8	S0
d5-EtFOSAA (S)	90	%	25-150		1	07/25/23 14:13	08/04/23 00:54	2991-50-6	
d5-NEtFOSA (S)	1	%	10-150		1	07/25/23 14:13	08/04/23 00:54	4151-50-2	S0
d7-NMeFOSE (S)	11	%	10-150		1	07/25/23 14:13	08/04/23 00:54	24448-09-7	
d9-NEtFOSE (S)	10	%	10-150		1	07/25/23 14:13	08/04/23 00:54	1691-99-2	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK15-SB01 (0-1) Lab ID: 10661127006 Collected: 07/10/23 14:55 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	26.5	%	0.10	0.10	1		08/08/23 13:51		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	2.2	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 05:46	120226-60-0	
11CI-PF3OUdS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 05:46	763051-92-9	
4:2 FTS	<0.030	ug/kg	0.12	0.030	1	07/25/23 14:13	08/04/23 05:46	757124-72-4	
6:2 FTS	4.0	ug/kg	0.12	0.054	1	07/25/23 14:13	08/04/23 05:46	27619-97-2	
8:2 FTS	1.9	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 05:46	39108-34-4	
9CI-PF3ONS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 05:46	756426-58-1	
ADONA	<0.048	ug/kg	0.12	0.048	1	07/25/23 14:13	08/04/23 05:46	919005-14-4	
HFPO-DA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 05:46	13252-13-6	
NEtFOSAA	<0.053	ug/kg	0.13	0.053	1	07/25/23 14:13	08/04/23 05:46	2991-50-6	
NEtFOSA	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 05:46	4151-50-2	
NEtFOSE	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 05:46	1691-99-2	
NMeFOSAA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 05:46	2355-31-9	
NMeFOSA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 05:46	31506-32-8	
NMeFOSE	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 05:46	24448-09-7	
Perfluorobutanesulfonic acid	0.088J	ug/kg	0.12	0.035	1	07/25/23 14:13	08/04/23 05:46	375-73-5	
Perfluorodecanoic acid	0.74	ug/kg	0.13	0.030	1	07/25/23 14:13	08/04/23 05:46	335-76-2	
Perfluorohexanoic acid	3.4	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 05:46	307-24-4	
PFBA	1.2	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 05:46	375-22-4	
PFDS	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 05:46	335-77-3	
PFDoS	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 05:46	79780-39-5	
PFHpS	<0.037	ug/kg	0.12	0.037	1	07/25/23 14:13	08/04/23 05:46	375-92-8	
PFHxDA	0.16	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 05:46	67905-19-5	
PFNS	0.088J	ug/kg	0.13	0.046	1	07/25/23 14:13	08/04/23 05:46	68259-12-1	
PFODA	0.061J	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 05:46	16517-11-6	
PFOSA	<0.039	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 05:46	754-91-6	
PFPeA	8.2	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 05:46	2706-90-3	
PFPeS	0.041J	ug/kg	0.12	0.032	1	07/25/23 14:13	08/04/23 05:46	2706-91-4	
Perfluorododecanoic acid	0.19	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 05:46	307-55-1	
Perfluoroheptanoic acid	0.83	ug/kg	0.13	0.046	1	07/25/23 14:13	08/04/23 05:46	375-85-9	
Perfluorohexanesulfonic acid	0.39	ug/kg	0.12	0.029	1	07/25/23 14:13	08/04/23 05:46	355-46-4	
Perfluorononanoic acid	0.71	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 05:46	375-95-1	
Perfluorooctanesulfonic acid	8.8	ug/kg	0.12	0.039	1	07/25/23 14:13	08/04/23 05:46	1763-23-1	
Perfluorooctanoic acid	1.0	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 05:46	335-67-1	
Perfluorotetradecanoic acid	0.061J	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 05:46	376-06-7	
Perfluorotridecanoic acid	1.5	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 05:46	72629-94-8	
Perfluoroundecanoic acid	1.4	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 05:46	2058-94-8	
Surrogates									
13C2-PFDoA (S)	90	%	25-150		1	07/25/23 14:13	08/04/23 05:46		
13C2-PFTA (S)	67	%	25-150		1	07/25/23 14:13	08/04/23 05:46		
13C24:2FTS (S)	124	%	25-150		1	07/25/23 14:13	08/04/23 05:46		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK15-SB01 (0-1) Lab ID: 10661127006 Collected: 07/10/23 14:55 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	104	%	25-150		1	07/25/23 14:13	08/04/23 05:46		
13C28:2FTS (S)	132	%	25-150		1	07/25/23 14:13	08/04/23 05:46		
13C2PFHxDA (S)	2	%	25-150		1	07/25/23 14:13	08/04/23 05:46		S0
13C3-PFBS (S)	81	%	25-150		1	07/25/23 14:13	08/04/23 05:46	375-73-5	
13C3-PFHxS (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 05:46	355-46-4	
13C3HFPO-DA (S)	95	%	25-150		1	07/25/23 14:13	08/04/23 05:46		
13C4-PFBA (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 05:46	375-22-4	
13C4-PFHpA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 05:46	375-85-9	
13C5-PFHxA (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 05:46	307-24-4	
13C5-PFPeA (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 05:46	2706-90-3	
13C6-PFDA (S)	97	%	25-150		1	07/25/23 14:13	08/04/23 05:46	335-76-2	
13C7-PFUdA (S)	96	%	25-150		1	07/25/23 14:13	08/04/23 05:46	2058-94-8	
13C8-PFOA (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 05:46	335-67-1	
13C8-PFOS (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 05:46	1763-23-1	
13C8-PFOSA (S)	76	%	25-150		1	07/25/23 14:13	08/04/23 05:46	754-91-6	
13C9-PFNA (S)	90	%	25-150		1	07/25/23 14:13	08/04/23 05:46	375-95-1	
d3-MeFOSAA (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 05:46	2355-31-9	
d3-NMeFOSA (S)	2	%	10-150		1	07/25/23 14:13	08/04/23 05:46	31506-32-8	S0
d5-EtFOSAA (S)	104	%	25-150		1	07/25/23 14:13	08/04/23 05:46	2991-50-6	
d5-NEtFOSA (S)	1	%	10-150		1	07/25/23 14:13	08/04/23 05:46	4151-50-2	S0
d7-NMeFOSE (S)	24	%	10-150		1	07/25/23 14:13	08/04/23 05:46	24448-09-7	
d9-NEtFOSE (S)	23	%	10-150		1	07/25/23 14:13	08/04/23 05:46	1691-99-2	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK15-SB01 (1-2) Lab ID: 10661127007 Collected: 07/10/23 15:00 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	29.7	%	0.10	0.10	1		08/08/23 13:51		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	0.14	ug/kg	0.14	0.062	1	07/25/23 14:13	08/04/23 05:53	120226-60-0	
11CI-PF3OUdS	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 05:53	763051-92-9	
4:2 FTS	<0.032	ug/kg	0.13	0.032	1	07/25/23 14:13	08/04/23 05:53	757124-72-4	
6:2 FTS	3.4	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 05:53	27619-97-2	
8:2 FTS	0.097J	ug/kg	0.14	0.061	1	07/25/23 14:13	08/04/23 05:53	39108-34-4	
9CI-PF3ONS	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 05:53	756426-58-1	
ADONA	<0.051	ug/kg	0.13	0.051	1	07/25/23 14:13	08/04/23 05:53	919005-14-4	
HFPO-DA	<0.039	ug/kg	0.14	0.039	1	07/25/23 14:13	08/04/23 05:53	13252-13-6	
NEtFOSAA	<0.056	ug/kg	0.14	0.056	1	07/25/23 14:13	08/04/23 05:53	2991-50-6	
NEtFOSA	<0.036	ug/kg	0.14	0.036	1	07/25/23 14:13	08/04/23 05:53	4151-50-2	
NEtFOSE	<0.045	ug/kg	0.14	0.045	1	07/25/23 14:13	08/04/23 05:53	1691-99-2	
NMeFOSAA	<0.039	ug/kg	0.14	0.039	1	07/25/23 14:13	08/04/23 05:53	2355-31-9	
NMeFOSA	<0.038	ug/kg	0.14	0.038	1	07/25/23 14:13	08/04/23 05:53	31506-32-8	
NMeFOSE	<0.042	ug/kg	0.14	0.042	1	07/25/23 14:13	08/04/23 05:53	24448-09-7	
Perfluorobutanesulfonic acid	0.058J	ug/kg	0.12	0.037	1	07/25/23 14:13	08/04/23 05:53	375-73-5	
Perfluorodecanoic acid	0.038J	ug/kg	0.14	0.032	1	07/25/23 14:13	08/04/23 05:53	335-76-2	
Perfluorohexanoic acid	2.3	ug/kg	0.14	0.038	1	07/25/23 14:13	08/04/23 05:53	307-24-4	
PFBA	0.55	ug/kg	0.14	0.040	1	07/25/23 14:13	08/04/23 05:53	375-22-4	
PFDS	<0.039	ug/kg	0.14	0.039	1	07/25/23 14:13	08/04/23 05:53	335-77-3	
PFDoS	<0.037	ug/kg	0.14	0.037	1	07/25/23 14:13	08/04/23 05:53	79780-39-5	
PFHpS	<0.039	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 05:53	375-92-8	
PFHxDA	<0.037	ug/kg	0.14	0.037	1	07/25/23 14:13	08/04/23 05:53	67905-19-5	
PFNS	<0.049	ug/kg	0.13	0.049	1	07/25/23 14:13	08/04/23 05:53	68259-12-1	
PFODA	<0.046	ug/kg	0.14	0.046	1	07/25/23 14:13	08/04/23 05:53	16517-11-6	
PFOSA	<0.041	ug/kg	0.14	0.041	1	07/25/23 14:13	08/04/23 05:53	754-91-6	
PFPeA	4.3	ug/kg	0.14	0.040	1	07/25/23 14:13	08/04/23 05:53	2706-90-3	
PFPeS	0.048J	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 05:53	2706-91-4	
Perfluorododecanoic acid	<0.046	ug/kg	0.14	0.046	1	07/25/23 14:13	08/04/23 05:53	307-55-1	
Perfluoroheptanoic acid	0.44	ug/kg	0.14	0.049	1	07/25/23 14:13	08/04/23 05:53	375-85-9	
Perfluorohexanesulfonic acid	0.33	ug/kg	0.13	0.031	1	07/25/23 14:13	08/04/23 05:53	355-46-4	
Perfluorononanoic acid	0.30	ug/kg	0.14	0.044	1	07/25/23 14:13	08/04/23 05:53	375-95-1	
Perfluorooctanesulfonic acid	0.72	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 05:53	1763-23-1	
Perfluorooctanoic acid	0.40	ug/kg	0.14	0.044	1	07/25/23 14:13	08/04/23 05:53	335-67-1	
Perfluorotetradecanoic acid	<0.048	ug/kg	0.14	0.048	1	07/25/23 14:13	08/04/23 05:53	376-06-7	
Perfluorotridecanoic acid	0.057J	ug/kg	0.14	0.045	1	07/25/23 14:13	08/04/23 05:53	72629-94-8	
Perfluoroundecanoic acid	0.055J	ug/kg	0.14	0.042	1	07/25/23 14:13	08/04/23 05:53	2058-94-8	
Surrogates									
13C2-PFDoA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 05:53		
13C2-PFTA (S)	73	%	25-150		1	07/25/23 14:13	08/04/23 05:53		
13C24:2FTS (S)	114	%	25-150		1	07/25/23 14:13	08/04/23 05:53		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK15-SB01 (1-2) Lab ID: 10661127007 Collected: 07/10/23 15:00 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 05:53		
13C28:2FTS (S)	107	%	25-150		1	07/25/23 14:13	08/04/23 05:53		
13C2PFHxDA (S)	37	%	25-150		1	07/25/23 14:13	08/04/23 05:53		
13C3-PFBS (S)	73	%	25-150		1	07/25/23 14:13	08/04/23 05:53	375-73-5	
13C3-PFHxS (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 05:53	355-46-4	
13C3HFPO-DA (S)	91	%	25-150		1	07/25/23 14:13	08/04/23 05:53		
13C4-PFBA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 05:53	375-22-4	
13C4-PFHpA (S)	77	%	25-150		1	07/25/23 14:13	08/04/23 05:53	375-85-9	
13C5-PFHxA (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 05:53	307-24-4	
13C5-PFPeA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 05:53	2706-90-3	
13C6-PFDA (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 05:53	335-76-2	
13C7-PFUdA (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 05:53	2058-94-8	
13C8-PFOA (S)	77	%	25-150		1	07/25/23 14:13	08/04/23 05:53	335-67-1	
13C8-PFOS (S)	77	%	25-150		1	07/25/23 14:13	08/04/23 05:53	1763-23-1	
13C8-PFOSA (S)	72	%	25-150		1	07/25/23 14:13	08/04/23 05:53	754-91-6	
13C9-PFNA (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 05:53	375-95-1	
d3-MeFOSAA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 05:53	2355-31-9	
d3-NMeFOSA (S)	0	%	10-150		1	07/25/23 14:13	08/04/23 05:53	31506-32-8	S0
d5-EtFOSAA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 05:53	2991-50-6	
d5-NEtFOSA (S)	0	%	10-150		1	07/25/23 14:13	08/04/23 05:53	4151-50-2	S0
d7-NMeFOSE (S)	4	%	10-150		1	07/25/23 14:13	08/04/23 05:53	24448-09-7	S0
d9-NEtFOSE (S)	2	%	10-150		1	07/25/23 14:13	08/04/23 05:53	1691-99-2	S0

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK15-SB01 (2-3) Lab ID: 10661127008 Collected: 07/10/23 15:05 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	30.4	%	0.10	0.10	1		08/08/23 13:51		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	<0.061	ug/kg	0.13	0.061	1	07/25/23 14:13	08/04/23 06:00	120226-60-0	
11CI-PF3OUdS	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 06:00	763051-92-9	
4:2 FTS	<0.032	ug/kg	0.13	0.032	1	07/25/23 14:13	08/04/23 06:00	757124-72-4	
6:2 FTS	1.7	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 06:00	27619-97-2	
8:2 FTS	<0.061	ug/kg	0.13	0.061	1	07/25/23 14:13	08/04/23 06:00	39108-34-4	
9CI-PF3ONS	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 06:00	756426-58-1	
ADONA	<0.050	ug/kg	0.13	0.050	1	07/25/23 14:13	08/04/23 06:00	919005-14-4	
HFPO-DA	<0.039	ug/kg	0.14	0.039	1	07/25/23 14:13	08/04/23 06:00	13252-13-6	
NEtFOSAA	<0.056	ug/kg	0.14	0.056	1	07/25/23 14:13	08/04/23 06:00	2991-50-6	
NEtFOSA	<0.036	ug/kg	0.14	0.036	1	07/25/23 14:13	08/04/23 06:00	4151-50-2	
NEtFOSE	<0.045	ug/kg	0.14	0.045	1	07/25/23 14:13	08/04/23 06:00	1691-99-2	
NMeFOSAA	<0.039	ug/kg	0.14	0.039	1	07/25/23 14:13	08/04/23 06:00	2355-31-9	
NMeFOSA	<0.038	ug/kg	0.14	0.038	1	07/25/23 14:13	08/04/23 06:00	31506-32-8	
NMeFOSE	<0.042	ug/kg	0.14	0.042	1	07/25/23 14:13	08/04/23 06:00	24448-09-7	
Perfluorobutanesulfonic acid	0.044J	ug/kg	0.12	0.037	1	07/25/23 14:13	08/04/23 06:00	375-73-5	
Perfluorodecanoic acid	<0.032	ug/kg	0.14	0.032	1	07/25/23 14:13	08/04/23 06:00	335-76-2	
Perfluorohexanoic acid	1.1	ug/kg	0.14	0.038	1	07/25/23 14:13	08/04/23 06:00	307-24-4	
PFBA	0.27	ug/kg	0.14	0.039	1	07/25/23 14:13	08/04/23 06:00	375-22-4	
PFDS	<0.039	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 06:00	335-77-3	
PFDoS	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 06:00	79780-39-5	
PFHpS	<0.039	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 06:00	375-92-8	
PFHxDA	<0.037	ug/kg	0.14	0.037	1	07/25/23 14:13	08/04/23 06:00	67905-19-5	
PFNS	<0.048	ug/kg	0.13	0.048	1	07/25/23 14:13	08/04/23 06:00	68259-12-1	
PFODA	<0.045	ug/kg	0.14	0.045	1	07/25/23 14:13	08/04/23 06:00	16517-11-6	
PFOSA	<0.041	ug/kg	0.14	0.041	1	07/25/23 14:13	08/04/23 06:00	754-91-6	
PFPeA	1.9	ug/kg	0.14	0.040	1	07/25/23 14:13	08/04/23 06:00	2706-90-3	
PFPeS	<0.033	ug/kg	0.13	0.033	1	07/25/23 14:13	08/04/23 06:00	2706-91-4	
Perfluorododecanoic acid	<0.046	ug/kg	0.14	0.046	1	07/25/23 14:13	08/04/23 06:00	307-55-1	
Perfluoroheptanoic acid	0.14	ug/kg	0.14	0.048	1	07/25/23 14:13	08/04/23 06:00	375-85-9	
Perfluorohexanesulfonic acid	0.095J	ug/kg	0.13	0.030	1	07/25/23 14:13	08/04/23 06:00	355-46-4	
Perfluorononanoic acid	0.062J	ug/kg	0.14	0.043	1	07/25/23 14:13	08/04/23 06:00	375-95-1	
Perfluorooctanesulfonic acid	0.055J	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 06:00	1763-23-1	
Perfluorooctanoic acid	0.073J	ug/kg	0.14	0.043	1	07/25/23 14:13	08/04/23 06:00	335-67-1	
Perfluorotetradecanoic acid	<0.048	ug/kg	0.14	0.048	1	07/25/23 14:13	08/04/23 06:00	376-06-7	
Perfluorotridecanoic acid	<0.044	ug/kg	0.14	0.044	1	07/25/23 14:13	08/04/23 06:00	72629-94-8	
Perfluoroundecanoic acid	<0.042	ug/kg	0.14	0.042	1	07/25/23 14:13	08/04/23 06:00	2058-94-8	
Surrogates									
13C2-PFDoA (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 06:00		
13C2-PFTA (S)	73	%	25-150		1	07/25/23 14:13	08/04/23 06:00		
13C24:2FTS (S)	130	%	25-150		1	07/25/23 14:13	08/04/23 06:00		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK15-SB01 (2-3) Lab ID: 10661127008 Collected: 07/10/23 15:05 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 06:00		
13C28:2FTS (S)	102	%	25-150		1	07/25/23 14:13	08/04/23 06:00		
13C2PFHxDA (S)	38	%	25-150		1	07/25/23 14:13	08/04/23 06:00		
13C3-PFBS (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 06:00	375-73-5	
13C3-PFHxS (S)	81	%	25-150		1	07/25/23 14:13	08/04/23 06:00	355-46-4	
13C3HFPO-DA (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 06:00		
13C4-PFBA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 06:00	375-22-4	
13C4-PFHpA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 06:00	375-85-9	
13C5-PFHxA (S)	77	%	25-150		1	07/25/23 14:13	08/04/23 06:00	307-24-4	
13C5-PFPeA (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 06:00	2706-90-3	
13C6-PFDA (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 06:00	335-76-2	
13C7-PFUdA (S)	90	%	25-150		1	07/25/23 14:13	08/04/23 06:00	2058-94-8	
13C8-PFOA (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 06:00	335-67-1	
13C8-PFOS (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 06:00	1763-23-1	
13C8-PFOSA (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 06:00	754-91-6	
13C9-PFNA (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 06:00	375-95-1	
d3-MeFOSAA (S)	81	%	25-150		1	07/25/23 14:13	08/04/23 06:00	2355-31-9	
d3-NMeFOSA (S)	0	%	10-150		1	07/25/23 14:13	08/04/23 06:00	31506-32-8	S0
d5-EtFOSAA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 06:00	2991-50-6	
d5-NEtFOSA (S)	0	%	10-150		1	07/25/23 14:13	08/04/23 06:00	4151-50-2	S0
d7-NMeFOSE (S)	4	%	10-150		1	07/25/23 14:13	08/04/23 06:00	24448-09-7	S0
d9-NEtFOSE (S)	4	%	10-150		1	07/25/23 14:13	08/04/23 06:00	1691-99-2	S0

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK15-SB01 (3-4) Lab ID: 10661127009 Collected: 07/10/23 15:10 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	29.7	%	0.10	0.10	1		08/08/23 13:51		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	<0.061	ug/kg	0.13	0.061	1	07/25/23 14:13	08/04/23 06:08	120226-60-0	
11CI-PF3OUdS	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 06:08	763051-92-9	
4:2 FTS	<0.032	ug/kg	0.13	0.032	1	07/25/23 14:13	08/04/23 06:08	757124-72-4	
6:2 FTS	0.28	ug/kg	0.13	0.057	1	07/25/23 14:13	08/04/23 06:08	27619-97-2	
8:2 FTS	<0.060	ug/kg	0.13	0.060	1	07/25/23 14:13	08/04/23 06:08	39108-34-4	
9CI-PF3ONS	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 06:08	756426-58-1	
ADONA	<0.050	ug/kg	0.13	0.050	1	07/25/23 14:13	08/04/23 06:08	919005-14-4	
HFPO-DA	<0.038	ug/kg	0.14	0.038	1	07/25/23 14:13	08/04/23 06:08	13252-13-6	
NEtFOSAA	<0.055	ug/kg	0.14	0.055	1	07/25/23 14:13	08/04/23 06:08	2991-50-6	
NEtFOSA	<0.035	ug/kg	0.14	0.035	1	07/25/23 14:13	08/04/23 06:08	4151-50-2	
NEtFOSE	<0.044	ug/kg	0.14	0.044	1	07/25/23 14:13	08/04/23 06:08	1691-99-2	
NMeFOSAA	<0.039	ug/kg	0.14	0.039	1	07/25/23 14:13	08/04/23 06:08	2355-31-9	
NMeFOSA	<0.037	ug/kg	0.14	0.037	1	07/25/23 14:13	08/04/23 06:08	31506-32-8	
NMeFOSE	<0.042	ug/kg	0.14	0.042	1	07/25/23 14:13	08/04/23 06:08	24448-09-7	
Perfluorobutanesulfonic acid	<0.036	ug/kg	0.12	0.036	1	07/25/23 14:13	08/04/23 06:08	375-73-5	
Perfluorodecanoic acid	<0.031	ug/kg	0.14	0.031	1	07/25/23 14:13	08/04/23 06:08	335-76-2	
Perfluorohexanoic acid	0.18	ug/kg	0.14	0.038	1	07/25/23 14:13	08/04/23 06:08	307-24-4	
PFBA	0.050J	ug/kg	0.14	0.039	1	07/25/23 14:13	08/04/23 06:08	375-22-4	
PFDS	<0.039	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 06:08	335-77-3	
PFDoS	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 06:08	79780-39-5	
PFHpS	<0.038	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 06:08	375-92-8	
PFHxDA	0.23	ug/kg	0.14	0.037	1	07/25/23 14:13	08/04/23 06:08	67905-19-5	
PFNS	<0.048	ug/kg	0.13	0.048	1	07/25/23 14:13	08/04/23 06:08	68259-12-1	
PFODA	0.095J	ug/kg	0.14	0.045	1	07/25/23 14:13	08/04/23 06:08	16517-11-6	
PFOSA	<0.040	ug/kg	0.14	0.040	1	07/25/23 14:13	08/04/23 06:08	754-91-6	
PFPeA	0.31	ug/kg	0.14	0.039	1	07/25/23 14:13	08/04/23 06:08	2706-90-3	
PFPeS	<0.033	ug/kg	0.13	0.033	1	07/25/23 14:13	08/04/23 06:08	2706-91-4	
Perfluorododecanoic acid	<0.045	ug/kg	0.14	0.045	1	07/25/23 14:13	08/04/23 06:08	307-55-1	
Perfluoroheptanoic acid	<0.048	ug/kg	0.14	0.048	1	07/25/23 14:13	08/04/23 06:08	375-85-9	
Perfluorohexanesulfonic acid	<0.030	ug/kg	0.13	0.030	1	07/25/23 14:13	08/04/23 06:08	355-46-4	
Perfluorononanoic acid	<0.043	ug/kg	0.14	0.043	1	07/25/23 14:13	08/04/23 06:08	375-95-1	
Perfluorooctanesulfonic acid	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 06:08	1763-23-1	
Perfluorooctanoic acid	<0.043	ug/kg	0.14	0.043	1	07/25/23 14:13	08/04/23 06:08	335-67-1	
Perfluorotetradecanoic acid	<0.047	ug/kg	0.14	0.047	1	07/25/23 14:13	08/04/23 06:08	376-06-7	
Perfluorotridecanoic acid	<0.044	ug/kg	0.14	0.044	1	07/25/23 14:13	08/04/23 06:08	72629-94-8	
Perfluoroundecanoic acid	<0.041	ug/kg	0.14	0.041	1	07/25/23 14:13	08/04/23 06:08	2058-94-8	
Surrogates									
13C2-PFDoA (S)	71	%	25-150		1	07/25/23 14:13	08/04/23 06:08		
13C2-PFTA (S)	18	%	25-150		1	07/25/23 14:13	08/04/23 06:08		S0
13C24:2FTS (S)	141	%	25-150		1	07/25/23 14:13	08/04/23 06:08		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK15-SB01 (3-4) Lab ID: 10661127009 Collected: 07/10/23 15:10 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	90	%	25-150		1	07/25/23 14:13	08/04/23 06:08		
13C28:2FTS (S)	103	%	25-150		1	07/25/23 14:13	08/04/23 06:08		
13C2PFHxDA (S)	1	%	25-150		1	07/25/23 14:13	08/04/23 06:08		S0
13C3-PFBS (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 06:08	375-73-5	
13C3-PFHxS (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 06:08	355-46-4	
13C3HFPO-DA (S)	101	%	25-150		1	07/25/23 14:13	08/04/23 06:08		
13C4-PFBA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 06:08	375-22-4	
13C4-PFHpA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 06:08	375-85-9	
13C5-PFHxA (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 06:08	307-24-4	
13C5-PFPeA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 06:08	2706-90-3	
13C6-PFDA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 06:08	335-76-2	
13C7-PFUdA (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 06:08	2058-94-8	
13C8-PFOA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 06:08	335-67-1	
13C8-PFOS (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 06:08	1763-23-1	
13C8-PFOSA (S)	73	%	25-150		1	07/25/23 14:13	08/04/23 06:08	754-91-6	
13C9-PFNA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 06:08	375-95-1	
d3-MeFOSAA (S)	91	%	25-150		1	07/25/23 14:13	08/04/23 06:08	2355-31-9	
d3-NMeFOSA (S)	1	%	10-150		1	07/25/23 14:13	08/04/23 06:08	31506-32-8	S0
d5-EtFOSAA (S)	95	%	25-150		1	07/25/23 14:13	08/04/23 06:08	2991-50-6	
d5-NEtFOSA (S)	0	%	10-150		1	07/25/23 14:13	08/04/23 06:08	4151-50-2	S0
d7-NMeFOSE (S)	1	%	10-150		1	07/25/23 14:13	08/04/23 06:08	24448-09-7	S0
d9-NEtFOSE (S)	1	%	10-150		1	07/25/23 14:13	08/04/23 06:08	1691-99-2	S0

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK24-SB01 (0-1)-Dup Lab ID: 10661127010 Collected: 07/10/23 14:00 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	27.2	%	0.10	0.10	1		08/08/23 13:51		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	0.42	ug/kg	0.13	0.059	1	07/25/23 14:13	08/04/23 06:22	120226-60-0	
11CI-PF3OUdS	<0.034	ug/kg	0.12	0.034	1	07/25/23 14:13	08/04/23 06:22	763051-92-9	
4:2 FTS	<0.031	ug/kg	0.12	0.031	1	07/25/23 14:13	08/04/23 06:22	757124-72-4	
6:2 FTS	<0.055	ug/kg	0.13	0.055	1	07/25/23 14:13	08/04/23 06:22	27619-97-2	
8:2 FTS	0.23	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 06:22	39108-34-4	
9CI-PF3ONS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 06:22	756426-58-1	
ADONA	<0.048	ug/kg	0.13	0.048	1	07/25/23 14:13	08/04/23 06:22	919005-14-4	
HFPO-DA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:22	13252-13-6	
NEtFOSAA	<0.053	ug/kg	0.13	0.053	1	07/25/23 14:13	08/04/23 06:22	2991-50-6	
NEtFOSA	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 06:22	4151-50-2	
NEtFOSE	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 06:22	1691-99-2	
NMeFOSAA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:22	2355-31-9	
NMeFOSA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 06:22	31506-32-8	
NMeFOSE	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 06:22	24448-09-7	
Perfluorobutanesulfonic acid	0.039J	ug/kg	0.12	0.035	1	07/25/23 14:13	08/04/23 06:22	375-73-5	
Perfluorodecanoic acid	0.53	ug/kg	0.13	0.030	1	07/25/23 14:13	08/04/23 06:22	335-76-2	
Perfluorohexanoic acid	1.2	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 06:22	307-24-4	
PFBA	0.55	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 06:22	375-22-4	
PFDS	0.052J	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:22	335-77-3	
PFDoS	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 06:22	79780-39-5	
PFHpS	0.087J	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:22	375-92-8	
PFHxDA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 06:22	67905-19-5	
PFNS	0.16	ug/kg	0.13	0.046	1	07/25/23 14:13	08/04/23 06:22	68259-12-1	
PFODA	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 06:22	16517-11-6	
PFOSA	0.13	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 06:22	754-91-6	
PFPeA	2.4	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 06:22	2706-90-3	
PFPeS	0.058J	ug/kg	0.12	0.032	1	07/25/23 14:13	08/04/23 06:22	2706-91-4	
Perfluorododecanoic acid	0.070J	ug/kg	0.13	0.044	1	07/25/23 14:13	08/04/23 06:22	307-55-1	
Perfluoroheptanoic acid	0.69	ug/kg	0.13	0.046	1	07/25/23 14:13	08/04/23 06:22	375-85-9	
Perfluorohexanesulfonic acid	0.96	ug/kg	0.12	0.029	1	07/25/23 14:13	08/04/23 06:22	355-46-4	
Perfluorononanoic acid	0.55	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 06:22	375-95-1	
Perfluorooctanesulfonic acid	35.0	ug/kg	1.2	0.39	10	07/25/23 14:13	08/08/23 17:28	1763-23-1	
Perfluorooctanoic acid	0.76	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 06:22	335-67-1	
Perfluorotetradecanoic acid	<0.045	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 06:22	376-06-7	
Perfluorotridecanoic acid	0.34	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 06:22	72629-94-8	
Perfluoroundecanoic acid	2.1	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 06:22	2058-94-8	
Surrogates									
13C2-PFDoA (S)	96	%	25-150		1	07/25/23 14:13	08/04/23 06:22		
13C2-PFTA (S)	91	%	25-150		1	07/25/23 14:13	08/04/23 06:22		
13C24:2FTS (S)	166	%	25-150		1	07/25/23 14:13	08/04/23 06:22		S0

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK24-SB01 (0-1)-Dup Lab ID: 10661127010 Collected: 07/10/23 14:00 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	206	%	25-150		1	07/25/23 14:13	08/04/23 06:22		S0
13C28:2FTS (S)	255	%	25-150		1	07/25/23 14:13	08/04/23 06:22		S0
13C2PFHxDA (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 06:22		
13C3-PFBS (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 06:22	375-73-5	
13C3-PFHxS (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 06:22	355-46-4	
13C3HFPO-DA (S)	97	%	25-150		1	07/25/23 14:13	08/04/23 06:22		
13C4-PFBA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 06:22	375-22-4	
13C4-PFHpA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 06:22	375-85-9	
13C5-PFHxA (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 06:22	307-24-4	
13C5-PFPeA (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 06:22	2706-90-3	
13C6-PFDA (S)	104	%	25-150		1	07/25/23 14:13	08/04/23 06:22	335-76-2	
13C7-PFUdA (S)	105	%	25-150		1	07/25/23 14:13	08/04/23 06:22	2058-94-8	
13C8-PFOA (S)	93	%	25-150		1	07/25/23 14:13	08/04/23 06:22	335-67-1	
13C8-PFOS (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 06:22	1763-23-1	
13C8-PFOSA (S)	62	%	25-150		1	07/25/23 14:13	08/04/23 06:22	754-91-6	
13C9-PFNA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 06:22	375-95-1	
d3-MeFOSAA (S)	104	%	25-150		1	07/25/23 14:13	08/04/23 06:22	2355-31-9	
d3-NMeFOSA (S)	1	%	10-150		1	07/25/23 14:13	08/04/23 06:22	31506-32-8	S0
d5-EtFOSAA (S)	120	%	25-150		1	07/25/23 14:13	08/04/23 06:22	2991-50-6	
d5-NEtFOSA (S)	3	%	10-150		1	07/25/23 14:13	08/04/23 06:22	4151-50-2	S0
d7-NMeFOSE (S)	12	%	10-150		1	07/25/23 14:13	08/04/23 06:22	24448-09-7	
d9-NEtFOSE (S)	14	%	10-150		1	07/25/23 14:13	08/04/23 06:22	1691-99-2	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK24-SB01 (0-1)-Dup Lab ID: 10661127011 Collected: 07/10/23 14:00 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	25.9	%	0.10	0.10	1		08/08/23 13:52		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	0.54	ug/kg	0.13	0.059	1	07/25/23 14:13	08/04/23 06:29	120226-60-0	
11CI-PF3OUdS	<0.034	ug/kg	0.12	0.034	1	07/25/23 14:13	08/04/23 06:29	763051-92-9	
4:2 FTS	<0.031	ug/kg	0.12	0.031	1	07/25/23 14:13	08/04/23 06:29	757124-72-4	
6:2 FTS	0.072J	ug/kg	0.13	0.055	1	07/25/23 14:13	08/04/23 06:29	27619-97-2	
8:2 FTS	0.34	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 06:29	39108-34-4	
9CI-PF3ONS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 06:29	756426-58-1	
ADONA	<0.048	ug/kg	0.13	0.048	1	07/25/23 14:13	08/04/23 06:29	919005-14-4	
HFPO-DA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:29	13252-13-6	
NEtFOSAA	<0.053	ug/kg	0.13	0.053	1	07/25/23 14:13	08/04/23 06:29	2991-50-6	
NEtFOSA	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 06:29	4151-50-2	
NEtFOSE	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 06:29	1691-99-2	
NMeFOSAA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:29	2355-31-9	
NMeFOSA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 06:29	31506-32-8	
NMeFOSE	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 06:29	24448-09-7	
Perfluorobutanesulfonic acid	0.038J	ug/kg	0.12	0.035	1	07/25/23 14:13	08/04/23 06:29	375-73-5	
Perfluorodecanoic acid	0.50	ug/kg	0.13	0.030	1	07/25/23 14:13	08/04/23 06:29	335-76-2	
Perfluorohexanoic acid	1.3	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 06:29	307-24-4	
PFBA	0.53	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 06:29	375-22-4	
PFDS	0.066J	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:29	335-77-3	
PFDoS	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 06:29	79780-39-5	
PFHpS	0.082J	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:29	375-92-8	
PFHxDA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 06:29	67905-19-5	
PFNS	0.16	ug/kg	0.13	0.046	1	07/25/23 14:13	08/04/23 06:29	68259-12-1	
PFODA	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 06:29	16517-11-6	
PFOSA	0.10J	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 06:29	754-91-6	
PFPeA	2.4	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 06:29	2706-90-3	
PFPeS	0.061J	ug/kg	0.12	0.032	1	07/25/23 14:13	08/04/23 06:29	2706-91-4	
Perfluorododecanoic acid	0.11J	ug/kg	0.13	0.044	1	07/25/23 14:13	08/04/23 06:29	307-55-1	
Perfluoroheptanoic acid	0.70	ug/kg	0.13	0.046	1	07/25/23 14:13	08/04/23 06:29	375-85-9	
Perfluorohexanesulfonic acid	0.97	ug/kg	0.12	0.029	1	07/25/23 14:13	08/04/23 06:29	355-46-4	
Perfluorononanoic acid	0.52	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 06:29	375-95-1	
Perfluorooctanesulfonic acid	26.3	ug/kg	1.2	0.39	10	07/25/23 14:13	08/08/23 17:43	1763-23-1	
Perfluorooctanoic acid	0.84	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 06:29	335-67-1	
Perfluorotetradecanoic acid	<0.045	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 06:29	376-06-7	
Perfluorotridecanoic acid	0.81	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 06:29	72629-94-8	
Perfluoroundecanoic acid	1.8	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 06:29	2058-94-8	
Surrogates									
13C2-PFDoA (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 06:29		
13C2-PFTA (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 06:29		
13C24:2FTS (S)	132	%	25-150		1	07/25/23 14:13	08/04/23 06:29		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK24-SB01 (0-1)-Dup Lab ID: 10661127011 Collected: 07/10/23 14:00 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	134	%	25-150		1	07/25/23 14:13	08/04/23 06:29		
13C28:2FTS (S)	199	%	25-150		1	07/25/23 14:13	08/04/23 06:29		S0
13C2PFHxDA (S)	77	%	25-150		1	07/25/23 14:13	08/04/23 06:29		
13C3-PFBS (S)	74	%	25-150		1	07/25/23 14:13	08/04/23 06:29	375-73-5	
13C3-PFHxS (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 06:29	355-46-4	
13C3HFPO-DA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 06:29		
13C4-PFBA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 06:29	375-22-4	
13C4-PFHpA (S)	78	%	25-150		1	07/25/23 14:13	08/04/23 06:29	375-85-9	
13C5-PFHxA (S)	76	%	25-150		1	07/25/23 14:13	08/04/23 06:29	307-24-4	
13C5-PFPeA (S)	78	%	25-150		1	07/25/23 14:13	08/04/23 06:29	2706-90-3	
13C6-PFDA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 06:29	335-76-2	
13C7-PFUdA (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 06:29	2058-94-8	
13C8-PFOA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 06:29	335-67-1	
13C8-PFOS (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 06:29	1763-23-1	
13C8-PFOSA (S)	64	%	25-150		1	07/25/23 14:13	08/04/23 06:29	754-91-6	
13C9-PFNA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 06:29	375-95-1	
d3-MeFOSAA (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 06:29	2355-31-9	
d3-NMeFOSA (S)	1	%	10-150		1	07/25/23 14:13	08/04/23 06:29	31506-32-8	S0
d5-EtFOSAA (S)	103	%	25-150		1	07/25/23 14:13	08/04/23 06:29	2991-50-6	
d5-NEtFOSA (S)	2	%	10-150		1	07/25/23 14:13	08/04/23 06:29	4151-50-2	S0
d7-NMeFOSE (S)	14	%	10-150		1	07/25/23 14:13	08/04/23 06:29	24448-09-7	
d9-NEtFOSE (S)	15	%	10-150		1	07/25/23 14:13	08/04/23 06:29	1691-99-2	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK24-SB01 (1-2) Lab ID: 10661127012 Collected: 07/10/23 14:05 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	24.5	%	0.10	0.10	1		08/08/23 13:52		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	<0.058	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 06:37	120226-60-0	
11CI-PF3OUdS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 06:37	763051-92-9	
4:2 FTS	<0.031	ug/kg	0.12	0.031	1	07/25/23 14:13	08/04/23 06:37	757124-72-4	
6:2 FTS	<0.055	ug/kg	0.13	0.055	1	07/25/23 14:13	08/04/23 06:37	27619-97-2	
8:2 FTS	<0.058	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 06:37	39108-34-4	
9CI-PF3ONS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 06:37	756426-58-1	
ADONA	<0.048	ug/kg	0.13	0.048	1	07/25/23 14:13	08/04/23 06:37	919005-14-4	
HFPO-DA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:37	13252-13-6	
NEtFOSAA	<0.053	ug/kg	0.13	0.053	1	07/25/23 14:13	08/04/23 06:37	2991-50-6	
NEtFOSA	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 06:37	4151-50-2	
NEtFOSE	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 06:37	1691-99-2	
NMeFOSAA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:37	2355-31-9	
NMeFOSA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 06:37	31506-32-8	
NMeFOSE	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 06:37	24448-09-7	
Perfluorobutanesulfonic acid	<0.035	ug/kg	0.12	0.035	1	07/25/23 14:13	08/04/23 06:37	375-73-5	
Perfluorodecanoic acid	<0.030	ug/kg	0.13	0.030	1	07/25/23 14:13	08/04/23 06:37	335-76-2	
Perfluorohexanoic acid	0.36	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 06:37	307-24-4	
PFBA	0.091J	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:37	375-22-4	
PFDS	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:37	335-77-3	
PFDoS	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 06:37	79780-39-5	
PFHpS	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:37	375-92-8	
PFHxDA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 06:37	67905-19-5	
PFNS	<0.046	ug/kg	0.13	0.046	1	07/25/23 14:13	08/04/23 06:37	68259-12-1	
PFODA	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 06:37	16517-11-6	
PFOSA	<0.039	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 06:37	754-91-6	
PFPeA	0.63	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 06:37	2706-90-3	
PFPeS	0.032J	ug/kg	0.12	0.032	1	07/25/23 14:13	08/04/23 06:37	2706-91-4	
Perfluorododecanoic acid	<0.044	ug/kg	0.13	0.044	1	07/25/23 14:13	08/04/23 06:37	307-55-1	
Perfluoroheptanoic acid	0.12J	ug/kg	0.13	0.046	1	07/25/23 14:13	08/04/23 06:37	375-85-9	
Perfluorohexanesulfonic acid	0.27	ug/kg	0.12	0.029	1	07/25/23 14:13	08/04/23 06:37	355-46-4	
Perfluorononanoic acid	0.065J	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 06:37	375-95-1	
Perfluorooctanesulfonic acid	0.40	ug/kg	0.12	0.039	1	07/25/23 14:13	08/04/23 06:37	1763-23-1	
Perfluorooctanoic acid	0.11J	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 06:37	335-67-1	
Perfluorotetradecanoic acid	<0.045	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 06:37	376-06-7	
Perfluorotridecanoic acid	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 06:37	72629-94-8	
Perfluoroundecanoic acid	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 06:37	2058-94-8	
Surrogates									
13C2-PFDoA (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 06:37		
13C2-PFTA (S)	98	%	25-150		1	07/25/23 14:13	08/04/23 06:37		
13C24:2FTS (S)	138	%	25-150		1	07/25/23 14:13	08/04/23 06:37		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK24-SB01 (1-2) Lab ID: 10661127012 Collected: 07/10/23 14:05 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 06:37		
13C28:2FTS (S)	157	%	25-150		1	07/25/23 14:13	08/04/23 06:37		S0
13C2PFHxDA (S)	91	%	25-150		1	07/25/23 14:13	08/04/23 06:37		
13C3-PFBS (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 06:37	375-73-5	
13C3-PFHxS (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 06:37	355-46-4	
13C3HFPO-DA (S)	100	%	25-150		1	07/25/23 14:13	08/04/23 06:37		
13C4-PFBA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 06:37	375-22-4	
13C4-PFHpA (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 06:37	375-85-9	
13C5-PFHxA (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 06:37	307-24-4	
13C5-PFPeA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 06:37	2706-90-3	
13C6-PFDA (S)	98	%	25-150		1	07/25/23 14:13	08/04/23 06:37	335-76-2	
13C7-PFUdA (S)	103	%	25-150		1	07/25/23 14:13	08/04/23 06:37	2058-94-8	
13C8-PFOA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 06:37	335-67-1	
13C8-PFOS (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 06:37	1763-23-1	
13C8-PFOSA (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 06:37	754-91-6	
13C9-PFNA (S)	93	%	25-150		1	07/25/23 14:13	08/04/23 06:37	375-95-1	
d3-MeFOSAA (S)	100	%	25-150		1	07/25/23 14:13	08/04/23 06:37	2355-31-9	
d3-NMeFOSA (S)	1	%	10-150		1	07/25/23 14:13	08/04/23 06:37	31506-32-8	S0
d5-EtFOSAA (S)	103	%	25-150		1	07/25/23 14:13	08/04/23 06:37	2991-50-6	
d5-NEtFOSA (S)	0	%	10-150		1	07/25/23 14:13	08/04/23 06:37	4151-50-2	S0
d7-NMeFOSE (S)	25	%	10-150		1	07/25/23 14:13	08/04/23 06:37	24448-09-7	
d9-NEtFOSE (S)	24	%	10-150		1	07/25/23 14:13	08/04/23 06:37	1691-99-2	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK24-SB01 (2-3) Lab ID: 10661127013 Collected: 07/10/23 14:10 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	24.3	%	0.10	0.10	1		08/08/23 13:52		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	0.059J	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 06:44	120226-60-0	
11CI-PF3OUdS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 06:44	763051-92-9	
4:2 FTS	<0.030	ug/kg	0.12	0.030	1	07/25/23 14:13	08/04/23 06:44	757124-72-4	
6:2 FTS	<0.054	ug/kg	0.12	0.054	1	07/25/23 14:13	08/04/23 06:44	27619-97-2	
8:2 FTS	<0.057	ug/kg	0.13	0.057	1	07/25/23 14:13	08/04/23 06:44	39108-34-4	
9CI-PF3ONS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 06:44	756426-58-1	
ADONA	<0.047	ug/kg	0.12	0.047	1	07/25/23 14:13	08/04/23 06:44	919005-14-4	
HFPO-DA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 06:44	13252-13-6	
NEtFOSAA	<0.052	ug/kg	0.13	0.052	1	07/25/23 14:13	08/04/23 06:44	2991-50-6	
NEtFOSA	<0.033	ug/kg	0.13	0.033	1	07/25/23 14:13	08/04/23 06:44	4151-50-2	
NEtFOSE	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 06:44	1691-99-2	
NMeFOSAA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:44	2355-31-9	
NMeFOSA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 06:44	31506-32-8	
NMeFOSE	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 06:44	24448-09-7	
Perfluorobutanesulfonic acid	0.035J	ug/kg	0.12	0.034	1	07/25/23 14:13	08/04/23 06:44	375-73-5	
Perfluorodecanoic acid	<0.030	ug/kg	0.13	0.030	1	07/25/23 14:13	08/04/23 06:44	335-76-2	
Perfluorohexanoic acid	0.096J	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 06:44	307-24-4	
PFBA	0.043J	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:44	375-22-4	
PFDS	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:44	335-77-3	
PFDoS	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 06:44	79780-39-5	
PFHpS	<0.036	ug/kg	0.12	0.036	1	07/25/23 14:13	08/04/23 06:44	375-92-8	
PFHxDA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 06:44	67905-19-5	
PFNS	<0.045	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 06:44	68259-12-1	
PFODA	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 06:44	16517-11-6	
PFOSA	<0.038	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 06:44	754-91-6	
PFPeA	0.22	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 06:44	2706-90-3	
PFPeS	<0.031	ug/kg	0.12	0.031	1	07/25/23 14:13	08/04/23 06:44	2706-91-4	
Perfluorododecanoic acid	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 06:44	307-55-1	
Perfluoroheptanoic acid	<0.045	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 06:44	375-85-9	
Perfluorohexanesulfonic acid	0.036J	ug/kg	0.12	0.029	1	07/25/23 14:13	08/04/23 06:44	355-46-4	
Perfluorononanoic acid	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 06:44	375-95-1	
Perfluorooctanesulfonic acid	0.075J	ug/kg	0.12	0.039	1	07/25/23 14:13	08/04/23 06:44	1763-23-1	
Perfluorooctanoic acid	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 06:44	335-67-1	
Perfluorotetradecanoic acid	<0.045	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 06:44	376-06-7	
Perfluorotridecanoic acid	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 06:44	72629-94-8	
Perfluoroundecanoic acid	<0.039	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 06:44	2058-94-8	
Surrogates									
13C2-PFDoA (S)	91	%	25-150		1	07/25/23 14:13	08/04/23 06:44		
13C2-PFTA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 06:44		
13C24:2FTS (S)	141	%	25-150		1	07/25/23 14:13	08/04/23 06:44		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK24-SB01 (2-3) Lab ID: 10661127013 Collected: 07/10/23 14:10 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	96	%	25-150		1	07/25/23 14:13	08/04/23 06:44		
13C28:2FTS (S)	143	%	25-150		1	07/25/23 14:13	08/04/23 06:44		
13C2PFHxDA (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 06:44		
13C3-PFBS (S)	78	%	25-150		1	07/25/23 14:13	08/04/23 06:44	375-73-5	
13C3-PFHxS (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 06:44	355-46-4	
13C3HFPO-DA (S)	97	%	25-150		1	07/25/23 14:13	08/04/23 06:44		
13C4-PFBA (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 06:44	375-22-4	
13C4-PFHpA (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 06:44	375-85-9	
13C5-PFHxA (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 06:44	307-24-4	
13C5-PFPeA (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 06:44	2706-90-3	
13C6-PFDA (S)	96	%	25-150		1	07/25/23 14:13	08/04/23 06:44	335-76-2	
13C7-PFUdA (S)	94	%	25-150		1	07/25/23 14:13	08/04/23 06:44	2058-94-8	
13C8-PFOA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 06:44	335-67-1	
13C8-PFOS (S)	82	%	25-150		1	07/25/23 14:13	08/04/23 06:44	1763-23-1	
13C8-PFOSA (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 06:44	754-91-6	
13C9-PFNA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 06:44	375-95-1	
d3-MeFOSAA (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 06:44	2355-31-9	
d3-NMeFOSA (S)	1	%	10-150		1	07/25/23 14:13	08/04/23 06:44	31506-32-8	S0
d5-EtFOSAA (S)	98	%	25-150		1	07/25/23 14:13	08/04/23 06:44	2991-50-6	
d5-NEtFOSA (S)	0	%	10-150		1	07/25/23 14:13	08/04/23 06:44	4151-50-2	S0
d7-NMeFOSE (S)	21	%	10-150		1	07/25/23 14:13	08/04/23 06:44	24448-09-7	
d9-NEtFOSE (S)	21	%	10-150		1	07/25/23 14:13	08/04/23 06:44	1691-99-2	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK24-SB01 (3-4) Lab ID: 10661127014 Collected: 07/10/23 14:15 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	28.2	%	0.10	0.10	1		08/08/23 13:53		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	<0.060	ug/kg	0.13	0.060	1	07/25/23 14:13	08/04/23 08:29	120226-60-0	
11CI-PF3OUdS	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 08:29	763051-92-9	
4:2 FTS	<0.031	ug/kg	0.13	0.031	1	07/25/23 14:13	08/04/23 08:29	757124-72-4	
6:2 FTS	<0.056	ug/kg	0.13	0.056	1	07/25/23 14:13	08/04/23 08:29	27619-97-2	
8:2 FTS	<0.060	ug/kg	0.13	0.060	1	07/25/23 14:13	08/04/23 08:29	39108-34-4	
9CI-PF3ONS	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 08:29	756426-58-1	
ADONA	<0.049	ug/kg	0.13	0.049	1	07/25/23 14:13	08/04/23 08:29	919005-14-4	
HFPO-DA	<0.038	ug/kg	0.14	0.038	1	07/25/23 14:13	08/04/23 08:29	13252-13-6	
NEtFOSAA	<0.055	ug/kg	0.14	0.055	1	07/25/23 14:13	08/04/23 08:29	2991-50-6	
NEtFOSA	<0.035	ug/kg	0.14	0.035	1	07/25/23 14:13	08/04/23 08:29	4151-50-2	
NEtFOSE	<0.044	ug/kg	0.14	0.044	1	07/25/23 14:13	08/04/23 08:29	1691-99-2	
NMeFOSAA	<0.038	ug/kg	0.14	0.038	1	07/25/23 14:13	08/04/23 08:29	2355-31-9	
NMeFOSA	<0.037	ug/kg	0.14	0.037	1	07/25/23 14:13	08/04/23 08:29	31506-32-8	
NMeFOSE	<0.041	ug/kg	0.14	0.041	1	07/25/23 14:13	08/04/23 08:29	24448-09-7	
Perfluorobutanesulfonic acid	<0.036	ug/kg	0.12	0.036	1	07/25/23 14:13	08/04/23 08:29	375-73-5	
Perfluorodecanoic acid	<0.031	ug/kg	0.14	0.031	1	07/25/23 14:13	08/04/23 08:29	335-76-2	
Perfluorohexanoic acid	0.061J	ug/kg	0.14	0.037	1	07/25/23 14:13	08/04/23 08:29	307-24-4	
PFBA	0.045J	ug/kg	0.14	0.039	1	07/25/23 14:13	08/04/23 08:29	375-22-4	
PFDS	<0.038	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 08:29	335-77-3	
PFDoS	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 08:29	79780-39-5	
PFHpS	<0.038	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 08:29	375-92-8	
PFHxDA	<0.036	ug/kg	0.14	0.036	1	07/25/23 14:13	08/04/23 08:29	67905-19-5	
PFNS	<0.047	ug/kg	0.13	0.047	1	07/25/23 14:13	08/04/23 08:29	68259-12-1	
PFODA	<0.045	ug/kg	0.14	0.045	1	07/25/23 14:13	08/04/23 08:29	16517-11-6	
PFOSA	<0.040	ug/kg	0.14	0.040	1	07/25/23 14:13	08/04/23 08:29	754-91-6	
PFPeA	0.11J	ug/kg	0.14	0.039	1	07/25/23 14:13	08/04/23 08:29	2706-90-3	
PFPeS	<0.033	ug/kg	0.13	0.033	1	07/25/23 14:13	08/04/23 08:29	2706-91-4	
Perfluorododecanoic acid	<0.045	ug/kg	0.14	0.045	1	07/25/23 14:13	08/04/23 08:29	307-55-1	
Perfluoroheptanoic acid	<0.047	ug/kg	0.14	0.047	1	07/25/23 14:13	08/04/23 08:29	375-85-9	
Perfluorohexanesulfonic acid	<0.030	ug/kg	0.12	0.030	1	07/25/23 14:13	08/04/23 08:29	355-46-4	
Perfluorononanoic acid	<0.042	ug/kg	0.14	0.042	1	07/25/23 14:13	08/04/23 08:29	375-95-1	
Perfluorooctanesulfonic acid	0.069J	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 08:29	1763-23-1	
Perfluorooctanoic acid	<0.042	ug/kg	0.14	0.042	1	07/25/23 14:13	08/04/23 08:29	335-67-1	
Perfluorotetradecanoic acid	<0.047	ug/kg	0.14	0.047	1	07/25/23 14:13	08/04/23 08:29	376-06-7	
Perfluorotridecanoic acid	<0.043	ug/kg	0.14	0.043	1	07/25/23 14:13	08/04/23 08:29	72629-94-8	
Perfluoroundecanoic acid	<0.041	ug/kg	0.14	0.041	1	07/25/23 14:13	08/04/23 08:29	2058-94-8	
Surrogates									
13C2-PFDoA (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 08:29		
13C2-PFTA (S)	78	%	25-150		1	07/25/23 14:13	08/04/23 08:29		
13C24:2FTS (S)	185	%	25-150		1	07/25/23 14:13	08/04/23 08:29		S3

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK24-SB01 (3-4) Lab ID: 10661127014 Collected: 07/10/23 14:15 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	303	%	25-150		1	07/25/23 14:13	08/04/23 08:29		S3
13C28:2FTS (S)	319	%	25-150		1	07/25/23 14:13	08/04/23 08:29		S3
13C2PFHxDA (S)	68	%	25-150		1	07/25/23 14:13	08/04/23 08:29		
13C3-PFBS (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 08:29	375-73-5	
13C3-PFHxS (S)	81	%	25-150		1	07/25/23 14:13	08/04/23 08:29	355-46-4	
13C3HFPO-DA (S)	74	%	25-150		1	07/25/23 14:13	08/04/23 08:29		
13C4-PFBA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 08:29	375-22-4	
13C4-PFHpA (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 08:29	375-85-9	
13C5-PFHxA (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 08:29	307-24-4	
13C5-PFPeA (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 08:29	2706-90-3	
13C6-PFDA (S)	90	%	25-150		1	07/25/23 14:13	08/04/23 08:29	335-76-2	
13C7-PFUdA (S)	91	%	25-150		1	07/25/23 14:13	08/04/23 08:29	2058-94-8	
13C8-PFOA (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 08:29	335-67-1	
13C8-PFOS (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 08:29	1763-23-1	
13C8-PFOSA (S)	58	%	25-150		1	07/25/23 14:13	08/04/23 08:29	754-91-6	
13C9-PFNA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 08:29	375-95-1	
d3-MeFOSAA (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 08:29	2355-31-9	
d3-NMeFOSA (S)	3	%	10-150		1	07/25/23 14:13	08/04/23 08:29	31506-32-8	S0
d5-EtFOSAA (S)	97	%	25-150		1	07/25/23 14:13	08/04/23 08:29	2991-50-6	
d5-NEtFOSA (S)	4	%	10-150		1	07/25/23 14:13	08/04/23 08:29	4151-50-2	S0
d7-NMeFOSE (S)	16	%	10-150		1	07/25/23 14:13	08/04/23 08:29	24448-09-7	
d9-NEtFOSE (S)	18	%	10-150		1	07/25/23 14:13	08/04/23 08:29	1691-99-2	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK25-SB01 (0-1) Lab ID: 10661127015 Collected: 07/10/23 12:35 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	25.4	%	0.10	0.10	1		08/08/23 13:53		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	6.8	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 08:36	120226-60-0	
11CI-PF3OUdS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 08:36	763051-92-9	
4:2 FTS	<0.030	ug/kg	0.12	0.030	1	07/25/23 14:13	08/04/23 08:36	757124-72-4	
6:2 FTS	3.4	ug/kg	0.13	0.055	1	07/25/23 14:13	08/04/23 08:36	27619-97-2	
8:2 FTS	1.2	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 08:36	39108-34-4	
9CI-PF3ONS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 08:36	756426-58-1	
ADONA	<0.048	ug/kg	0.13	0.048	1	07/25/23 14:13	08/04/23 08:36	919005-14-4	
HFPO-DA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:36	13252-13-6	
NEtFOSAA	<0.053	ug/kg	0.13	0.053	1	07/25/23 14:13	08/04/23 08:36	2991-50-6	
NEtFOSA	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 08:36	4151-50-2	
NEtFOSE	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 08:36	1691-99-2	
NMeFOSAA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:36	2355-31-9	
NMeFOSA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 08:36	31506-32-8	
NMeFOSE	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 08:36	24448-09-7	
Perfluorobutanesulfonic acid	0.12	ug/kg	0.12	0.035	1	07/25/23 14:13	08/04/23 08:36	375-73-5	
Perfluorodecanoic acid	0.26	ug/kg	0.13	0.030	1	07/25/23 14:13	08/04/23 08:36	335-76-2	
Perfluorohexanoic acid	1.2	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 08:36	307-24-4	
PFBA	0.36	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:36	375-22-4	
PFDS	0.19	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:36	335-77-3	
PFDoS	0.21	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 08:36	79780-39-5	
PFHpS	0.10J	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:36	375-92-8	
PFHxDA	0.10J	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 08:36	67905-19-5	
PFNS	0.095J	ug/kg	0.13	0.046	1	07/25/23 14:13	08/04/23 08:36	68259-12-1	
PFODA	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 08:36	16517-11-6	
PFOSA	0.33	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 08:36	754-91-6	
PFPeA	1.8	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 08:36	2706-90-3	
PFPeS	0.20	ug/kg	0.12	0.032	1	07/25/23 14:13	08/04/23 08:36	2706-91-4	
Perfluorododecanoic acid	0.60	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 08:36	307-55-1	
Perfluoroheptanoic acid	0.25	ug/kg	0.13	0.046	1	07/25/23 14:13	08/04/23 08:36	375-85-9	
Perfluorohexanesulfonic acid	2.0	ug/kg	0.12	0.029	1	07/25/23 14:13	08/04/23 08:36	355-46-4	
Perfluorononanoic acid	0.11J	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 08:36	375-95-1	
Perfluorooctanesulfonic acid	17.6	ug/kg	0.61	0.20	5	07/25/23 14:13	08/08/23 17:50	1763-23-1	
Perfluorooctanoic acid	0.32	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 08:36	335-67-1	
Perfluorotetradecanoic acid	0.25	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 08:36	376-06-7	
Perfluorotridecanoic acid	1.5	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 08:36	72629-94-8	
Perfluoroundecanoic acid	0.47	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 08:36	2058-94-8	
Surrogates									
13C2-PFDoA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 08:36		
13C2-PFTA (S)	76	%	25-150		1	07/25/23 14:13	08/04/23 08:36		
13C24:2FTS (S)	118	%	25-150		1	07/25/23 14:13	08/04/23 08:36		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK25-SB01 (0-1) Lab ID: 10661127015 Collected: 07/10/23 12:35 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	98	%	25-150		1	07/25/23 14:13	08/04/23 08:36		
13C28:2FTS (S)	141	%	25-150		1	07/25/23 14:13	08/04/23 08:36		
13C2PFHxDA (S)	12	%	25-150		1	07/25/23 14:13	08/04/23 08:36		S0
13C3-PFBS (S)	69	%	25-150		1	07/25/23 14:13	08/04/23 08:36	375-73-5	
13C3-PFHxS (S)	74	%	25-150		1	07/25/23 14:13	08/04/23 08:36	355-46-4	
13C3HFPO-DA (S)	70	%	25-150		1	07/25/23 14:13	08/04/23 08:36		
13C4-PFBA (S)	74	%	25-150		1	07/25/23 14:13	08/04/23 08:36	375-22-4	
13C4-PFHpA (S)	71	%	25-150		1	07/25/23 14:13	08/04/23 08:36	375-85-9	
13C5-PFHxA (S)	70	%	25-150		1	07/25/23 14:13	08/04/23 08:36	307-24-4	
13C5-PFPeA (S)	72	%	25-150		1	07/25/23 14:13	08/04/23 08:36	2706-90-3	
13C6-PFDA (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 08:36	335-76-2	
13C7-PFUdA (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 08:36	2058-94-8	
13C8-PFOA (S)	74	%	25-150		1	07/25/23 14:13	08/04/23 08:36	335-67-1	
13C8-PFOS (S)	71	%	25-150		1	07/25/23 14:13	08/04/23 08:36	1763-23-1	
13C8-PFOSA (S)	73	%	25-150		1	07/25/23 14:13	08/04/23 08:36	754-91-6	
13C9-PFNA (S)	74	%	25-150		1	07/25/23 14:13	08/04/23 08:36	375-95-1	
d3-MeFOSAA (S)	72	%	25-150		1	07/25/23 14:13	08/04/23 08:36	2355-31-9	
d3-NMeFOSA (S)	8	%	10-150		1	07/25/23 14:13	08/04/23 08:36	31506-32-8	S0
d5-EtFOSAA (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 08:36	2991-50-6	
d5-NEtFOSA (S)	5	%	10-150		1	07/25/23 14:13	08/04/23 08:36	4151-50-2	S0
d7-NMeFOSE (S)	34	%	10-150		1	07/25/23 14:13	08/04/23 08:36	24448-09-7	
d9-NEtFOSE (S)	28	%	10-150		1	07/25/23 14:13	08/04/23 08:36	1691-99-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK25-SB01 (1-2) Lab ID: 10661127016 Collected: 07/10/23 12:40 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	23.9	%	0.10	0.10	1		08/08/23 13:53		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	0.078J	ug/kg	0.12	0.056	1	07/25/23 14:13	08/04/23 08:43	120226-60-0	
11CI-PF3OUdS	<0.032	ug/kg	0.12	0.032	1	07/25/23 14:13	08/04/23 08:43	763051-92-9	
4:2 FTS	<0.029	ug/kg	0.12	0.029	1	07/25/23 14:13	08/04/23 08:43	757124-72-4	
6:2 FTS	3.8	ug/kg	0.12	0.053	1	07/25/23 14:13	08/04/23 08:43	27619-97-2	
8:2 FTS	<0.056	ug/kg	0.12	0.056	1	07/25/23 14:13	08/04/23 08:43	39108-34-4	
9CI-PF3ONS	<0.032	ug/kg	0.12	0.032	1	07/25/23 14:13	08/04/23 08:43	756426-58-1	
ADONA	<0.046	ug/kg	0.12	0.046	1	07/25/23 14:13	08/04/23 08:43	919005-14-4	
HFPO-DA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 08:43	13252-13-6	
NEtFOSAA	<0.051	ug/kg	0.13	0.051	1	07/25/23 14:13	08/04/23 08:43	2991-50-6	
NEtFOSA	<0.033	ug/kg	0.13	0.033	1	07/25/23 14:13	08/04/23 08:43	4151-50-2	
NEtFOSE	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 08:43	1691-99-2	
NMeFOSAA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 08:43	2355-31-9	
NMeFOSA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 08:43	31506-32-8	
NMeFOSE	<0.039	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 08:43	24448-09-7	
Perfluorobutanesulfonic acid	0.18	ug/kg	0.11	0.034	1	07/25/23 14:13	08/04/23 08:43	375-73-5	
Perfluorodecanoic acid	0.053J	ug/kg	0.13	0.029	1	07/25/23 14:13	08/04/23 08:43	335-76-2	
Perfluorohexanoic acid	1.5	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 08:43	307-24-4	
PFBA	0.51	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 08:43	375-22-4	
PFDS	<0.036	ug/kg	0.12	0.036	1	07/25/23 14:13	08/04/23 08:43	335-77-3	
PFDoS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 08:43	79780-39-5	
PFHpS	0.20	ug/kg	0.12	0.035	1	07/25/23 14:13	08/04/23 08:43	375-92-8	
PFHxDA	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 08:43	67905-19-5	
PFNS	0.046J	ug/kg	0.12	0.044	1	07/25/23 14:13	08/04/23 08:43	68259-12-1	
PFODA	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 08:43	16517-11-6	
PFOSA	0.24	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:43	754-91-6	
PFPeA	1.9	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 08:43	2706-90-3	
PFPeS	0.27	ug/kg	0.12	0.031	1	07/25/23 14:13	08/04/23 08:43	2706-91-4	
Perfluorododecanoic acid	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 08:43	307-55-1	
Perfluoroheptanoic acid	0.23	ug/kg	0.13	0.044	1	07/25/23 14:13	08/04/23 08:43	375-85-9	
Perfluorohexanesulfonic acid	3.0	ug/kg	0.12	0.028	1	07/25/23 14:13	08/04/23 08:43	355-46-4	
Perfluorononanoic acid	0.11J	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 08:43	375-95-1	
Perfluorooctanesulfonic acid	23.8	ug/kg	1.2	0.38	10	07/25/23 14:13	08/08/23 17:57	1763-23-1	
Perfluorooctanoic acid	0.38	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 08:43	335-67-1	
Perfluorotetradecanoic acid	<0.044	ug/kg	0.13	0.044	1	07/25/23 14:13	08/04/23 08:43	376-06-7	
Perfluorotridecanoic acid	0.058J	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 08:43	72629-94-8	
Perfluoroundecanoic acid	0.084J	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 08:43	2058-94-8	
Surrogates									
13C2-PFDoA (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 08:43		
13C2-PFTA (S)	98	%	25-150		1	07/25/23 14:13	08/04/23 08:43		
13C24:2FTS (S)	141	%	25-150		1	07/25/23 14:13	08/04/23 08:43		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK25-SB01 (1-2) Lab ID: 10661127016 Collected: 07/10/23 12:40 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	104	%	25-150		1	07/25/23 14:13	08/04/23 08:43		
13C28:2FTS (S)	155	%	25-150		1	07/25/23 14:13	08/04/23 08:43		S0
13C2PFHxDA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 08:43		
13C3-PFBS (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 08:43	375-73-5	
13C3-PFHxS (S)	91	%	25-150		1	07/25/23 14:13	08/04/23 08:43	355-46-4	
13C3HFPO-DA (S)	90	%	25-150		1	07/25/23 14:13	08/04/23 08:43		
13C4-PFBA (S)	91	%	25-150		1	07/25/23 14:13	08/04/23 08:43	375-22-4	
13C4-PFHpA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 08:43	375-85-9	
13C5-PFHxA (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 08:43	307-24-4	
13C5-PFPeA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 08:43	2706-90-3	
13C6-PFDA (S)	100	%	25-150		1	07/25/23 14:13	08/04/23 08:43	335-76-2	
13C7-PFUdA (S)	104	%	25-150		1	07/25/23 14:13	08/04/23 08:43	2058-94-8	
13C8-PFOA (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 08:43	335-67-1	
13C8-PFOS (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 08:43	1763-23-1	
13C8-PFOSA (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 08:43	754-91-6	
13C9-PFNA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 08:43	375-95-1	
d3-MeFOSAA (S)	91	%	25-150		1	07/25/23 14:13	08/04/23 08:43	2355-31-9	
d3-NMeFOSA (S)	6	%	10-150		1	07/25/23 14:13	08/04/23 08:43	31506-32-8	S0
d5-EtFOSAA (S)	112	%	25-150		1	07/25/23 14:13	08/04/23 08:43	2991-50-6	
d5-NEtFOSA (S)	5	%	10-150		1	07/25/23 14:13	08/04/23 08:43	4151-50-2	S0
d7-NMeFOSE (S)	42	%	10-150		1	07/25/23 14:13	08/04/23 08:43	24448-09-7	
d9-NEtFOSE (S)	49	%	10-150		1	07/25/23 14:13	08/04/23 08:43	1691-99-2	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK25-SB01 (2-3) Lab ID: 10661127017 Collected: 07/10/23 12:45 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	25.9	%	0.10	0.10	1		08/08/23 13:53		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	<0.058	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 08:50	120226-60-0	
11CI-PF3OUdS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 08:50	763051-92-9	
4:2 FTS	<0.030	ug/kg	0.12	0.030	1	07/25/23 14:13	08/04/23 08:50	757124-72-4	
6:2 FTS	2.6	ug/kg	0.13	0.055	1	07/25/23 14:13	08/04/23 08:50	27619-97-2	
8:2 FTS	<0.058	ug/kg	0.13	0.058	1	07/25/23 14:13	08/04/23 08:50	39108-34-4	
9CI-PF3ONS	<0.033	ug/kg	0.12	0.033	1	07/25/23 14:13	08/04/23 08:50	756426-58-1	
ADONA	<0.048	ug/kg	0.13	0.048	1	07/25/23 14:13	08/04/23 08:50	919005-14-4	
HFPO-DA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:50	13252-13-6	
NEtFOSAA	<0.053	ug/kg	0.13	0.053	1	07/25/23 14:13	08/04/23 08:50	2991-50-6	
NEtFOSA	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 08:50	4151-50-2	
NEtFOSE	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 08:50	1691-99-2	
NMeFOSAA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:50	2355-31-9	
NMeFOSA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 08:50	31506-32-8	
NMeFOSE	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 08:50	24448-09-7	
Perfluorobutanesulfonic acid	0.31	ug/kg	0.12	0.035	1	07/25/23 14:13	08/04/23 08:50	375-73-5	
Perfluorodecanoic acid	<0.030	ug/kg	0.13	0.030	1	07/25/23 14:13	08/04/23 08:50	335-76-2	
Perfluorohexanoic acid	1.9	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 08:50	307-24-4	
PFBA	0.37	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:50	375-22-4	
PFDS	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:50	335-77-3	
PFDoS	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 08:50	79780-39-5	
PFHpS	0.16	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:50	375-92-8	
PFHxDA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 08:50	67905-19-5	
PFNS	<0.046	ug/kg	0.13	0.046	1	07/25/23 14:13	08/04/23 08:50	68259-12-1	
PFODA	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 08:50	16517-11-6	
PFOSA	<0.039	ug/kg	0.13	0.039	1	07/25/23 14:13	08/04/23 08:50	754-91-6	
PFPeA	1.9	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 08:50	2706-90-3	
PFPeS	0.45	ug/kg	0.12	0.032	1	07/25/23 14:13	08/04/23 08:50	2706-91-4	
Perfluorododecanoic acid	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 08:50	307-55-1	
Perfluoroheptanoic acid	0.22	ug/kg	0.13	0.046	1	07/25/23 14:13	08/04/23 08:50	375-85-9	
Perfluorohexanesulfonic acid	4.2	ug/kg	0.12	0.029	1	07/25/23 14:13	08/04/23 08:50	355-46-4	
Perfluorononanoic acid	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 08:50	375-95-1	
Perfluorooctanesulfonic acid	7.5	ug/kg	0.12	0.039	1	07/25/23 14:13	08/04/23 08:50	1763-23-1	
Perfluorooctanoic acid	0.42	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 08:50	335-67-1	
Perfluorotetradecanoic acid	<0.045	ug/kg	0.13	0.045	1	07/25/23 14:13	08/04/23 08:50	376-06-7	
Perfluorotridecanoic acid	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 08:50	72629-94-8	
Perfluoroundecanoic acid	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 08:50	2058-94-8	
Surrogates									
13C2-PFDoA (S)	98	%	25-150		1	07/25/23 14:13	08/04/23 08:50		
13C2-PFTA (S)	94	%	25-150		1	07/25/23 14:13	08/04/23 08:50		
13C24:2FTS (S)	139	%	25-150		1	07/25/23 14:13	08/04/23 08:50		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK25-SB01 (2-3) Lab ID: 10661127017 Collected: 07/10/23 12:45 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	102	%	25-150		1	07/25/23 14:13	08/04/23 08:50		
13C28:2FTS (S)	125	%	25-150		1	07/25/23 14:13	08/04/23 08:50		
13C2PFHxDA (S)	68	%	25-150		1	07/25/23 14:13	08/04/23 08:50		
13C3-PFBS (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 08:50	375-73-5	
13C3-PFHxS (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 08:50	355-46-4	
13C3HFPO-DA (S)	91	%	25-150		1	07/25/23 14:13	08/04/23 08:50		
13C4-PFBA (S)	91	%	25-150		1	07/25/23 14:13	08/04/23 08:50	375-22-4	
13C4-PFHpA (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 08:50	375-85-9	
13C5-PFHxA (S)	86	%	25-150		1	07/25/23 14:13	08/04/23 08:50	307-24-4	
13C5-PFPeA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 08:50	2706-90-3	
13C6-PFDA (S)	97	%	25-150		1	07/25/23 14:13	08/04/23 08:50	335-76-2	
13C7-PFUdA (S)	96	%	25-150		1	07/25/23 14:13	08/04/23 08:50	2058-94-8	
13C8-PFOA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 08:50	335-67-1	
13C8-PFOS (S)	87	%	25-150		1	07/25/23 14:13	08/04/23 08:50	1763-23-1	
13C8-PFOSA (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 08:50	754-91-6	
13C9-PFNA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 08:50	375-95-1	
d3-MeFOSAA (S)	83	%	25-150		1	07/25/23 14:13	08/04/23 08:50	2355-31-9	
d3-NMeFOSA (S)	5	%	10-150		1	07/25/23 14:13	08/04/23 08:50	31506-32-8	S0
d5-EtFOSAA (S)	92	%	25-150		1	07/25/23 14:13	08/04/23 08:50	2991-50-6	
d5-NEtFOSA (S)	2	%	10-150		1	07/25/23 14:13	08/04/23 08:50	4151-50-2	S0
d7-NMeFOSE (S)	22	%	10-150		1	07/25/23 14:13	08/04/23 08:50	24448-09-7	
d9-NEtFOSE (S)	23	%	10-150		1	07/25/23 14:13	08/04/23 08:50	1691-99-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK25-SB01 (3-4) Lab ID: 10661127018 Collected: 07/10/23 12:50 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974									
Analytical Method: ASTM D2974									
Pace Analytical Services - Minneapolis									
Percent Moisture	28.6	%	0.10	0.10	1		08/08/23 13:53		N2
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	<0.060	ug/kg	0.13	0.060	1	07/25/23 14:13	08/04/23 08:58	120226-60-0	
11CI-PF3OUdS	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 08:58	763051-92-9	
4:2 FTS	<0.031	ug/kg	0.13	0.031	1	07/25/23 14:13	08/04/23 08:58	757124-72-4	
6:2 FTS	0.35	ug/kg	0.13	0.056	1	07/25/23 14:13	08/04/23 08:58	27619-97-2	
8:2 FTS	<0.059	ug/kg	0.13	0.059	1	07/25/23 14:13	08/04/23 08:58	39108-34-4	
9CI-PF3ONS	<0.034	ug/kg	0.13	0.034	1	07/25/23 14:13	08/04/23 08:58	756426-58-1	
ADONA	<0.049	ug/kg	0.13	0.049	1	07/25/23 14:13	08/04/23 08:58	919005-14-4	
HFPO-DA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:58	13252-13-6	
NEtFOSAA	<0.054	ug/kg	0.13	0.054	1	07/25/23 14:13	08/04/23 08:58	2991-50-6	
NEtFOSA	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 08:58	4151-50-2	
NEtFOSE	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 08:58	1691-99-2	
NMeFOSAA	<0.038	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 08:58	2355-31-9	
NMeFOSA	<0.037	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:58	31506-32-8	
NMeFOSE	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 08:58	24448-09-7	
Perfluorobutanesulfonic acid	0.29	ug/kg	0.12	0.035	1	07/25/23 14:13	08/04/23 08:58	375-73-5	
Perfluorodecanoic acid	<0.031	ug/kg	0.13	0.031	1	07/25/23 14:13	08/04/23 08:58	335-76-2	
Perfluorohexanoic acid	1.4	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:58	307-24-4	
PFBA	0.26	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 08:58	375-22-4	
PFDS	<0.038	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 08:58	335-77-3	
PFDoS	<0.035	ug/kg	0.13	0.035	1	07/25/23 14:13	08/04/23 08:58	79780-39-5	
PFHpS	0.046J	ug/kg	0.13	0.037	1	07/25/23 14:13	08/04/23 08:58	375-92-8	
PFHxDA	<0.036	ug/kg	0.13	0.036	1	07/25/23 14:13	08/04/23 08:58	67905-19-5	
PFNS	<0.047	ug/kg	0.13	0.047	1	07/25/23 14:13	08/04/23 08:58	68259-12-1	
PFODA	<0.044	ug/kg	0.13	0.044	1	07/25/23 14:13	08/04/23 08:58	16517-11-6	
PFOSA	<0.040	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 08:58	754-91-6	
PFPeA	1.1	ug/kg	0.13	0.038	1	07/25/23 14:13	08/04/23 08:58	2706-90-3	
PFPeS	0.36	ug/kg	0.13	0.032	1	07/25/23 14:13	08/04/23 08:58	2706-91-4	
Perfluorododecanoic acid	<0.044	ug/kg	0.13	0.044	1	07/25/23 14:13	08/04/23 08:58	307-55-1	
Perfluoroheptanoic acid	0.14	ug/kg	0.13	0.047	1	07/25/23 14:13	08/04/23 08:58	375-85-9	
Perfluorohexanesulfonic acid	2.8	ug/kg	0.12	0.030	1	07/25/23 14:13	08/04/23 08:58	355-46-4	
Perfluorononanoic acid	<0.042	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 08:58	375-95-1	
Perfluorooctanesulfonic acid	0.90	ug/kg	0.13	0.040	1	07/25/23 14:13	08/04/23 08:58	1763-23-1	
Perfluorooctanoic acid	0.26	ug/kg	0.13	0.042	1	07/25/23 14:13	08/04/23 08:58	335-67-1	
Perfluorotetradecanoic acid	<0.046	ug/kg	0.13	0.046	1	07/25/23 14:13	08/04/23 08:58	376-06-7	
Perfluorotridecanoic acid	<0.043	ug/kg	0.13	0.043	1	07/25/23 14:13	08/04/23 08:58	72629-94-8	
Perfluoroundecanoic acid	<0.041	ug/kg	0.13	0.041	1	07/25/23 14:13	08/04/23 08:58	2058-94-8	
Surrogates									
13C2-PFDoA (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 08:58		
13C2-PFTA (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 08:58		
13C24:2FTS (S)	124	%	25-150		1	07/25/23 14:13	08/04/23 08:58		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-TK25-SB01 (3-4) Lab ID: 10661127018 Collected: 07/10/23 12:50 Received: 07/12/23 11:45 Matrix: Solid

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

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID SL									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
Surrogates									
13C26:2FTS (S)	85	%	25-150		1	07/25/23 14:13	08/04/23 08:58		
13C28:2FTS (S)	121	%	25-150		1	07/25/23 14:13	08/04/23 08:58		
13C2PFHxDA (S)	74	%	25-150		1	07/25/23 14:13	08/04/23 08:58		
13C3-PFBS (S)	72	%	25-150		1	07/25/23 14:13	08/04/23 08:58	375-73-5	
13C3-PFHxS (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 08:58	355-46-4	
13C3HFPO-DA (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 08:58		
13C4-PFBA (S)	79	%	25-150		1	07/25/23 14:13	08/04/23 08:58	375-22-4	
13C4-PFHpA (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 08:58	375-85-9	
13C5-PFHxA (S)	75	%	25-150		1	07/25/23 14:13	08/04/23 08:58	307-24-4	
13C5-PFPeA (S)	77	%	25-150		1	07/25/23 14:13	08/04/23 08:58	2706-90-3	
13C6-PFDA (S)	84	%	25-150		1	07/25/23 14:13	08/04/23 08:58	335-76-2	
13C7-PFUdA (S)	89	%	25-150		1	07/25/23 14:13	08/04/23 08:58	2058-94-8	
13C8-PFOA (S)	77	%	25-150		1	07/25/23 14:13	08/04/23 08:58	335-67-1	
13C8-PFOS (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 08:58	1763-23-1	
13C8-PFOSA (S)	72	%	25-150		1	07/25/23 14:13	08/04/23 08:58	754-91-6	
13C9-PFNA (S)	80	%	25-150		1	07/25/23 14:13	08/04/23 08:58	375-95-1	
d3-MeFOSAA (S)	76	%	25-150		1	07/25/23 14:13	08/04/23 08:58	2355-31-9	
d3-NMeFOSA (S)	3	%	10-150		1	07/25/23 14:13	08/04/23 08:58	31506-32-8	S0
d5-EtFOSAA (S)	88	%	25-150		1	07/25/23 14:13	08/04/23 08:58	2991-50-6	
d5-NEtFOSA (S)	2	%	10-150		1	07/25/23 14:13	08/04/23 08:58	4151-50-2	S0
d7-NMeFOSE (S)	15	%	10-150		1	07/25/23 14:13	08/04/23 08:58	24448-09-7	
d9-NEtFOSE (S)	15	%	10-150		1	07/25/23 14:13	08/04/23 08:58	1691-99-2	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-ERB-01-07102023 Lab ID: 10661127019 Collected: 07/10/23 13:15 Received: 07/12/23 11:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	<1.0	ng/L	2.1	1.0	1	07/24/23 17:07	08/05/23 16:37	120226-60-0	
11Cl-PF3OUdS	<0.61	ng/L	2.1	0.61	1	07/24/23 17:07	08/05/23 16:37	763051-92-9	
4:2 FTS	<0.51	ng/L	2.0	0.51	1	07/24/23 17:07	08/05/23 16:37	757124-72-4	
6:2 FTS	8.0	ng/L	2.1	0.74	1	07/24/23 17:07	08/05/23 16:37	27619-97-2	
8:2 FTS	1.1J	ng/L	2.1	0.55	1	07/24/23 17:07	08/05/23 16:37	39108-34-4	
9Cl-PF3ONS	<0.51	ng/L	2.0	0.51	1	07/24/23 17:07	08/05/23 16:37	756426-58-1	
ADONA	<1.0	ng/L	2.1	1.0	1	07/24/23 17:07	08/05/23 16:37	919005-14-4	
HFPO-DA	<0.54	ng/L	2.2	0.54	1	07/24/23 17:07	08/05/23 16:37	13252-13-6	
NEtFOSAA	<0.89	ng/L	2.2	0.89	1	07/24/23 17:07	08/05/23 16:37	2991-50-6	
NEtFOSA	<0.63	ng/L	2.2	0.63	1	07/24/23 17:07	08/05/23 16:37	4151-50-2	
NEtFOSE	<0.97	ng/L	2.2	0.97	1	07/24/23 17:07	08/05/23 16:37	1691-99-2	
NMeFOSAA	1.1J	ng/L	2.2	0.76	1	07/24/23 17:07	08/05/23 16:37	2355-31-9	
NMeFOSA	<0.60	ng/L	2.2	0.60	1	07/24/23 17:07	08/05/23 16:37	31506-32-8	
NMeFOSE	0.69J	ng/L	2.2	0.57	1	07/24/23 17:07	08/05/23 16:37	24448-09-7	
Perfluorobutanesulfonic acid	0.79J	ng/L	1.9	0.53	1	07/24/23 17:07	08/05/23 16:37	375-73-5	
Perfluorodecanoic acid	4.5	ng/L	2.2	0.66	1	07/24/23 17:07	08/05/23 16:37	335-76-2	
Perfluorohexanoic acid	6.7	ng/L	2.2	0.99	1	07/24/23 17:07	08/05/23 16:37	307-24-4	
PFBA	2.0J	ng/L	2.2	0.54	1	07/24/23 17:07	08/05/23 16:37	375-22-4	
PFDS	<0.70	ng/L	2.1	0.70	1	07/24/23 17:07	08/05/23 16:37	335-77-3	
PFDoS	<0.65	ng/L	2.1	0.65	1	07/24/23 17:07	08/05/23 16:37	79780-39-5	
PFHpS	<0.73	ng/L	2.1	0.73	1	07/24/23 17:07	08/05/23 16:37	375-92-8	
PFHxDA	<0.49	ng/L	2.2	0.49	1	07/24/23 17:07	08/05/23 16:37	67905-19-5	
PFNS	<0.64	ng/L	2.1	0.64	1	07/24/23 17:07	08/05/23 16:37	68259-12-1	
PFODA	<0.67	ng/L	2.2	0.67	1	07/24/23 17:07	08/05/23 16:37	16517-11-6	
PFOSA	<0.78	ng/L	2.2	0.78	1	07/24/23 17:07	08/05/23 16:37	754-91-6	
PFPeA	<0.90	ng/L	2.2	0.90	1	07/24/23 17:07	08/05/23 16:37	2706-90-3	
PFPeS	<0.66	ng/L	2.1	0.66	1	07/24/23 17:07	08/05/23 16:37	2706-91-4	
Perfluorododecanoic acid	0.75J	ng/L	2.2	0.52	1	07/24/23 17:07	08/05/23 16:37	307-55-1	
Perfluoroheptanoic acid	2.8	ng/L	2.2	0.75	1	07/24/23 17:07	08/05/23 16:37	375-85-9	
Perfluorohexanesulfonic acid	1.4J	ng/L	2.0	0.58	1	07/24/23 17:07	08/05/23 16:37	355-46-4	
Perfluorononanoic acid	1.3J	ng/L	2.2	0.87	1	07/24/23 17:07	08/05/23 16:37	375-95-1	
Perfluorooctanesulfonic acid	10.9	ng/L	2.0	0.73	1	07/24/23 17:07	08/05/23 16:37	1763-23-1	
Perfluorooctanoic acid	21.2	ng/L	2.2	0.94	1	07/24/23 17:07	08/05/23 16:37	335-67-1	
Perfluorotetradecanoic acid	<0.66	ng/L	2.2	0.66	1	07/24/23 17:07	08/05/23 16:37	376-06-7	
Perfluorotridecanoic acid	<0.68	ng/L	2.2	0.68	1	07/24/23 17:07	08/05/23 16:37	72629-94-8	
Perfluoroundecanoic acid	<0.53	ng/L	2.2	0.53	1	07/24/23 17:07	08/05/23 16:37	2058-94-8	
Surrogates									
13C4-PFBA (S)	67	%	25-150		1	07/24/23 17:07	08/05/23 16:37	375-22-4	
13C5-PFPeA (S)	97	%	25-150		1	07/24/23 17:07	08/05/23 16:37	2706-90-3	
13C3-PFBS (S)	102	%	25-150		1	07/24/23 17:07	08/05/23 16:37	375-73-5	
13C24:2FTS (S)	208	%	25-150		1	07/24/23 17:07	08/05/23 16:37		S0
13C3HFPO-DA (S)	99	%	25-150		1	07/24/23 17:07	08/05/23 16:37		
13C4-PFHpA (S)	97	%	25-150		1	07/24/23 17:07	08/05/23 16:37	375-85-9	
13C3-PFHxS (S)	100	%	25-150		1	07/24/23 17:07	08/05/23 16:37	355-46-4	
13C26:2FTS (S)	337	%	25-150		1	07/24/23 17:07	08/05/23 16:37		S0

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-ERB-01-07102023 Lab ID: 10661127019 Collected: 07/10/23 13:15 Received: 07/12/23 11:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
Surrogates									
13C8-PFOA (S)	107	%	25-150		1	07/24/23 17:07	08/05/23 16:37	335-67-1	
13C8-PFOS (S)	103	%	25-150		1	07/24/23 17:07	08/05/23 16:37	1763-23-1	
13C9-PFNA (S)	113	%	25-150		1	07/24/23 17:07	08/05/23 16:37	375-95-1	
13C6-PFDA (S)	114	%	25-150		1	07/24/23 17:07	08/05/23 16:37	335-76-2	
13C28:2FTS (S)	294	%	25-150		1	07/24/23 17:07	08/05/23 16:37		S0
d3-MeFOSAA (S)	101	%	25-150		1	07/24/23 17:07	08/05/23 16:37	2355-31-9	
13C7-PFUdA (S)	109	%	25-150		1	07/24/23 17:07	08/05/23 16:37	2058-94-8	
13C8-PFOSA (S)	91	%	25-150		1	07/24/23 17:07	08/05/23 16:37	754-91-6	
d5-EtFOSAA (S)	108	%	25-150		1	07/24/23 17:07	08/05/23 16:37	2991-50-6	
13C2-PFDoA (S)	88	%	25-150		1	07/24/23 17:07	08/05/23 16:37		
d3-NMeFOSA (S)	67	%	10-150		1	07/24/23 17:07	08/05/23 16:37	31506-32-8	
d7-NMeFOSE (S)	88	%	10-150		1	07/24/23 17:07	08/05/23 16:37	24448-09-7	
13C2-PFTA (S)	99	%	25-150		1	07/24/23 17:07	08/05/23 16:37		
d9-NEtFOSE (S)	97	%	10-150		1	07/24/23 17:07	08/05/23 16:37	1691-99-2	
d5-NEtFOSA (S)	73	%	10-150		1	07/24/23 17:07	08/05/23 16:37	4151-50-2	
13C2PFHxDA (S)	106	%	25-150		1	07/24/23 17:07	08/05/23 16:37		
13C5-PFHxA (S)	98	%	25-150		1	07/24/23 17:07	08/05/23 16:37	307-24-4	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-FRB-01-07112023 Lab ID: 10661127020 Collected: 07/11/23 10:30 Received: 07/12/23 11:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	<0.91	ng/L	1.9	0.91	1	07/24/23 17:07	08/05/23 17:07	120226-60-0	
11Cl-PF3OUdS	<0.55	ng/L	1.9	0.55	1	07/24/23 17:07	08/05/23 17:07	763051-92-9	
4:2 FTS	<0.46	ng/L	1.9	0.46	1	07/24/23 17:07	08/05/23 17:07	757124-72-4	
6:2 FTS	<0.67	ng/L	1.9	0.67	1	07/24/23 17:07	08/05/23 17:07	27619-97-2	
8:2 FTS	<0.50	ng/L	1.9	0.50	1	07/24/23 17:07	08/05/23 17:07	39108-34-4	
9Cl-PF3ONS	<0.47	ng/L	1.8	0.47	1	07/24/23 17:07	08/05/23 17:07	756426-58-1	
ADONA	<0.91	ng/L	1.9	0.91	1	07/24/23 17:07	08/05/23 17:07	919005-14-4	
HFPO-DA	<0.49	ng/L	2.0	0.49	1	07/24/23 17:07	08/05/23 17:07	13252-13-6	
NEtFOSAA	<0.81	ng/L	2.0	0.81	1	07/24/23 17:07	08/05/23 17:07	2991-50-6	
NEtFOSA	<0.57	ng/L	2.0	0.57	1	07/24/23 17:07	08/05/23 17:07	4151-50-2	
NEtFOSE	<0.88	ng/L	2.0	0.88	1	07/24/23 17:07	08/05/23 17:07	1691-99-2	
NMeFOSAA	<0.69	ng/L	2.0	0.69	1	07/24/23 17:07	08/05/23 17:07	2355-31-9	
NMeFOSA	<0.55	ng/L	2.0	0.55	1	07/24/23 17:07	08/05/23 17:07	31506-32-8	
NMeFOSE	<0.52	ng/L	2.0	0.52	1	07/24/23 17:07	08/05/23 17:07	24448-09-7	
Perfluorobutanesulfonic acid	<0.48	ng/L	1.8	0.48	1	07/24/23 17:07	08/05/23 17:07	375-73-5	
Perfluorodecanoic acid	<0.60	ng/L	2.0	0.60	1	07/24/23 17:07	08/05/23 17:07	335-76-2	
Perfluorohexanoic acid	<0.90	ng/L	2.0	0.90	1	07/24/23 17:07	08/05/23 17:07	307-24-4	
PFBA	<0.49	ng/L	2.0	0.49	1	07/24/23 17:07	08/05/23 17:07	375-22-4	
PFDS	<0.63	ng/L	1.9	0.63	1	07/24/23 17:07	08/05/23 17:07	335-77-3	
PFDoS	<0.58	ng/L	1.9	0.58	1	07/24/23 17:07	08/05/23 17:07	79780-39-5	
PFHpS	<0.66	ng/L	1.9	0.66	1	07/24/23 17:07	08/05/23 17:07	375-92-8	
PFHxDA	<0.45	ng/L	2.0	0.45	1	07/24/23 17:07	08/05/23 17:07	67905-19-5	
PFNS	<0.58	ng/L	1.9	0.58	1	07/24/23 17:07	08/05/23 17:07	68259-12-1	
PFODA	<0.61	ng/L	2.0	0.61	1	07/24/23 17:07	08/05/23 17:07	16517-11-6	
PFOSA	<0.71	ng/L	2.0	0.71	1	07/24/23 17:07	08/05/23 17:07	754-91-6	
PFPeA	<0.81	ng/L	2.0	0.81	1	07/24/23 17:07	08/05/23 17:07	2706-90-3	
PFPeS	<0.59	ng/L	1.9	0.59	1	07/24/23 17:07	08/05/23 17:07	2706-91-4	
Perfluorododecanoic acid	<0.47	ng/L	2.0	0.47	1	07/24/23 17:07	08/05/23 17:07	307-55-1	
Perfluoroheptanoic acid	<0.68	ng/L	2.0	0.68	1	07/24/23 17:07	08/05/23 17:07	375-85-9	
Perfluorohexanesulfonic acid	<0.53	ng/L	1.8	0.53	1	07/24/23 17:07	08/05/23 17:07	355-46-4	
Perfluorononanoic acid	<0.79	ng/L	2.0	0.79	1	07/24/23 17:07	08/05/23 17:07	375-95-1	
Perfluorooctanesulfonic acid	<0.66	ng/L	1.8	0.66	1	07/24/23 17:07	08/05/23 17:07	1763-23-1	
Perfluorooctanoic acid	<0.85	ng/L	2.0	0.85	1	07/24/23 17:07	08/05/23 17:07	335-67-1	
Perfluorotetradecanoic acid	<0.59	ng/L	2.0	0.59	1	07/24/23 17:07	08/05/23 17:07	376-06-7	
Perfluorotridecanoic acid	<0.62	ng/L	2.0	0.62	1	07/24/23 17:07	08/05/23 17:07	72629-94-8	
Perfluoroundecanoic acid	<0.48	ng/L	2.0	0.48	1	07/24/23 17:07	08/05/23 17:07	2058-94-8	
Surrogates									
13C4-PFBA (S)	128	%	25-150		1	07/24/23 17:07	08/05/23 17:07	375-22-4	
13C5-PFPeA (S)	129	%	25-150		1	07/24/23 17:07	08/05/23 17:07	2706-90-3	
13C3-PFBS (S)	121	%	25-150		1	07/24/23 17:07	08/05/23 17:07	375-73-5	
13C24:2FTS (S)	150	%	25-150		1	07/24/23 17:07	08/05/23 17:07		
13C3HFPO-DA (S)	138	%	25-150		1	07/24/23 17:07	08/05/23 17:07		
13C4-PFHxA (S)	127	%	25-150		1	07/24/23 17:07	08/05/23 17:07	375-85-9	
13C3-PFHxS (S)	120	%	25-150		1	07/24/23 17:07	08/05/23 17:07	355-46-4	
13C26:2FTS (S)	119	%	25-150		1	07/24/23 17:07	08/05/23 17:07		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Sample: PR-FRB-01-07112023 Lab ID: 10661127020 Collected: 07/11/23 10:30 Received: 07/12/23 11:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
Surrogates									
13C8-PFOA (S)	115	%.	25-150		1	07/24/23 17:07	08/05/23 17:07	335-67-1	
13C8-PFOS (S)	69	%.	25-150		1	07/24/23 17:07	08/05/23 17:07	1763-23-1	
13C9-PFNA (S)	91	%.	25-150		1	07/24/23 17:07	08/05/23 17:07	375-95-1	
13C6-PFDA (S)	74	%.	25-150		1	07/24/23 17:07	08/05/23 17:07	335-76-2	
13C28:2FTS (S)	130	%.	25-150		1	07/24/23 17:07	08/05/23 17:07		
d3-MeFOSAA (S)	84	%.	25-150		1	07/24/23 17:07	08/05/23 17:07	2355-31-9	
13C7-PFUdA (S)	69	%.	25-150		1	07/24/23 17:07	08/05/23 17:07	2058-94-8	
13C8-PFOSA (S)	88	%.	25-150		1	07/24/23 17:07	08/05/23 17:07	754-91-6	
d5-EtFOSAA (S)	84	%.	25-150		1	07/24/23 17:07	08/05/23 17:07	2991-50-6	
13C2-PFDoA (S)	60	%.	25-150		1	07/24/23 17:07	08/05/23 17:07		
d3-NMeFOSA (S)	68	%.	10-150		1	07/24/23 17:07	08/05/23 17:07	31506-32-8	
d7-NMeFOSE (S)	87	%.	10-150		1	07/24/23 17:07	08/05/23 17:07	24448-09-7	
13C2-PFTA (S)	62	%.	25-150		1	07/24/23 17:07	08/05/23 17:07		
d9-NEtFOSE (S)	90	%.	10-150		1	07/24/23 17:07	08/05/23 17:07	1691-99-2	
d5-NEtFOSA (S)	70	%.	10-150		1	07/24/23 17:07	08/05/23 17:07	4151-50-2	
13C2PFHxDA (S)	62	%.	25-150		1	07/24/23 17:07	08/05/23 17:07		
13C5-PFHxA (S)	123	%.	25-150		1	07/24/23 17:07	08/05/23 17:07	307-24-4	

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

QC Batch:	898749	Analysis Method:	ASTM D2974
QC Batch Method:	ASTM D2974	Analysis Description:	Dry Weight / %M by ASTM D2974
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10661127001, 10661127002, 10661127003, 10661127004, 10661127005, 10661127006, 10661127007, 10661127008, 10661127009, 10661127010, 10661127011, 10661127012, 10661127013, 10661127014, 10661127015, 10661127016, 10661127017, 10661127018

SAMPLE DUPLICATE: 4734016

Parameter	Units	10661127001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	23.4	23.4	0	30	N2

SAMPLE DUPLICATE: 4734423

Parameter	Units	10661127012 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	24.5	24.6	0	30	N2

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

QC Batch: 893620

Analysis Method: ENV-SOP-MIN4-0178

QC Batch Method: ENV-SOP-MIN4-0178

Analysis Description: WI ID NPW

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10661127019, 10661127020

METHOD BLANK: 4708162

Matrix: Water

Associated Lab Samples: 10661127019, 10661127020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
10:2 FTS	ng/L	<0.91	1.9	08/05/23 15:17	
11Cl-PF3OUdS	ng/L	<0.55	1.9	08/05/23 15:17	
4:2 FTS	ng/L	<0.46	1.8	08/05/23 15:17	
6:2 FTS	ng/L	<0.67	1.9	08/05/23 15:17	
8:2 FTS	ng/L	<0.50	1.9	08/05/23 15:17	
9Cl-PF3ONS	ng/L	<0.46	1.8	08/05/23 15:17	
ADONA	ng/L	<0.91	1.9	08/05/23 15:17	
HFPO-DA	ng/L	<0.49	2.0	08/05/23 15:17	
NEtFOSA	ng/L	<0.57	2.0	08/05/23 15:17	
NEtFOSAA	ng/L	<0.81	2.0	08/05/23 15:17	
NEtFOSE	ng/L	<0.88	2.0	08/05/23 15:17	
NMeFOSA	ng/L	<0.55	2.0	08/05/23 15:17	
NMeFOSAA	ng/L	<0.69	2.0	08/05/23 15:17	
NMeFOSE	ng/L	<0.52	2.0	08/05/23 15:17	
Perfluorobutanesulfonic acid	ng/L	<0.48	1.8	08/05/23 15:17	
Perfluorodecanoic acid	ng/L	<0.60	2.0	08/05/23 15:17	
Perfluorododecanoic acid	ng/L	<0.47	2.0	08/05/23 15:17	
Perfluoroheptanoic acid	ng/L	<0.68	2.0	08/05/23 15:17	
Perfluorohexanesulfonic acid	ng/L	<0.53	1.8	08/05/23 15:17	
Perfluorohexanoic acid	ng/L	<0.90	2.0	08/05/23 15:17	
Perfluorononanoic acid	ng/L	<0.79	2.0	08/05/23 15:17	
Perfluorooctanesulfonic acid	ng/L	<0.66	1.8	08/05/23 15:17	
Perfluorooctanoic acid	ng/L	<0.85	2.0	08/05/23 15:17	
Perfluorotetradecanoic acid	ng/L	<0.59	2.0	08/05/23 15:17	
Perfluorotridecanoic acid	ng/L	<0.62	2.0	08/05/23 15:17	
Perfluoroundecanoic acid	ng/L	<0.48	2.0	08/05/23 15:17	
PFBA	ng/L	<0.49	2.0	08/05/23 15:17	
PFDoS	ng/L	<0.58	1.9	08/05/23 15:17	
PFDS	ng/L	<0.63	1.9	08/05/23 15:17	
PFHpS	ng/L	<0.66	1.9	08/05/23 15:17	
PFHxDA	ng/L	<0.45	2.0	08/05/23 15:17	
PFNS	ng/L	<0.58	1.9	08/05/23 15:17	
PFODA	ng/L	<0.61	2.0	08/05/23 15:17	
PFOSA	ng/L	<0.71	2.0	08/05/23 15:17	
PFPeA	ng/L	<0.81	2.0	08/05/23 15:17	
PFPeS	ng/L	<0.59	1.9	08/05/23 15:17	
13C2-PFDoA (S)	%	94	25-150	08/05/23 15:17	
13C2-PFTA (S)	%	90	25-150	08/05/23 15:17	
13C24:2FTS (S)	%	124	25-150	08/05/23 15:17	
13C26:2FTS (S)	%	105	25-150	08/05/23 15:17	

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

METHOD BLANK: 4708162

Matrix: Water

Associated Lab Samples: 10661127019, 10661127020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
13C28:2FTS (S)	%	129	25-150	08/05/23 15:17	
13C2PFHxDA (S)	%	68	25-150	08/05/23 15:17	
13C3-PFBS (S)	%	106	25-150	08/05/23 15:17	
13C3-PFHxS (S)	%	110	25-150	08/05/23 15:17	
13C3HFPO-DA (S)	%	122	25-150	08/05/23 15:17	
13C4-PFBA (S)	%	112	25-150	08/05/23 15:17	
13C4-PFHpA (S)	%	113	25-150	08/05/23 15:17	
13C5-PFHxA (S)	%	110	25-150	08/05/23 15:17	
13C5-PFPeA (S)	%	112	25-150	08/05/23 15:17	
13C6-PFDA (S)	%	97	25-150	08/05/23 15:17	
13C7-PFUdA (S)	%	99	25-150	08/05/23 15:17	
13C8-PFOA (S)	%	108	25-150	08/05/23 15:17	
13C8-PFOS (S)	%	91	25-150	08/05/23 15:17	
13C8-PFOSA (S)	%	96	25-150	08/05/23 15:17	
13C9-PFNA (S)	%	100	25-150	08/05/23 15:17	
d3-MeFOSAA (S)	%	101	25-150	08/05/23 15:17	
d3-NMeFOSA (S)	%	77	20-150	08/05/23 15:17	
d5-EtFOSAA (S)	%	98	25-150	08/05/23 15:17	
d5-NEtFOSA (S)	%	85	20-150	08/05/23 15:17	
d7-NMeFOSE (S)	%	106	20-150	08/05/23 15:17	
d9-NEtFOSE (S)	%	107	20-150	08/05/23 15:17	

LABORATORY CONTROL SAMPLE & LCSD: 4708163

4708164

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
10:2 FTS	ng/L	3.8	3.4	3.8	89	100	50-150	11	30	
11Cl-PF3OUdS	ng/L	3.7	4.2	3.8	112	102	50-150	10	30	
4:2 FTS	ng/L	3.7	3.8	3.7	102	100	50-150	2	30	
6:2 FTS	ng/L	3.8	3.5	3.8	93	100	50-150	7	30	
8:2 FTS	ng/L	3.8	3.7	4.4	97	115	50-150	16	30	
9Cl-PF3ONS	ng/L	3.7	4.0	3.9	107	104	50-150	3	30	
ADONA	ng/L	3.7	4.1	4.2	108	113	50-150	4	30	
HFPO-DA	ng/L	4	3.6	3.7	90	92	50-150	2	30	
NEtFOSA	ng/L	4	3.4	3.5	85	88	50-150	3	30	
NEtFOSAA	ng/L	4	4.0	3.8	100	96	50-150	4	30	
NEtFOSE	ng/L	4	3.4	3.3	85	84	50-150	1	30	
NMeFOSA	ng/L	4	3.8	3.5	94	89	50-150	6	30	
NMeFOSAA	ng/L	4	4.0	4.3	102	109	50-150	7	30	
NMeFOSE	ng/L	4	3.4	3.3	85	84	50-150	1	30	
Perfluorobutanesulfonic acid	ng/L	3.5	4.2	4.2	119	121	50-150	1	30	
Perfluorodecanoic acid	ng/L	4	4.1	4.0	104	102	50-150	2	30	
Perfluorododecanoic acid	ng/L	4	4.6	4.4	116	111	50-150	5	30	
Perfluoroheptanoic acid	ng/L	4	4.2	4.2	107	106	50-150	1	30	
Perfluorohexanesulfonic acid	ng/L	3.6	3.8	3.8	103	105	50-150	2	30	

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

LABORATORY CONTROL SAMPLE & LCSD: 4708163		4708164								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Perfluorohexanoic acid	ng/L	4	4.2	4.3	107	109	50-150	2	30	
Perfluorononanoic acid	ng/L	4	4.2	4.3	106	107	50-150	2	30	
Perfluorooctanesulfonic acid	ng/L	3.7	4.5	4.1	121	110	50-150	9	30	
Perfluorooctanoic acid	ng/L	4	4.3	4.4	108	111	50-150	3	30	
Perfluorotetradecanoic acid	ng/L	4	4.1	3.7	103	93	50-150	10	30	
Perfluorotridecanoic acid	ng/L	4	4.2	4.1	105	102	50-150	3	30	
Perfluoroundecanoic acid	ng/L	4	4.3	4.0	109	101	50-150	8	30	
PFBA	ng/L	4	4.5	4.6	114	115	50-150	1	30	
PFDoS	ng/L	3.9	3.0	3.1	78	81	50-150	5	30	
PFDS	ng/L	3.8	3.5	3.2	92	83	50-150	10	30	
PFHpS	ng/L	3.8	4.3	4.2	113	111	50-150	1	30	
PFHxDA	ng/L	4	3.1	3.1	77	79	50-150	2	30	
PFNS	ng/L	3.8	4.0	3.7	106	96	50-150	9	30	
PFODA	ng/L	4	2.7	2.5	68	64	50-150	6	30	
PFOSA	ng/L	4	4.1	4.0	104	102	50-150	2	30	
PFPeA	ng/L	4	4.2	4.2	107	106	50-150	1	30	
PFPeS	ng/L	3.7	4.0	4.0	107	106	50-150	1	30	
13C2-PFDoA (S)	%				85	101	25-150			
13C2-PFTA (S)	%				80	94	25-150			
13C24:2FTS (S)	%				126	141	25-150			
13C26:2FTS (S)	%				122	119	25-150			
13C28:2FTS (S)	%				143	150	25-150			
13C2PFHxDA (S)	%				58	62	25-150			
13C3-PFBS (S)	%				107	119	25-150			
13C3-PFHxS (S)	%				111	123	25-150			
13C3HFPO-DA (S)	%				122	130	25-150			
13C4-PFBA (S)	%				112	124	25-150			
13C4-PFHpA (S)	%				108	123	25-150			
13C5-PFHxA (S)	%				110	120	25-150			
13C5-PFPeA (S)	%				111	124	25-150			
13C6-PFDA (S)	%				103	114	25-150			
13C7-PFUdA (S)	%				92	105	25-150			
13C8-PFOA (S)	%				110	121	25-150			
13C8-PFOS (S)	%				95	107	25-150			
13C8-PFOSA (S)	%				89	100	25-150			
13C9-PFNA (S)	%				104	115	25-150			
d3-MeFOSAA (S)	%				101	106	25-150			
d3-NMeFOSA (S)	%				68	84	20-150			
d5-EtFOSAA (S)	%				97	106	25-150			
d5-NEtFOSA (S)	%				75	87	20-150			
d7-NMeFOSE (S)	%				99	112	20-150			
d9-NEtFOSE (S)	%				101	112	20-150			

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

MATRIX SPIKE SAMPLE: 4717930		10661126001	Spike	MS	MS	% Rec	Qualifiers
Parameter	Units	Result	Conc.	Result	% Rec	Limits	
10:2 FTS	ng/L	<0.91	3.7	2.7	57	50-150	
11Cl-PF3OUdS	ng/L	<0.55	3.6	3.5	95	50-150	
4:2 FTS	ng/L	<0.46	3.6	3.7	103	50-150	
6:2 FTS	ng/L	47.9	3.7	52.6	129	50-150	
8:2 FTS	ng/L	3.7	3.7	8.5	130	50-150	
9Cl-PF3ONS	ng/L	<0.47	3.6	4.2	115	50-150	
ADONA	ng/L	<0.91	3.6	3.4	94	50-150	
HFPO-DA	ng/L	<0.49	3.9	3.4	89	50-150	
NEtFOSA	ng/L	<0.57	3.9	3.4	88	50-150	
NEtFOSAA	ng/L	<0.81	3.9	4.3	110	50-150	
NEtFOSE	ng/L	<0.88	3.9	3.2	84	50-150	
NMeFOSA	ng/L	<0.55	3.9	3.6	92	50-150	
NMeFOSAA	ng/L	<0.69	3.9	4.1	107	50-150	
NMeFOSE	ng/L	<0.52	3.9	3.1	79	50-150	
Perfluorobutanesulfonic acid	ng/L	3.9	3.4	8.3	127	50-150	
Perfluorodecanoic acid	ng/L	2.7	3.9	7.1	114	50-150	
Perfluorododecanoic acid	ng/L	<0.48	3.9	4.0	101	50-150	
Perfluoroheptanoic acid	ng/L	31.7	3.9	35.8	106	50-150	
Perfluorohexanesulfonic acid	ng/L	36.9	3.5	40.3	96	50-150	
Perfluorohexanoic acid	ng/L	76.2	3.9	79.3	82	50-150	
Perfluorononanoic acid	ng/L	8.6	3.9	12.8	110	50-150	
Perfluorooctanesulfonic acid	ng/L	65.9	3.6	77.8	332	50-150 M1	
Perfluorooctanoic acid	ng/L	30.9	3.9	35.1	109	50-150	
Perfluorotetradecanoic acid	ng/L	<0.59	3.9	4.1	104	50-150	
Perfluorotridecanoic acid	ng/L	<0.62	3.9	3.4	84	50-150	
Perfluoroundecanoic acid	ng/L	6.5	3.9	5.9	-17	50-150 M1	
PFBA	ng/L	44.0	3.9	53.0	233	50-150 M1	
PFDoS	ng/L	<0.59	3.7	3.0	81	50-150	
PFDS	ng/L	<0.63	3.7	3.9	105	50-150	
PFHpS	ng/L	0.96J	3.7	5.1	112	50-150	
PFHxDA	ng/L	<0.45	3.9	2.9	70	50-150	
PFNS	ng/L	<0.58	3.7	4.3	115	50-150	
PFODA	ng/L	<0.61	3.9	2.6	66	50-150	
PFOSA	ng/L	<0.71	3.9	4.5	106	50-150	
PFPeA	ng/L	174	3.9	180	148	50-150	
PFPeS	ng/L	3.2	3.6	7.3	112	50-150	
13C2-PFDoA (S)	%				108	25-150	
13C2-PFTA (S)	%				82	25-150	
13C24:2FTS (S)	%				413	25-150 SO	
13C26:2FTS (S)	%				334	25-150 SO	
13C28:2FTS (S)	%				317	25-150 SO	
13C2PFHxDA (S)	%				94	25-150	
13C3-PFBS (S)	%				96	25-150	
13C3-PFHxS (S)	%				92	25-150	
13C3HFPO-DA (S)	%				80	25-150	
13C4-PFBA (S)	%				64	25-150	
13C4-PFHpA (S)	%				84	25-150	

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

MATRIX SPIKE SAMPLE: 4717930		10661126001	Spike	MS	MS	% Rec	Qualifiers
Parameter	Units	Result	Conc.	Result	% Rec	Limits	
13C5-PFHxA (S)	%				85	25-150	
13C5-PFPeA (S)	%				82	25-150	
13C6-PFDA (S)	%				123	25-150	
13C7-PFUdA (S)	%				122	25-150	
13C8-PFOA (S)	%				102	25-150	
13C8-PFOS (S)	%				104	25-150	
13C8-PFOSA (S)	%				96	25-150	
13C9-PFNA (S)	%				111	25-150	
d3-MeFOSAA (S)	%				104	25-150	
d3-NMeFOSA (S)	%				59	10-150	
d5-EtFOSAA (S)	%				112	25-150	
d5-NEtFOSA (S)	%				57	10-150	
d7-NMeFOSE (S)	%				83	10-150	
d9-NEtFOSE (S)	%				76	10-150	

SAMPLE DUPLICATE: 4717931

Parameter	Units	10661126003	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
10:2 FTS	ng/L	0.94J	0.94J		30	
11Cl-PF3OUdS	ng/L	<0.54	<0.56		30	
4:2 FTS	ng/L	<0.46	<0.47		30	
6:2 FTS	ng/L	79.9	78.9	1	30	
8:2 FTS	ng/L	11.4	11.7	3	30	
9Cl-PF3ONS	ng/L	<0.46	<0.47		30	
ADONA	ng/L	<0.90	<0.92		30	
HFPO-DA	ng/L	<0.48	<0.49		30	
NEtFOSA	ng/L	<0.56	<0.57		30	
NEtFOSAA	ng/L	<0.80	<0.82		30	
NEtFOSE	ng/L	<0.87	<0.89		30	
NMeFOSA	ng/L	<0.54	<0.55		30	
NMeFOSAA	ng/L	<0.68	<0.69		30	
NMeFOSE	ng/L	<0.51	<0.52		30	
Perfluorobutanesulfonic acid	ng/L	17.4	17.5	1	30	
Perfluorodecanoic acid	ng/L	6.4	6.6	3	30	
Perfluorododecanoic acid	ng/L	<0.47	<0.48		30	
Perfluoroheptanoic acid	ng/L	37.7	38.0	1	30	
Perfluorohexanesulfonic acid	ng/L	262	274	4	30	
Perfluorohexanoic acid	ng/L	138	137	1	30	
Perfluorononanoic acid	ng/L	12.1	12.2	1	30	
Perfluorooctanesulfonic acid	ng/L	671	637	5	30	
Perfluorooctanoic acid	ng/L	50.0	49.7	1	30	
Perfluorotetradecanoic acid	ng/L	<0.59	<0.60		30	
Perfluorotridecanoic acid	ng/L	<0.61	<0.62		30	
Perfluoroundecanoic acid	ng/L	6.7	6.9	4	30	
PFBA	ng/L	48.0	52.8	10	30	

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

SAMPLE DUPLICATE: 4717931

Parameter	Units	10661126003 Result	Dup Result	RPD	Max RPD	Qualifiers
PFDoS	ng/L	<0.58	<0.59		30	
PFDS	ng/L	0.77J	0.66J		30	
PFHpS	ng/L	10	9.9	1	30	
PFHxDA	ng/L	<0.44	0.78J		30	
PFNS	ng/L	2.5	2.5	1	30	
PFODA	ng/L	<0.60	<0.62		30	
PFOSA	ng/L	4.8	5.3	9	30	
PFPeA	ng/L	147	146	1	30	
PFPeS	ng/L	24.7	23.8	4	30	
13C2-PFDoA (S)	%	101	74			
13C2-PFTA (S)	%	66	28			
13C24:2FTS (S)	%	445	450			S0
13C26:2FTS (S)	%	359	363			S0
13C28:2FTS (S)	%	342	299			S0
13C2PFHxDA (S)	%	44	4			S0
13C3-PFBS (S)	%	100	100			
13C3-PFHxS (S)	%	89	92			
13C3HFPO-DA (S)	%	81	80			
13C4-PFBA (S)	%	65	65			
13C4-PFHpA (S)	%	86	84			
13C5-PFHxA (S)	%	85	85			
13C5-PFPeA (S)	%	84	84			
13C6-PFDA (S)	%	126	116			
13C7-PFUdA (S)	%	120	104			
13C8-PFOA (S)	%	100	99			
13C8-PFOS (S)	%	94	95			
13C8-PFOSA (S)	%	71	32			
13C9-PFNA (S)	%	95	93			
d3-MeFOSAA (S)	%	113	93			
d3-NMeFOSA (S)	%	4	0			S0
d5-EtFOSAA (S)	%	110	93			
d5-NEtFOSA (S)	%	3	0			S0
d7-NMeFOSE (S)	%	29	5			S0
d9-NEtFOSE (S)	%	26	3			S0

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA
Pace Project No.: 10661127

QC Batch: 895422 Analysis Method: ENV-SOP-MIN4-0178
QC Batch Method: ENV-SOP-MIN4-0178 Analysis Description: WI ID SL
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10661127001, 10661127002, 10661127003, 10661127004, 10661127005, 10661127006, 10661127007, 10661127008, 10661127009, 10661127010, 10661127011, 10661127012, 10661127013, 10661127014, 10661127015, 10661127016, 10661127017, 10661127018

METHOD BLANK: 4717897 Matrix: Solid
Associated Lab Samples: 10661127001, 10661127002, 10661127003, 10661127004, 10661127005, 10661127006, 10661127007, 10661127008, 10661127009, 10661127010, 10661127011, 10661127012, 10661127013, 10661127014, 10661127015, 10661127016, 10661127017, 10661127018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
10:2 FTS	ug/kg	<0.044	0.097	08/04/23 00:04	
11Cl-PF3OUdS	ug/kg	<0.025	0.094	08/04/23 00:04	
4:2 FTS	ug/kg	<0.023	0.094	08/04/23 00:04	
6:2 FTS	ug/kg	<0.041	0.095	08/04/23 00:04	
8:2 FTS	ug/kg	<0.044	0.097	08/04/23 00:04	
9Cl-PF3ONS	ug/kg	<0.025	0.093	08/04/23 00:04	
ADONA	ug/kg	<0.036	0.095	08/04/23 00:04	
HFPO-DA	ug/kg	<0.028	0.10	08/04/23 00:04	
NEtFOSA	ug/kg	<0.026	0.10	08/04/23 00:04	
NEtFOSAA	ug/kg	<0.040	0.10	08/04/23 00:04	
NEtFOSE	ug/kg	<0.032	0.10	08/04/23 00:04	
NMeFOSA	ug/kg	<0.027	0.10	08/04/23 00:04	
NMeFOSAA	ug/kg	<0.028	0.10	08/04/23 00:04	
NMeFOSE	ug/kg	<0.030	0.10	08/04/23 00:04	
Perfluorobutanesulfonic acid	ug/kg	<0.026	0.089	08/04/23 00:04	
Perfluorodecanoic acid	ug/kg	<0.023	0.10	08/04/23 00:04	
Perfluorododecanoic acid	ug/kg	<0.033	0.10	08/04/23 00:04	
Perfluoroheptanoic acid	ug/kg	<0.035	0.10	08/04/23 00:04	
Perfluorohexanesulfonic acid	ug/kg	<0.022	0.091	08/04/23 00:04	
Perfluorohexanoic acid	ug/kg	<0.027	0.10	08/04/23 00:04	
Perfluorononanoic acid	ug/kg	<0.031	0.10	08/04/23 00:04	
Perfluorooctanesulfonic acid	ug/kg	<0.030	0.093	08/04/23 00:04	
Perfluorooctanoic acid	ug/kg	<0.031	0.10	08/04/23 00:04	
Perfluorotetradecanoic acid	ug/kg	<0.034	0.10	08/04/23 00:04	
Perfluorotridecanoic acid	ug/kg	<0.032	0.10	08/04/23 00:04	
Perfluoroundecanoic acid	ug/kg	<0.030	0.10	08/04/23 00:04	
PFBA	ug/kg	<0.028	0.10	08/04/23 00:04	
PFDoS	ug/kg	<0.026	0.097	08/04/23 00:04	
PFDS	ug/kg	<0.028	0.097	08/04/23 00:04	
PFHpS	ug/kg	<0.028	0.095	08/04/23 00:04	
PFHxDA	ug/kg	<0.027	0.10	08/04/23 00:04	
PFNS	ug/kg	<0.035	0.096	08/04/23 00:04	
PFODA	ug/kg	<0.033	0.10	08/04/23 00:04	
PFOSA	ug/kg	<0.029	0.10	08/04/23 00:04	
PFPeA	ug/kg	<0.028	0.10	08/04/23 00:04	
PFPeS	ug/kg	<0.024	0.094	08/04/23 00:04	
13C2-PFDoA (S)	%	121	25-150	08/04/23 00:04	

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

METHOD BLANK: 4717897

Matrix: Solid

Associated Lab Samples: 10661127001, 10661127002, 10661127003, 10661127004, 10661127005, 10661127006, 10661127007, 10661127008, 10661127009, 10661127010, 10661127011, 10661127012, 10661127013, 10661127014, 10661127015, 10661127016, 10661127017, 10661127018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
13C2-PFTA (S)	%	129	25-150	08/04/23 00:04	
13C24:2FTS (S)	%	171	25-150	08/04/23 00:04	S3
13C26:2FTS (S)	%	113	25-150	08/04/23 00:04	
13C28:2FTS (S)	%	437	25-150	08/04/23 00:04	S3
13C2PFHxDA (S)	%	153	25-150	08/04/23 00:04	S3
13C3-PFBS (S)	%	104	25-150	08/04/23 00:04	
13C3-PFHxS (S)	%	113	25-150	08/04/23 00:04	
13C3HFPO-DA (S)	%	125	25-150	08/04/23 00:04	
13C4-PFBA (S)	%	108	25-150	08/04/23 00:04	
13C4-PFHpA (S)	%	113	25-150	08/04/23 00:04	
13C5-PFHxA (S)	%	110	25-150	08/04/23 00:04	
13C5-PFPeA (S)	%	111	25-150	08/04/23 00:04	
13C6-PFDA (S)	%	132	25-150	08/04/23 00:04	
13C7-PFUDa (S)	%	128	25-150	08/04/23 00:04	
13C8-PFOA (S)	%	113	25-150	08/04/23 00:04	
13C8-PFOS (S)	%	113	25-150	08/04/23 00:04	
13C8-PFOSA (S)	%	118	25-150	08/04/23 00:04	
13C9-PFNA (S)	%	117	25-150	08/04/23 00:04	
d3-MeFOSAA (S)	%	127	25-150	08/04/23 00:04	
d3-NMeFOSA (S)	%	110	20-150	08/04/23 00:04	
d5-EtFOSAA (S)	%	134	25-150	08/04/23 00:04	
d5-NEtFOSA (S)	%	126	20-150	08/04/23 00:04	
d7-NMeFOSE (S)	%	106	20-150	08/04/23 00:04	
d9-NEtFOSE (S)	%	128	20-150	08/04/23 00:04	

LABORATORY CONTROL SAMPLE: 4717898

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
10:2 FTS	ug/kg	0.19	0.13	66	50-150	
11Cl-PF3OUdS	ug/kg	0.19	0.21	110	50-150	
4:2 FTS	ug/kg	0.19	0.19	100	50-150	
6:2 FTS	ug/kg	0.19	0.19	100	50-150	
8:2 FTS	ug/kg	0.19	0.21	110	50-150	
9Cl-PF3ONS	ug/kg	0.19	0.19	100	50-150	
ADONA	ug/kg	0.19	0.20	106	50-150	
HFPO-DA	ug/kg	0.2	0.19	93	50-150	
NEtFOSA	ug/kg	0.2	0.18	91	50-150	
NEtFOSAA	ug/kg	0.2	0.22	110	50-150	
NEtFOSE	ug/kg	0.2	0.16	81	50-150	
NMeFOSA	ug/kg	0.2	0.19	95	50-150	
NMeFOSAA	ug/kg	0.2	0.23	113	50-150	
NMeFOSE	ug/kg	0.2	0.16	82	50-150	

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

LABORATORY CONTROL SAMPLE: 4717898

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Perfluorobutanesulfonic acid	ug/kg	0.18	0.20	112	50-150	
Perfluorodecanoic acid	ug/kg	0.2	0.21	104	50-150	
Perfluorododecanoic acid	ug/kg	0.2	0.22	112	50-150	
Perfluoroheptanoic acid	ug/kg	0.2	0.20	101	50-150	
Perfluorohexanesulfonic acid	ug/kg	0.18	0.18	98	50-150	
Perfluorohexanoic acid	ug/kg	0.2	0.21	103	50-150	
Perfluorononanoic acid	ug/kg	0.2	0.22	110	50-150	
Perfluorooctanesulfonic acid	ug/kg	0.19	0.19	103	50-150	
Perfluorooctanoic acid	ug/kg	0.2	0.22	109	50-150	
Perfluorotetradecanoic acid	ug/kg	0.2	0.19	97	50-150	
Perfluorotridecanoic acid	ug/kg	0.2	0.21	104	50-150	
Perfluoroundecanoic acid	ug/kg	0.2	0.20	99	50-150	
PFBA	ug/kg	0.2	0.21	106	50-150	
PFDoS	ug/kg	0.19	0.20	105	50-150	
PFDS	ug/kg	0.19	0.20	106	50-150	
PFHpS	ug/kg	0.19	0.19	98	50-150	
PFHxDA	ug/kg	0.2	0.15	76	50-150	
PFNS	ug/kg	0.19	0.24	125	50-150	
PFODA	ug/kg	0.2	0.14	71	50-150	
PFOSA	ug/kg	0.2	0.20	102	50-150	
PFPeA	ug/kg	0.2	0.21	103	50-150	
PFPeS	ug/kg	0.19	0.19	101	50-150	
13C2-PFDoA (S)	%			124	25-150	
13C2-PFTA (S)	%			138	25-150	
13C24:2FTS (S)	%			186	25-150	S0
13C26:2FTS (S)	%			113	25-150	
13C28:2FTS (S)	%			238	25-150	S0
13C2PFHxDA (S)	%			152	25-150	S0
13C3-PFBS (S)	%			107	25-150	
13C3-PFHxS (S)	%			117	25-150	
13C3HFPO-DA (S)	%			127	25-150	
13C4-PFBA (S)	%			121	25-150	
13C4-PFHpA (S)	%			123	25-150	
13C5-PFHxA (S)	%			116	25-150	
13C5-PFPeA (S)	%			116	25-150	
13C6-PFDA (S)	%			137	25-150	
13C7-PFUdA (S)	%			127	25-150	
13C8-PFOA (S)	%			119	25-150	
13C8-PFOS (S)	%			117	25-150	
13C8-PFOSA (S)	%			121	25-150	
13C9-PFNA (S)	%			121	25-150	
d3-MeFOSAA (S)	%			123	25-150	
d3-NMeFOSA (S)	%			111	20-150	
d5-EtFOSAA (S)	%			126	25-150	
d5-NEtFOSA (S)	%			115	20-150	
d7-NMeFOSE (S)	%			125	20-150	
d9-NEtFOSE (S)	%			126	20-150	

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4719361 4719363												
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40265355001 Result	Spike Conc.	Spike Conc.	MS Conc.							
10:2 FTS	ug/kg	<0.048	0.21	0.21	0.14	0.11	65	52	50-150	22	30	
11CI-PF3OUdS	ug/kg	<0.028	0.21	0.21	0.23	0.23	111	108	50-150	3	30	
4:2 FTS	ug/kg	<0.025	0.21	0.21	0.21	0.21	100	100	50-150	1	30	
6:2 FTS	ug/kg	<0.045	0.21	0.21	0.20	0.22	94	104	50-150	9	30	
8:2 FTS	ug/kg	<0.048	0.21	0.21	0.24	0.23	105	103	50-150	3	30	
9CI-PF3ONS	ug/kg	<0.027	0.21	0.21	0.23	0.22	112	109	50-150	4	30	
ADONA	ug/kg	<0.040	0.21	0.21	0.22	0.22	106	105	50-150	2	30	
HFPO-DA	ug/kg	<0.030	0.22	0.22	0.19	0.18	83	84	50-150	1	30	
NEtFOSA	ug/kg	<0.028	0.22	0.22	0.18	0.18	82	80	50-150	3	30	
NEtFOSAA	ug/kg	<0.044	0.22	0.22	0.22	0.21	100	97	50-150	4	30	
NEtFOSE	ug/kg	<0.035	0.22	0.22	0.19	0.18	85	82	50-150	5	30	
NMeFOSA	ug/kg	<0.030	0.22	0.22	0.20	0.19	90	87	50-150	5	30	
NMeFOSAA	ug/kg	<0.031	0.22	0.22	0.25	0.22	110	100	50-150	11	30	
NMeFOSE	ug/kg	<0.033	0.22	0.22	0.21	0.18	94	82	50-150	15	30	
Perfluorobutanesulfonic acid	ug/kg	<0.029	0.2	0.19	0.25	0.21	124	103	50-150	18	30	
Perfluorodecanoic acid	ug/kg	<0.025	0.22	0.22	0.24	0.24	99	98	50-150	2	30	
Perfluorododecanoic acid	ug/kg	<0.036	0.22	0.22	0.22	0.24	98	107	50-150	8	30	
Perfluoroheptanoic acid	ug/kg	<0.038	0.22	0.22	0.24	0.24	101	103	50-150	1	30	
Perfluorohexanesulfonic acid	ug/kg	<0.024	0.2	0.2	0.21	0.22	97	99	50-150	2	30	
Perfluorohexanoic acid	ug/kg	<0.030	0.22	0.22	0.24	0.24	100	99	50-150	1	30	
Perfluorononanoic acid	ug/kg	0.050J	0.22	0.22	0.29	0.27	107	99	50-150	7	30	
Perfluorooctanesulfonic acid	ug/kg	0.55	0.21	0.2	0.75	0.81	96	129	50-150	8	30	
Perfluorooctanoic acid	ug/kg	<0.034	0.22	0.22	0.27	0.26	110	102	50-150	7	30	
Perfluorotetradecanoic acid	ug/kg	<0.037	0.22	0.22	0.22	0.23	98	100	50-150	1	30	
Perfluorotridecanoic acid	ug/kg	<0.035	0.22	0.22	0.22	0.23	97	101	50-150	4	30	
Perfluoroundecanoic acid	ug/kg	0.033J	0.22	0.22	0.27	0.26	105	101	50-150	4	30	
PFBA	ug/kg	0.14	0.22	0.22	0.27	0.25	58	54	50-150	4	30	
PFDoS	ug/kg	<0.028	0.21	0.21	0.22	0.23	102	107	50-150	4	30	
PFDS	ug/kg	<0.031	0.21	0.21	0.22	0.23	103	110	50-150	6	30	
PFHpS	ug/kg	<0.030	0.21	0.21	0.22	0.21	101	101	50-150	2	30	
PFHxDA	ug/kg	<0.029	0.22	0.22	0.17	0.17	70	75	50-150	5	30	
PFNS	ug/kg	<0.038	0.21	0.21	0.24	0.24	112	114	50-150	1	30	
PFODA	ug/kg	<0.036	0.22	0.22	0.16	0.17	71	76	50-150	7	30	
PFOSA	ug/kg	<0.032	0.22	0.22	0.22	0.23	96	103	50-150	5	30	
PFPeA	ug/kg	0.060J	0.22	0.22	0.25	0.24	83	81	50-150	2	30	
PFPeS	ug/kg	<0.026	0.21	0.21	0.22	0.21	101	96	50-150	5	30	
13C2-PFDoA (S)	%						105	99	25-150			
13C2-PFTA (S)	%						110	105	25-150			
13C24:2FTS (S)	%						164	156	25-150			S0
13C26:2FTS (S)	%						115	103	25-150			
13C28:2FTS (S)	%						231	303	25-150			S0
13C2PFHxDA (S)	%						127	122	25-150			
13C3-PFBS (S)	%						90	86	25-150			

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4719361 4719363												
Parameter	Units	40265355001 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Limits	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
13C3-PFHxS (S)	%								96	92	25-150	
13C3HFPO-DA (S)	%								102	95	25-150	
13C4-PFBA (S)	%								99	92	25-150	
13C4-PFHpA (S)	%								97	91	25-150	
13C5-PFHxA (S)	%								95	89	25-150	
13C5-PFPeA (S)	%								97	92	25-150	
13C6-PFDA (S)	%								113	108	25-150	
13C7-PFUdA (S)	%								107	104	25-150	
13C8-PFOA (S)	%								96	93	25-150	
13C8-PFOS (S)	%								96	91	25-150	
13C8-PFOSA (S)	%								100	94	25-150	
13C9-PFNA (S)	%								100	97	25-150	
d3-MeFOSAA (S)	%								98	99	25-150	
d3-NMeFOSA (S)	%								80	87	10-150	
d5-EtFOSAA (S)	%								108	107	25-150	
d5-NEtFOSA (S)	%								86	97	10-150	
d7-NMeFOSE (S)	%								86	84	10-150	
d9-NEtFOSE (S)	%								105	101	10-150	

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QUALIFIERS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

DL - Adjusted Method Detection Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

- | | |
|----|---|
| M1 | Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery. |
| N2 | The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request. |
| S0 | Surrogate recovery outside laboratory control limits. |
| S3 | Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated sample. |

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661127

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10661127001	PR-TK11-SB01 (0-1)	ASTM D2974	898749		
10661127002	PR-TK11-SB01 (1-2)	ASTM D2974	898749		
10661127003	PR-TK11-SB01 (2-3)	ASTM D2974	898749		
10661127004	PR-TK11-SB01 (2-3)-Dup	ASTM D2974	898749		
10661127005	PR-TK11-SB01 (3-4)	ASTM D2974	898749		
10661127006	PR-TK15-SB01 (0-1)	ASTM D2974	898749		
10661127007	PR-TK15-SB01 (1-2)	ASTM D2974	898749		
10661127008	PR-TK15-SB01 (2-3)	ASTM D2974	898749		
10661127009	PR-TK15-SB01 (3-4)	ASTM D2974	898749		
10661127010	PR-TK24-SB01 (0-1)-Dup	ASTM D2974	898749		
10661127011	PR-TK24-SB01 (0-1)-Dup	ASTM D2974	898749		
10661127012	PR-TK24-SB01 (1-2)	ASTM D2974	898749		
10661127013	PR-TK24-SB01 (2-3)	ASTM D2974	898749		
10661127014	PR-TK24-SB01 (3-4)	ASTM D2974	898749		
10661127015	PR-TK25-SB01 (0-1)	ASTM D2974	898749		
10661127016	PR-TK25-SB01 (1-2)	ASTM D2974	898749		
10661127017	PR-TK25-SB01 (2-3)	ASTM D2974	898749		
10661127018	PR-TK25-SB01 (3-4)	ASTM D2974	898749		
10661127019	PR-ERB-01-07102023	ENV-SOP-MIN4-0178	893620	ENV-SOP-MIN4-0178	898762
10661127020	PR-FRB-01-07112023	ENV-SOP-MIN4-0178	893620	ENV-SOP-MIN4-0178	898762
10661127001	PR-TK11-SB01 (0-1)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127002	PR-TK11-SB01 (1-2)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127003	PR-TK11-SB01 (2-3)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127004	PR-TK11-SB01 (2-3)-Dup	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127005	PR-TK11-SB01 (3-4)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127006	PR-TK15-SB01 (0-1)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127007	PR-TK15-SB01 (1-2)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127008	PR-TK15-SB01 (2-3)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127009	PR-TK15-SB01 (3-4)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127010	PR-TK24-SB01 (0-1)-Dup	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127011	PR-TK24-SB01 (0-1)-Dup	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127012	PR-TK24-SB01 (1-2)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127013	PR-TK24-SB01 (2-3)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127014	PR-TK24-SB01 (3-4)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127015	PR-TK25-SB01 (0-1)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127016	PR-TK25-SB01 (1-2)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127017	PR-TK25-SB01 (2-3)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338
10661127018	PR-TK25-SB01 (3-4)	ENV-SOP-MIN4-0178	895422	ENV-SOP-MIN4-0178	898338

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields
 Billing Information: **Bill to AECOM**

Company: **AECOM**
 Address:
 Report To: **100 Linne Mansions@aecom.com**
 Copy To: **11E Superior St STE 5418**

Customer Project Name/Number: **Superior Terminal PFAS/CO2/10/13 WI Superior**
 Site/Facility ID #: **Enbridge Superior Terminal**
 State: **WI Superior** Time Zone Collected: **[] PT [] MT [] CT [] ET**
 Phone: **608-828-9208**
 Email: **Enbridge Superior Terminal**
 Purchased Order #: **Standard**
 Turnaround Date Required: **Standard**
 Rush: **[] Same Day [] Next Day [] 3 Day [] 4 Day [] 5 Day**
 Sample Disposal: **[] Return [] Archive: [] Hold:**

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns
PR-TK24-SB01(0-1)D4A	SL	G	7/10/23	1400				1
PR-TK24-SB01(1-2)	SL	G	7/10/23	1405				1
PR-TK24-SB01(2-3)	SL	G	7/10/23	1410				1
PR-TK24-SB01(3-4)	SL	G	7/10/23	1415				1
PR-TK25-SB01(0-1)	SL	G	7/10/23	1235				1
PR-TK25-SB01(1-2)	SL	G	7/10/23	1240				1
PR-TK25-SB01(2-3)	SL	G	7/10/23	1245				1
PR-TK25-SB01(3-4)	SL	G	7/10/23	1250				1
PR-ERB-01-07102023	OT		7/10/23	1315				1
PR-FRB-01-07112023	OT		7/11/23	1030				1

Customer Remarks / Special Conditions / Possible Hazards:
 Type of Ice Used: **Wet** Blue Dry None
 Packing Material Used:
 Radchem sample(s) screened (<500 cpm): Y N NA
 Received by/Company: (Signature) **Melanda Pace**
 Date/Time: **7/11/23 1355**
 Received by/Company: (Signature) **Melanda Pace**
 Date/Time: **7/11 1415**
 Received by/Company: (Signature) **Melanda Pace**
 Date/Time: **7/12/23 1115**
 Received by/Company: (Signature) **Melanda Pace**

Container Preservative Type: **U**
 Lab Project Manager:
 ** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Lab Profile/Line: **44709**

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:			
Sample pH Acceptable	Y	N	NA
pH Strips:			
Sulfide Present	Y	N	NA
Lead Acetate Strips:			
LAB USE ONLY:			
Lab Sample # / Comments:			

Effective Date: 4/14/2023

Sample Condition Upon Receipt Client Name: AECOM

Project #: WO#: 10661127 PM: TS1 Due Date: 08/11/23 CLIENT: AECOM

Courier: FedEx UPS USPS Client Pace SpeeDee Commercial

Tracking Number: See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other pb Temp Blank? Yes No

Thermometer: T1 (0461) T2 (0436) T3 (0459) T4 (0402) T5 (0178) Type of Ice: Wet Blue Dry None T6 (0235) T7 (0042) T8 (0775) T9 (0727) 01339252/1710 Melted

Did Samples Originate in West Virginia? Were All Container Temps Taken? Average Corrected Temp (no temp blank only): Correction Factor: Cooler Temp Read w/Temp Blank: Cooler Temp Corrected w/temp blank: See Exceptions ENV-FRM-MIN4-0142 1 Container

USDA Regulated Soil: N/A, water sample/other: Date/Initials of Person Examining Contents: 02/7/12/23

Did samples originate in a quarantine zone within the United States: AL, AR, AZ CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? Yes No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

Table with 15 rows and 2 columns: Location (Check one) and COMMENTS. Includes questions like 'Chain of Custody Present and Filled Out?', 'Samples Arrived within Hold Time?', 'Rush Turn Around Time Requested?', etc.

CLIENT NOTIFICATION/RESOLUTION Person Contacted: Date/Time: Comments/Resolution: Project Manager Review: Date: 7/14/23 Field Data Required? Yes No

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).



August 15, 2023

Leo Linnemanstons
AECOM
1555 N. RiverCenter Drive
Ste. 214
Milwaukee, WI 53212

RE: Project: 60702913 Superior Terminal PFA
Pace Project No.: 10661126

Dear Leo Linnemanstons:

Enclosed are the analytical results for sample(s) received by the laboratory on July 12, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Minneapolis

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Tina Soltani".

Tina Soltani
tina.soltani@pacelabs.com
(612) 607-6384
Project Manager

Enclosures

cc: Darin Albrecht, AECOM



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8 Tribal Water Systems+Wyoming DW

Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

GMP+ Certification #: GMP050884

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Approval: via MN 027-053-137

Minnesota Petrofund Registration #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification (A2LA) #: R-036

North Dakota Certification (MN) #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

USDA Permit #: P330-19-00208

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SAMPLE SUMMARY

Project: 60702913 Superior Terminal PFA
Pace Project No.: 10661126

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10661126001	PR-PD02-SW01	Water	07/11/23 12:00	07/12/23 08:00
10661126002	PR-PD03-SW01	Water	07/11/23 11:05	07/12/23 08:00
10661126003	PR-PD03-SW01-DUP	Water	07/11/23 11:05	07/12/23 08:00
10661126004	PR-ER8-02-07112023	Water	07/11/23 10:35	07/12/23 08:00

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SAMPLE ANALYTE COUNT

Project: 60702913 Superior Terminal PFA
Pace Project No.: 10661126

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10661126001	PR-PD02-SW01	ENV-SOP-MIN4-0178	NBH	61	PASI-M
10661126002	PR-PD03-SW01	ENV-SOP-MIN4-0178	NBH	61	PASI-M
10661126003	PR-PD03-SW01-DUP	ENV-SOP-MIN4-0178	NBH	61	PASI-M
10661126004	PR-ER8-02-07112023	ENV-SOP-MIN4-0178	NBH	61	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10661126001	PR-PD02-SW01					
ENV-SOP-MIN4-0178	6:2 FTS	47.9	ng/L	1.9	08/05/23 15:53	
ENV-SOP-MIN4-0178	8:2 FTS	3.7	ng/L	1.9	08/05/23 15:53	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	3.9	ng/L	1.8	08/05/23 15:53	
ENV-SOP-MIN4-0178	Perfluorodecanoic acid	2.7	ng/L	2.0	08/05/23 15:53	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	76.2	ng/L	2.0	08/05/23 15:53	
ENV-SOP-MIN4-0178	PFBA	44.0	ng/L	2.0	08/05/23 15:53	M1
ENV-SOP-MIN4-0178	PFHpS	0.96J	ng/L	1.9	08/05/23 15:53	
ENV-SOP-MIN4-0178	PFPeA	174	ng/L	2.0	08/05/23 15:53	
ENV-SOP-MIN4-0178	PFPeS	3.2	ng/L	1.9	08/05/23 15:53	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	31.7	ng/L	2.0	08/05/23 15:53	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	36.9	ng/L	1.8	08/05/23 15:53	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	8.6	ng/L	2.0	08/05/23 15:53	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	65.9	ng/L	1.8	08/05/23 15:53	M1
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	30.9	ng/L	2.0	08/05/23 15:53	
ENV-SOP-MIN4-0178	Perfluoroundecanoic acid	6.5	ng/L	2.0	08/05/23 15:53	M1
10661126002	PR-PD03-SW01					
ENV-SOP-MIN4-0178	10:2 FTS	0.97J	ng/L	1.9	08/05/23 16:08	
ENV-SOP-MIN4-0178	6:2 FTS	78.6	ng/L	1.8	08/05/23 16:08	
ENV-SOP-MIN4-0178	8:2 FTS	11.7	ng/L	1.9	08/05/23 16:08	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	17.4	ng/L	1.7	08/05/23 16:08	
ENV-SOP-MIN4-0178	Perfluorodecanoic acid	6.4	ng/L	1.9	08/05/23 16:08	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	138	ng/L	1.9	08/05/23 16:08	
ENV-SOP-MIN4-0178	PFBA	43.7	ng/L	1.9	08/05/23 16:08	
ENV-SOP-MIN4-0178	PFDS	0.69J	ng/L	1.9	08/05/23 16:08	
ENV-SOP-MIN4-0178	PFHpS	10.2	ng/L	1.8	08/05/23 16:08	
ENV-SOP-MIN4-0178	PFNS	2.5	ng/L	1.9	08/05/23 16:08	
ENV-SOP-MIN4-0178	PFOSA	5.4	ng/L	1.9	08/05/23 16:08	
ENV-SOP-MIN4-0178	PFPeA	150	ng/L	1.9	08/05/23 16:08	
ENV-SOP-MIN4-0178	PFPeS	24.5	ng/L	1.8	08/05/23 16:08	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	38.2	ng/L	1.9	08/05/23 16:08	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	249	ng/L	17.7	08/08/23 18:26	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	12.4	ng/L	1.9	08/05/23 16:08	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	683	ng/L	18.0	08/08/23 18:26	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	51.6	ng/L	1.9	08/05/23 16:08	
ENV-SOP-MIN4-0178	Perfluoroundecanoic acid	6.5	ng/L	1.9	08/05/23 16:08	
10661126003	PR-PD03-SW01-DUP					
ENV-SOP-MIN4-0178	10:2 FTS	0.94J	ng/L	1.9	08/05/23 16:15	
ENV-SOP-MIN4-0178	6:2 FTS	79.9	ng/L	1.9	08/05/23 16:15	
ENV-SOP-MIN4-0178	8:2 FTS	11.4	ng/L	1.9	08/05/23 16:15	
ENV-SOP-MIN4-0178	Perfluorobutanesulfonic acid	17.4	ng/L	1.7	08/05/23 16:15	
ENV-SOP-MIN4-0178	Perfluorodecanoic acid	6.4	ng/L	2.0	08/05/23 16:15	
ENV-SOP-MIN4-0178	Perfluorohexanoic acid	138	ng/L	2.0	08/05/23 16:15	
ENV-SOP-MIN4-0178	PFBA	48.0	ng/L	2.0	08/05/23 16:15	
ENV-SOP-MIN4-0178	PFDS	0.77J	ng/L	1.9	08/05/23 16:15	
ENV-SOP-MIN4-0178	PFHpS	10	ng/L	1.9	08/05/23 16:15	
ENV-SOP-MIN4-0178	PFNS	2.5	ng/L	1.9	08/05/23 16:15	

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SUMMARY OF DETECTION

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10661126003	PR-PD03-SW01-DUP					
ENV-SOP-MIN4-0178	PFOSA	4.8	ng/L	2.0	08/05/23 16:15	
ENV-SOP-MIN4-0178	PFPeA	147	ng/L	2.0	08/05/23 16:15	
ENV-SOP-MIN4-0178	PFPeS	24.7	ng/L	1.8	08/05/23 16:15	
ENV-SOP-MIN4-0178	Perfluoroheptanoic acid	37.7	ng/L	2.0	08/05/23 16:15	
ENV-SOP-MIN4-0178	Perfluorohexanesulfonic acid	262	ng/L	17.8	08/08/23 18:33	
ENV-SOP-MIN4-0178	Perfluorononanoic acid	12.1	ng/L	2.0	08/05/23 16:15	
ENV-SOP-MIN4-0178	Perfluorooctanesulfonic acid	671	ng/L	18.1	08/08/23 18:33	
ENV-SOP-MIN4-0178	Perfluorooctanoic acid	50.0	ng/L	2.0	08/05/23 16:15	
ENV-SOP-MIN4-0178	Perfluoroundecanoic acid	6.7	ng/L	2.0	08/05/23 16:15	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

Sample: PR-PD02-SW01 Lab ID: 10661126001 Collected: 07/11/23 12:00 Received: 07/12/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	<0.91	ng/L	1.9	0.91	1	07/24/23 17:07	08/05/23 15:53	120226-60-0	
11Cl-PF3OUdS	<0.55	ng/L	1.9	0.55	1	07/24/23 17:07	08/05/23 15:53	763051-92-9	
4:2 FTS	<0.46	ng/L	1.9	0.46	1	07/24/23 17:07	08/05/23 15:53	757124-72-4	
6:2 FTS	47.9	ng/L	1.9	0.67	1	07/24/23 17:07	08/05/23 15:53	27619-97-2	
8:2 FTS	3.7	ng/L	1.9	0.50	1	07/24/23 17:07	08/05/23 15:53	39108-34-4	
9Cl-PF3ONS	<0.47	ng/L	1.8	0.47	1	07/24/23 17:07	08/05/23 15:53	756426-58-1	
ADONA	<0.91	ng/L	1.9	0.91	1	07/24/23 17:07	08/05/23 15:53	919005-14-4	
HFPO-DA	<0.49	ng/L	2.0	0.49	1	07/24/23 17:07	08/05/23 15:53	13252-13-6	
NEtFOSAA	<0.81	ng/L	2.0	0.81	1	07/24/23 17:07	08/05/23 15:53	2991-50-6	
NEtFOSA	<0.57	ng/L	2.0	0.57	1	07/24/23 17:07	08/05/23 15:53	4151-50-2	
NEtFOSE	<0.88	ng/L	2.0	0.88	1	07/24/23 17:07	08/05/23 15:53	1691-99-2	
NMeFOSAA	<0.69	ng/L	2.0	0.69	1	07/24/23 17:07	08/05/23 15:53	2355-31-9	
NMeFOSA	<0.55	ng/L	2.0	0.55	1	07/24/23 17:07	08/05/23 15:53	31506-32-8	
NMeFOSE	<0.52	ng/L	2.0	0.52	1	07/24/23 17:07	08/05/23 15:53	24448-09-7	
Perfluorobutanesulfonic acid	3.9	ng/L	1.8	0.48	1	07/24/23 17:07	08/05/23 15:53	375-73-5	
Perfluorodecanoic acid	2.7	ng/L	2.0	0.60	1	07/24/23 17:07	08/05/23 15:53	335-76-2	
Perfluorohexanoic acid	76.2	ng/L	2.0	0.90	1	07/24/23 17:07	08/05/23 15:53	307-24-4	
PFBA	44.0	ng/L	2.0	0.49	1	07/24/23 17:07	08/05/23 15:53	375-22-4	M1
PFDS	<0.63	ng/L	1.9	0.63	1	07/24/23 17:07	08/05/23 15:53	335-77-3	
PFDoS	<0.59	ng/L	1.9	0.59	1	07/24/23 17:07	08/05/23 15:53	79780-39-5	
PFHpS	0.96J	ng/L	1.9	0.66	1	07/24/23 17:07	08/05/23 15:53	375-92-8	
PFHxDA	<0.45	ng/L	2.0	0.45	1	07/24/23 17:07	08/05/23 15:53	67905-19-5	
PFNS	<0.58	ng/L	1.9	0.58	1	07/24/23 17:07	08/05/23 15:53	68259-12-1	
PFODA	<0.61	ng/L	2.0	0.61	1	07/24/23 17:07	08/05/23 15:53	16517-11-6	
PFOSA	<0.71	ng/L	2.0	0.71	1	07/24/23 17:07	08/05/23 15:53	754-91-6	
PFPeA	174	ng/L	2.0	0.81	1	07/24/23 17:07	08/05/23 15:53	2706-90-3	
PFPeS	3.2	ng/L	1.9	0.59	1	07/24/23 17:07	08/05/23 15:53	2706-91-4	
Perfluorododecanoic acid	<0.48	ng/L	2.0	0.48	1	07/24/23 17:07	08/05/23 15:53	307-55-1	
Perfluoroheptanoic acid	31.7	ng/L	2.0	0.68	1	07/24/23 17:07	08/05/23 15:53	375-85-9	
Perfluorohexanesulfonic acid	36.9	ng/L	1.8	0.53	1	07/24/23 17:07	08/05/23 15:53	355-46-4	
Perfluorononanoic acid	8.6	ng/L	2.0	0.79	1	07/24/23 17:07	08/05/23 15:53	375-95-1	
Perfluorooctanesulfonic acid	65.9	ng/L	1.8	0.66	1	07/24/23 17:07	08/05/23 15:53	1763-23-1	M1
Perfluorooctanoic acid	30.9	ng/L	2.0	0.85	1	07/24/23 17:07	08/05/23 15:53	335-67-1	
Perfluorotetradecanoic acid	<0.59	ng/L	2.0	0.59	1	07/24/23 17:07	08/05/23 15:53	376-06-7	
Perfluorotridecanoic acid	<0.62	ng/L	2.0	0.62	1	07/24/23 17:07	08/05/23 15:53	72629-94-8	
Perfluoroundecanoic acid	6.5	ng/L	2.0	0.48	1	07/24/23 17:07	08/05/23 15:53	2058-94-8	M1
Surrogates									
13C4-PFBA (S)	66	%	25-150		1	07/24/23 17:07	08/05/23 15:53	375-22-4	
13C5-PFPeA (S)	84	%	25-150		1	07/24/23 17:07	08/05/23 15:53	2706-90-3	
13C3-PFBS (S)	96	%	25-150		1	07/24/23 17:07	08/05/23 15:53	375-73-5	
13C24:2FTS (S)	405	%	25-150		1	07/24/23 17:07	08/05/23 15:53		S0
13C3HFPO-DA (S)	80	%	25-150		1	07/24/23 17:07	08/05/23 15:53		
13C4-PFHpA (S)	86	%	25-150		1	07/24/23 17:07	08/05/23 15:53	375-85-9	
13C3-PFHxS (S)	95	%	25-150		1	07/24/23 17:07	08/05/23 15:53	355-46-4	
13C26:2FTS (S)	318	%	25-150		1	07/24/23 17:07	08/05/23 15:53		S0

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

Sample: PR-PD02-SW01 Lab ID: 10661126001 Collected: 07/11/23 12:00 Received: 07/12/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
Surrogates									
13C8-PFOA (S)	103	%	25-150		1	07/24/23 17:07	08/05/23 15:53	335-67-1	
13C8-PFOS (S)	105	%	25-150		1	07/24/23 17:07	08/05/23 15:53	1763-23-1	
13C9-PFNA (S)	112	%	25-150		1	07/24/23 17:07	08/05/23 15:53	375-95-1	
13C6-PFDA (S)	122	%	25-150		1	07/24/23 17:07	08/05/23 15:53	335-76-2	
13C28:2FTS (S)	339	%	25-150		1	07/24/23 17:07	08/05/23 15:53		S0
d3-MeFOSAA (S)	111	%	25-150		1	07/24/23 17:07	08/05/23 15:53	2355-31-9	
13C7-PFUdA (S)	126	%	25-150		1	07/24/23 17:07	08/05/23 15:53	2058-94-8	
13C8-PFOSA (S)	92	%	25-150		1	07/24/23 17:07	08/05/23 15:53	754-91-6	
d5-EtFOSAA (S)	111	%	25-150		1	07/24/23 17:07	08/05/23 15:53	2991-50-6	
13C2-PFDoA (S)	109	%	25-150		1	07/24/23 17:07	08/05/23 15:53		
d3-NMeFOSA (S)	53	%	10-150		1	07/24/23 17:07	08/05/23 15:53	31506-32-8	
d7-NMeFOSE (S)	77	%	10-150		1	07/24/23 17:07	08/05/23 15:53	24448-09-7	
13C2-PFTA (S)	83	%	25-150		1	07/24/23 17:07	08/05/23 15:53		
d9-NEtFOSE (S)	76	%	10-150		1	07/24/23 17:07	08/05/23 15:53	1691-99-2	
d5-NEtFOSA (S)	54	%	10-150		1	07/24/23 17:07	08/05/23 15:53	4151-50-2	
13C2PFHxDA (S)	86	%	25-150		1	07/24/23 17:07	08/05/23 15:53		
13C5-PFHxA (S)	86	%	25-150		1	07/24/23 17:07	08/05/23 15:53	307-24-4	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

Sample: PR-PD03-SW01 Lab ID: 10661126002 Collected: 07/11/23 11:05 Received: 07/12/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
10:2 FTS	0.97J	ng/L	1.9	0.89	1	07/24/23 17:07	08/05/23 16:08	120226-60-0	
11Cl-PF3OUdS	<0.54	ng/L	1.8	0.54	1	07/24/23 17:07	08/05/23 16:08	763051-92-9	
4:2 FTS	<0.45	ng/L	1.8	0.45	1	07/24/23 17:07	08/05/23 16:08	757124-72-4	
6:2 FTS	78.6	ng/L	1.8	0.66	1	07/24/23 17:07	08/05/23 16:08	27619-97-2	
8:2 FTS	11.7	ng/L	1.9	0.49	1	07/24/23 17:07	08/05/23 16:08	39108-34-4	
9Cl-PF3ONS	<0.46	ng/L	1.8	0.46	1	07/24/23 17:07	08/05/23 16:08	756426-58-1	
ADONA	<0.89	ng/L	1.8	0.89	1	07/24/23 17:07	08/05/23 16:08	919005-14-4	
HFPO-DA	<0.48	ng/L	1.9	0.48	1	07/24/23 17:07	08/05/23 16:08	13252-13-6	
NEtFOSAA	<0.79	ng/L	1.9	0.79	1	07/24/23 17:07	08/05/23 16:08	2991-50-6	
NEtFOSA	<0.56	ng/L	1.9	0.56	1	07/24/23 17:07	08/05/23 16:08	4151-50-2	
NEtFOSE	<0.87	ng/L	1.9	0.87	1	07/24/23 17:07	08/05/23 16:08	1691-99-2	
NMeFOSAA	<0.68	ng/L	1.9	0.68	1	07/24/23 17:07	08/05/23 16:08	2355-31-9	
NMeFOSA	<0.54	ng/L	1.9	0.54	1	07/24/23 17:07	08/05/23 16:08	31506-32-8	
NMeFOSE	<0.51	ng/L	1.9	0.51	1	07/24/23 17:07	08/05/23 16:08	24448-09-7	
Perfluorobutanesulfonic acid	17.4	ng/L	1.7	0.47	1	07/24/23 17:07	08/05/23 16:08	375-73-5	
Perfluorodecanoic acid	6.4	ng/L	1.9	0.59	1	07/24/23 17:07	08/05/23 16:08	335-76-2	
Perfluorohexanoic acid	138	ng/L	1.9	0.89	1	07/24/23 17:07	08/05/23 16:08	307-24-4	
PFBA	43.7	ng/L	1.9	0.48	1	07/24/23 17:07	08/05/23 16:08	375-22-4	
PFDS	0.69J	ng/L	1.9	0.62	1	07/24/23 17:07	08/05/23 16:08	335-77-3	
PFDoS	<0.58	ng/L	1.9	0.58	1	07/24/23 17:07	08/05/23 16:08	79780-39-5	
PFHpS	10.2	ng/L	1.8	0.65	1	07/24/23 17:07	08/05/23 16:08	375-92-8	
PFHxDA	<0.44	ng/L	1.9	0.44	1	07/24/23 17:07	08/05/23 16:08	67905-19-5	
PFNS	2.5	ng/L	1.9	0.57	1	07/24/23 17:07	08/05/23 16:08	68259-12-1	
PFODA	<0.60	ng/L	1.9	0.60	1	07/24/23 17:07	08/05/23 16:08	16517-11-6	
PFOSA	5.4	ng/L	1.9	0.70	1	07/24/23 17:07	08/05/23 16:08	754-91-6	
PFPeA	150	ng/L	1.9	0.80	1	07/24/23 17:07	08/05/23 16:08	2706-90-3	
PFPeS	24.5	ng/L	1.8	0.59	1	07/24/23 17:07	08/05/23 16:08	2706-91-4	
Perfluorododecanoic acid	<0.47	ng/L	1.9	0.47	1	07/24/23 17:07	08/05/23 16:08	307-55-1	
Perfluoroheptanoic acid	38.2	ng/L	1.9	0.67	1	07/24/23 17:07	08/05/23 16:08	375-85-9	
Perfluorohexanesulfonic acid	249	ng/L	17.7	5.2	10	07/24/23 17:07	08/08/23 18:26	355-46-4	
Perfluorononanoic acid	12.4	ng/L	1.9	0.77	1	07/24/23 17:07	08/05/23 16:08	375-95-1	
Perfluorooctanesulfonic acid	683	ng/L	18.0	6.5	10	07/24/23 17:07	08/08/23 18:26	1763-23-1	
Perfluorooctanoic acid	51.6	ng/L	1.9	0.84	1	07/24/23 17:07	08/05/23 16:08	335-67-1	
Perfluorotetradecanoic acid	<0.58	ng/L	1.9	0.58	1	07/24/23 17:07	08/05/23 16:08	376-06-7	
Perfluorotridecanoic acid	<0.61	ng/L	1.9	0.61	1	07/24/23 17:07	08/05/23 16:08	72629-94-8	
Perfluoroundecanoic acid	6.5	ng/L	1.9	0.47	1	07/24/23 17:07	08/05/23 16:08	2058-94-8	
Surrogates									
13C4-PFBA (S)	74	%	25-150		1	07/24/23 17:07	08/05/23 16:08	375-22-4	
13C5-PFPeA (S)	98	%	25-150		1	07/24/23 17:07	08/05/23 16:08	2706-90-3	
13C3-PFBS (S)	119	%	25-150		1	07/24/23 17:07	08/05/23 16:08	375-73-5	
13C24:2FTS (S)	552	%	25-150		1	07/24/23 17:07	08/05/23 16:08		S0
13C3HFPO-DA (S)	97	%	25-150		1	07/24/23 17:07	08/05/23 16:08		
13C4-PFHpA (S)	99	%	25-150		1	07/24/23 17:07	08/05/23 16:08	375-85-9	
13C3-PFHxS (S)	107	%	25-150		1	07/24/23 17:07	08/05/23 16:08	355-46-4	
13C26:2FTS (S)	441	%	25-150		1	07/24/23 17:07	08/05/23 16:08		S0

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

Sample: PR-PD03-SW01 Lab ID: 10661126002 Collected: 07/11/23 11:05 Received: 07/12/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
Surrogates									
13C8-PFOA (S)	119	%	25-150		1	07/24/23 17:07	08/05/23 16:08	335-67-1	
13C8-PFOS (S)	112	%	25-150		1	07/24/23 17:07	08/05/23 16:08	1763-23-1	
13C9-PFNA (S)	109	%	25-150		1	07/24/23 17:07	08/05/23 16:08	375-95-1	
13C6-PFDA (S)	150	%	25-150		1	07/24/23 17:07	08/05/23 16:08	335-76-2	
13C28:2FTS (S)	446	%	25-150		1	07/24/23 17:07	08/05/23 16:08		S0
d3-MeFOSAA (S)	120	%	25-150		1	07/24/23 17:07	08/05/23 16:08	2355-31-9	
13C7-PFUdA (S)	151	%	25-150		1	07/24/23 17:07	08/05/23 16:08	2058-94-8	S0
13C8-PFOSA (S)	114	%	25-150		1	07/24/23 17:07	08/05/23 16:08	754-91-6	
d5-EtFOSAA (S)	129	%	25-150		1	07/24/23 17:07	08/05/23 16:08	2991-50-6	
13C2-PFDoA (S)	126	%	25-150		1	07/24/23 17:07	08/05/23 16:08		
d3-NMeFOSA (S)	61	%	10-150		1	07/24/23 17:07	08/05/23 16:08	31506-32-8	
d7-NMeFOSE (S)	95	%	10-150		1	07/24/23 17:07	08/05/23 16:08	24448-09-7	
13C2-PFTA (S)	102	%	25-150		1	07/24/23 17:07	08/05/23 16:08		
d9-NEtFOSE (S)	86	%	10-150		1	07/24/23 17:07	08/05/23 16:08	1691-99-2	
d5-NEtFOSA (S)	58	%	10-150		1	07/24/23 17:07	08/05/23 16:08	4151-50-2	
13C2PFHxDA (S)	109	%	25-150		1	07/24/23 17:07	08/05/23 16:08		
13C5-PFHxA (S)	100	%	25-150		1	07/24/23 17:07	08/05/23 16:08	307-24-4	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

Sample: PR-PD03-SW01-DUP Lab ID: 10661126003 Collected: 07/11/23 11:05 Received: 07/12/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
10:2 FTS	0.94J	ng/L	1.9	0.90	1	07/24/23 17:07	08/05/23 16:15	120226-60-0	
11Cl-PF3OUdS	<0.54	ng/L	1.8	0.54	1	07/24/23 17:07	08/05/23 16:15	763051-92-9	
4:2 FTS	<0.46	ng/L	1.8	0.46	1	07/24/23 17:07	08/05/23 16:15	757124-72-4	
6:2 FTS	79.9	ng/L	1.9	0.66	1	07/24/23 17:07	08/05/23 16:15	27619-97-2	
8:2 FTS	11.4	ng/L	1.9	0.49	1	07/24/23 17:07	08/05/23 16:15	39108-34-4	
9Cl-PF3ONS	<0.46	ng/L	1.8	0.46	1	07/24/23 17:07	08/05/23 16:15	756426-58-1	
ADONA	<0.90	ng/L	1.9	0.90	1	07/24/23 17:07	08/05/23 16:15	919005-14-4	
HFPO-DA	<0.48	ng/L	2.0	0.48	1	07/24/23 17:07	08/05/23 16:15	13252-13-6	
NEtFOSAA	<0.80	ng/L	2.0	0.80	1	07/24/23 17:07	08/05/23 16:15	2991-50-6	
NEtFOSA	<0.56	ng/L	2.0	0.56	1	07/24/23 17:07	08/05/23 16:15	4151-50-2	
NEtFOSE	<0.87	ng/L	2.0	0.87	1	07/24/23 17:07	08/05/23 16:15	1691-99-2	
NMeFOSAA	<0.68	ng/L	2.0	0.68	1	07/24/23 17:07	08/05/23 16:15	2355-31-9	
NMeFOSA	<0.54	ng/L	2.0	0.54	1	07/24/23 17:07	08/05/23 16:15	31506-32-8	
NMeFOSE	<0.51	ng/L	2.0	0.51	1	07/24/23 17:07	08/05/23 16:15	24448-09-7	
Perfluorobutanesulfonic acid	17.4	ng/L	1.7	0.47	1	07/24/23 17:07	08/05/23 16:15	375-73-5	
Perfluorodecanoic acid	6.4	ng/L	2.0	0.60	1	07/24/23 17:07	08/05/23 16:15	335-76-2	
Perfluorohexanoic acid	138	ng/L	2.0	0.89	1	07/24/23 17:07	08/05/23 16:15	307-24-4	
PFBA	48.0	ng/L	2.0	0.49	1	07/24/23 17:07	08/05/23 16:15	375-22-4	
PFDS	0.77J	ng/L	1.9	0.63	1	07/24/23 17:07	08/05/23 16:15	335-77-3	
PFDoS	<0.58	ng/L	1.9	0.58	1	07/24/23 17:07	08/05/23 16:15	79780-39-5	
PFHpS	10	ng/L	1.9	0.65	1	07/24/23 17:07	08/05/23 16:15	375-92-8	
PFHxDA	<0.44	ng/L	2.0	0.44	1	07/24/23 17:07	08/05/23 16:15	67905-19-5	
PFNS	2.5	ng/L	1.9	0.57	1	07/24/23 17:07	08/05/23 16:15	68259-12-1	
PFODA	<0.60	ng/L	2.0	0.60	1	07/24/23 17:07	08/05/23 16:15	16517-11-6	
PFOSA	4.8	ng/L	2.0	0.70	1	07/24/23 17:07	08/05/23 16:15	754-91-6	
PFPeA	147	ng/L	2.0	0.80	1	07/24/23 17:07	08/05/23 16:15	2706-90-3	
PFPeS	24.7	ng/L	1.8	0.59	1	07/24/23 17:07	08/05/23 16:15	2706-91-4	
Perfluorododecanoic acid	<0.47	ng/L	2.0	0.47	1	07/24/23 17:07	08/05/23 16:15	307-55-1	
Perfluoroheptanoic acid	37.7	ng/L	2.0	0.67	1	07/24/23 17:07	08/05/23 16:15	375-85-9	
Perfluorohexanesulfonic acid	262	ng/L	17.8	5.2	10	07/24/23 17:07	08/08/23 18:33	355-46-4	
Perfluorononanoic acid	12.1	ng/L	2.0	0.78	1	07/24/23 17:07	08/05/23 16:15	375-95-1	
Perfluorooctanesulfonic acid	671	ng/L	18.1	6.5	10	07/24/23 17:07	08/08/23 18:33	1763-23-1	
Perfluorooctanoic acid	50.0	ng/L	2.0	0.84	1	07/24/23 17:07	08/05/23 16:15	335-67-1	
Perfluorotetradecanoic acid	<0.59	ng/L	2.0	0.59	1	07/24/23 17:07	08/05/23 16:15	376-06-7	
Perfluorotridecanoic acid	<0.61	ng/L	2.0	0.61	1	07/24/23 17:07	08/05/23 16:15	72629-94-8	
Perfluoroundecanoic acid	6.7	ng/L	2.0	0.48	1	07/24/23 17:07	08/05/23 16:15	2058-94-8	
Surrogates									
13C4-PFBA (S)	65	%	25-150		1	07/24/23 17:07	08/05/23 16:15	375-22-4	
13C5-PFPeA (S)	84	%	25-150		1	07/24/23 17:07	08/05/23 16:15	2706-90-3	
13C3-PFBS (S)	100	%	25-150		1	07/24/23 17:07	08/05/23 16:15	375-73-5	
13C24:2FTS (S)	445	%	25-150		1	07/24/23 17:07	08/05/23 16:15		S0
13C3HFPO-DA (S)	81	%	25-150		1	07/24/23 17:07	08/05/23 16:15		
13C4-PFHpA (S)	86	%	25-150		1	07/24/23 17:07	08/05/23 16:15	375-85-9	
13C3-PFHxS (S)	89	%	25-150		1	07/24/23 17:07	08/05/23 16:15	355-46-4	
13C26:2FTS (S)	359	%	25-150		1	07/24/23 17:07	08/05/23 16:15		S0

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

Sample: PR-PD03-SW01-DUP Lab ID: 10661126003 Collected: 07/11/23 11:05 Received: 07/12/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
Surrogates									
13C8-PFOA (S)	100	%	25-150		1	07/24/23 17:07	08/05/23 16:15	335-67-1	
13C8-PFOS (S)	94	%	25-150		1	07/24/23 17:07	08/05/23 16:15	1763-23-1	
13C9-PFNA (S)	95	%	25-150		1	07/24/23 17:07	08/05/23 16:15	375-95-1	
13C6-PFDA (S)	126	%	25-150		1	07/24/23 17:07	08/05/23 16:15	335-76-2	
13C28:2FTS (S)	342	%	25-150		1	07/24/23 17:07	08/05/23 16:15		S0
d3-MeFOSAA (S)	113	%	25-150		1	07/24/23 17:07	08/05/23 16:15	2355-31-9	
13C7-PFUdA (S)	120	%	25-150		1	07/24/23 17:07	08/05/23 16:15	2058-94-8	
13C8-PFOSA (S)	71	%	25-150		1	07/24/23 17:07	08/05/23 16:15	754-91-6	
d5-EtFOSAA (S)	110	%	25-150		1	07/24/23 17:07	08/05/23 16:15	2991-50-6	
13C2-PFDoA (S)	101	%	25-150		1	07/24/23 17:07	08/05/23 16:15		
d3-NMeFOSA (S)	4	%	10-150		1	07/24/23 17:07	08/05/23 16:15	31506-32-8	S0
d7-NMeFOSE (S)	29	%	10-150		1	07/24/23 17:07	08/05/23 16:15	24448-09-7	
13C2-PFTA (S)	66	%	25-150		1	07/24/23 17:07	08/05/23 16:15		
d9-NEtFOSE (S)	26	%	10-150		1	07/24/23 17:07	08/05/23 16:15	1691-99-2	
d5-NEtFOSA (S)	3	%	10-150		1	07/24/23 17:07	08/05/23 16:15	4151-50-2	S0
13C2PFHxDA (S)	44	%	25-150		1	07/24/23 17:07	08/05/23 16:15		
13C5-PFHxA (S)	85	%	25-150		1	07/24/23 17:07	08/05/23 16:15	307-24-4	

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

Sample: PR-ER8-02-07112023 Lab ID: 10661126004 Collected: 07/11/23 10:35 Received: 07/12/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
10:2 FTS	<0.90	ng/L	1.9	0.90	1	07/24/23 17:07	08/05/23 16:29	120226-60-0	
11Cl-PF3OUdS	<0.55	ng/L	1.9	0.55	1	07/24/23 17:07	08/05/23 16:29	763051-92-9	
4:2 FTS	<0.46	ng/L	1.8	0.46	1	07/24/23 17:07	08/05/23 16:29	757124-72-4	
6:2 FTS	<0.66	ng/L	1.9	0.66	1	07/24/23 17:07	08/05/23 16:29	27619-97-2	
8:2 FTS	<0.50	ng/L	1.9	0.50	1	07/24/23 17:07	08/05/23 16:29	39108-34-4	
9Cl-PF3ONS	<0.46	ng/L	1.8	0.46	1	07/24/23 17:07	08/05/23 16:29	756426-58-1	
ADONA	<0.90	ng/L	1.9	0.90	1	07/24/23 17:07	08/05/23 16:29	919005-14-4	
HFPO-DA	<0.49	ng/L	2.0	0.49	1	07/24/23 17:07	08/05/23 16:29	13252-13-6	
NEtFOSAA	<0.80	ng/L	2.0	0.80	1	07/24/23 17:07	08/05/23 16:29	2991-50-6	
NEtFOSA	<0.57	ng/L	2.0	0.57	1	07/24/23 17:07	08/05/23 16:29	4151-50-2	
NEtFOSE	<0.88	ng/L	2.0	0.88	1	07/24/23 17:07	08/05/23 16:29	1691-99-2	
NMeFOSAA	<0.68	ng/L	2.0	0.68	1	07/24/23 17:07	08/05/23 16:29	2355-31-9	
NMeFOSA	<0.54	ng/L	2.0	0.54	1	07/24/23 17:07	08/05/23 16:29	31506-32-8	
NMeFOSE	<0.51	ng/L	2.0	0.51	1	07/24/23 17:07	08/05/23 16:29	24448-09-7	
Perfluorobutanesulfonic acid	<0.48	ng/L	1.7	0.48	1	07/24/23 17:07	08/05/23 16:29	375-73-5	
Perfluorodecanoic acid	<0.60	ng/L	2.0	0.60	1	07/24/23 17:07	08/05/23 16:29	335-76-2	
Perfluorohexanoic acid	<0.90	ng/L	2.0	0.90	1	07/24/23 17:07	08/05/23 16:29	307-24-4	
PFBA	<0.49	ng/L	2.0	0.49	1	07/24/23 17:07	08/05/23 16:29	375-22-4	
PFDS	<0.63	ng/L	1.9	0.63	1	07/24/23 17:07	08/05/23 16:29	335-77-3	
PFDoS	<0.58	ng/L	1.9	0.58	1	07/24/23 17:07	08/05/23 16:29	79780-39-5	
PFHpS	<0.66	ng/L	1.9	0.66	1	07/24/23 17:07	08/05/23 16:29	375-92-8	
PFHxDA	<0.44	ng/L	2.0	0.44	1	07/24/23 17:07	08/05/23 16:29	67905-19-5	
PFNS	<0.58	ng/L	1.9	0.58	1	07/24/23 17:07	08/05/23 16:29	68259-12-1	
PFODA	<0.61	ng/L	2.0	0.61	1	07/24/23 17:07	08/05/23 16:29	16517-11-6	
PFOSA	<0.71	ng/L	2.0	0.71	1	07/24/23 17:07	08/05/23 16:29	754-91-6	
PFPeA	<0.81	ng/L	2.0	0.81	1	07/24/23 17:07	08/05/23 16:29	2706-90-3	
PFPeS	<0.59	ng/L	1.9	0.59	1	07/24/23 17:07	08/05/23 16:29	2706-91-4	
Perfluorododecanoic acid	<0.47	ng/L	2.0	0.47	1	07/24/23 17:07	08/05/23 16:29	307-55-1	
Perfluoroheptanoic acid	<0.68	ng/L	2.0	0.68	1	07/24/23 17:07	08/05/23 16:29	375-85-9	
Perfluorohexanesulfonic acid	<0.52	ng/L	1.8	0.52	1	07/24/23 17:07	08/05/23 16:29	355-46-4	
Perfluorononanoic acid	<0.78	ng/L	2.0	0.78	1	07/24/23 17:07	08/05/23 16:29	375-95-1	
Perfluorooctanesulfonic acid	<0.66	ng/L	1.8	0.66	1	07/24/23 17:07	08/05/23 16:29	1763-23-1	
Perfluorooctanoic acid	<0.85	ng/L	2.0	0.85	1	07/24/23 17:07	08/05/23 16:29	335-67-1	
Perfluorotetradecanoic acid	<0.59	ng/L	2.0	0.59	1	07/24/23 17:07	08/05/23 16:29	376-06-7	
Perfluorotridecanoic acid	<0.61	ng/L	2.0	0.61	1	07/24/23 17:07	08/05/23 16:29	72629-94-8	
Perfluoroundecanoic acid	<0.48	ng/L	2.0	0.48	1	07/24/23 17:07	08/05/23 16:29	2058-94-8	
Surrogates									
13C4-PFBA (S)	115	%	25-150		1	07/24/23 17:07	08/05/23 16:29	375-22-4	
13C5-PFPeA (S)	115	%	25-150		1	07/24/23 17:07	08/05/23 16:29	2706-90-3	
13C3-PFBS (S)	112	%	25-150		1	07/24/23 17:07	08/05/23 16:29	375-73-5	
13C24:2FTS (S)	133	%	25-150		1	07/24/23 17:07	08/05/23 16:29		
13C3HFPO-DA (S)	124	%	25-150		1	07/24/23 17:07	08/05/23 16:29		
13C4-PFHpA (S)	114	%	25-150		1	07/24/23 17:07	08/05/23 16:29	375-85-9	
13C3-PFHxS (S)	103	%	25-150		1	07/24/23 17:07	08/05/23 16:29	355-46-4	
13C26:2FTS (S)	98	%	25-150		1	07/24/23 17:07	08/05/23 16:29		

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ANALYTICAL RESULTS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

Sample: PR-ER8-02-07112023 Lab ID: 10661126004 Collected: 07/11/23 10:35 Received: 07/12/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
Surrogates									
13C8-PFOA (S)	93	%.	25-150		1	07/24/23 17:07	08/05/23 16:29	335-67-1	
13C8-PFOS (S)	52	%.	25-150		1	07/24/23 17:07	08/05/23 16:29	1763-23-1	
13C9-PFNA (S)	65	%.	25-150		1	07/24/23 17:07	08/05/23 16:29	375-95-1	
13C6-PFDA (S)	56	%.	25-150		1	07/24/23 17:07	08/05/23 16:29	335-76-2	
13C28:2FTS (S)	81	%.	25-150		1	07/24/23 17:07	08/05/23 16:29		
d3-MeFOSAA (S)	53	%.	25-150		1	07/24/23 17:07	08/05/23 16:29	2355-31-9	
13C7-PFUdA (S)	51	%.	25-150		1	07/24/23 17:07	08/05/23 16:29	2058-94-8	
13C8-PFOSA (S)	66	%.	25-150		1	07/24/23 17:07	08/05/23 16:29	754-91-6	
d5-EtFOSAA (S)	57	%.	25-150		1	07/24/23 17:07	08/05/23 16:29	2991-50-6	
13C2-PFDoA (S)	47	%.	25-150		1	07/24/23 17:07	08/05/23 16:29		
d3-NMeFOSA (S)	45	%.	10-150		1	07/24/23 17:07	08/05/23 16:29	31506-32-8	
d7-NMeFOSE (S)	59	%.	10-150		1	07/24/23 17:07	08/05/23 16:29	24448-09-7	
13C2-PFTA (S)	52	%.	25-150		1	07/24/23 17:07	08/05/23 16:29		
d9-NEtFOSE (S)	62	%.	10-150		1	07/24/23 17:07	08/05/23 16:29	1691-99-2	
d5-NEtFOSA (S)	47	%.	10-150		1	07/24/23 17:07	08/05/23 16:29	4151-50-2	
13C2PFHxDA (S)	35	%.	25-150		1	07/24/23 17:07	08/05/23 16:29		
13C5-PFHxA (S)	114	%.	25-150		1	07/24/23 17:07	08/05/23 16:29	307-24-4	

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

QC Batch: 893620

Analysis Method: ENV-SOP-MIN4-0178

QC Batch Method: ENV-SOP-MIN4-0178

Analysis Description: WI ID NPW

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10661126001, 10661126002, 10661126003, 10661126004

METHOD BLANK: 4708162

Matrix: Water

Associated Lab Samples: 10661126001, 10661126002, 10661126003, 10661126004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
10:2 FTS	ng/L	<0.91	1.9	08/05/23 15:17	
11Cl-PF3OUdS	ng/L	<0.55	1.9	08/05/23 15:17	
4:2 FTS	ng/L	<0.46	1.8	08/05/23 15:17	
6:2 FTS	ng/L	<0.67	1.9	08/05/23 15:17	
8:2 FTS	ng/L	<0.50	1.9	08/05/23 15:17	
9Cl-PF3ONS	ng/L	<0.46	1.8	08/05/23 15:17	
ADONA	ng/L	<0.91	1.9	08/05/23 15:17	
HFPO-DA	ng/L	<0.49	2.0	08/05/23 15:17	
NEtFOSA	ng/L	<0.57	2.0	08/05/23 15:17	
NEtFOSAA	ng/L	<0.81	2.0	08/05/23 15:17	
NEtFOSE	ng/L	<0.88	2.0	08/05/23 15:17	
NMeFOSA	ng/L	<0.55	2.0	08/05/23 15:17	
NMeFOSAA	ng/L	<0.69	2.0	08/05/23 15:17	
NMeFOSE	ng/L	<0.52	2.0	08/05/23 15:17	
Perfluorobutanesulfonic acid	ng/L	<0.48	1.8	08/05/23 15:17	
Perfluorodecanoic acid	ng/L	<0.60	2.0	08/05/23 15:17	
Perfluorododecanoic acid	ng/L	<0.47	2.0	08/05/23 15:17	
Perfluoroheptanoic acid	ng/L	<0.68	2.0	08/05/23 15:17	
Perfluorohexanesulfonic acid	ng/L	<0.53	1.8	08/05/23 15:17	
Perfluorohexanoic acid	ng/L	<0.90	2.0	08/05/23 15:17	
Perfluorononanoic acid	ng/L	<0.79	2.0	08/05/23 15:17	
Perfluorooctanesulfonic acid	ng/L	<0.66	1.8	08/05/23 15:17	
Perfluorooctanoic acid	ng/L	<0.85	2.0	08/05/23 15:17	
Perfluorotetradecanoic acid	ng/L	<0.59	2.0	08/05/23 15:17	
Perfluorotridecanoic acid	ng/L	<0.62	2.0	08/05/23 15:17	
Perfluoroundecanoic acid	ng/L	<0.48	2.0	08/05/23 15:17	
PFBA	ng/L	<0.49	2.0	08/05/23 15:17	
PFDoS	ng/L	<0.58	1.9	08/05/23 15:17	
PFDS	ng/L	<0.63	1.9	08/05/23 15:17	
PFHpS	ng/L	<0.66	1.9	08/05/23 15:17	
PFHxDA	ng/L	<0.45	2.0	08/05/23 15:17	
PFNS	ng/L	<0.58	1.9	08/05/23 15:17	
PFODA	ng/L	<0.61	2.0	08/05/23 15:17	
PFOSA	ng/L	<0.71	2.0	08/05/23 15:17	
PFPeA	ng/L	<0.81	2.0	08/05/23 15:17	
PFPeS	ng/L	<0.59	1.9	08/05/23 15:17	
13C2-PFDoA (S)	%	94	25-150	08/05/23 15:17	
13C2-PFTA (S)	%	90	25-150	08/05/23 15:17	
13C24:2FTS (S)	%	124	25-150	08/05/23 15:17	
13C26:2FTS (S)	%	105	25-150	08/05/23 15:17	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

METHOD BLANK: 4708162

Matrix: Water

Associated Lab Samples: 10661126001, 10661126002, 10661126003, 10661126004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
13C28:2FTS (S)	%	129	25-150	08/05/23 15:17	
13C2PFHxDA (S)	%	68	25-150	08/05/23 15:17	
13C3-PFBS (S)	%	106	25-150	08/05/23 15:17	
13C3-PFHxS (S)	%	110	25-150	08/05/23 15:17	
13C3HFPO-DA (S)	%	122	25-150	08/05/23 15:17	
13C4-PFBA (S)	%	112	25-150	08/05/23 15:17	
13C4-PFHpA (S)	%	113	25-150	08/05/23 15:17	
13C5-PFHxA (S)	%	110	25-150	08/05/23 15:17	
13C5-PFPeA (S)	%	112	25-150	08/05/23 15:17	
13C6-PFDA (S)	%	97	25-150	08/05/23 15:17	
13C7-PFUdA (S)	%	99	25-150	08/05/23 15:17	
13C8-PFOA (S)	%	108	25-150	08/05/23 15:17	
13C8-PFOS (S)	%	91	25-150	08/05/23 15:17	
13C8-PFOSA (S)	%	96	25-150	08/05/23 15:17	
13C9-PFNA (S)	%	100	25-150	08/05/23 15:17	
d3-MeFOSAA (S)	%	101	25-150	08/05/23 15:17	
d3-NMeFOSA (S)	%	77	20-150	08/05/23 15:17	
d5-EtFOSAA (S)	%	98	25-150	08/05/23 15:17	
d5-NEtFOSA (S)	%	85	20-150	08/05/23 15:17	
d7-NMeFOSE (S)	%	106	20-150	08/05/23 15:17	
d9-NEtFOSE (S)	%	107	20-150	08/05/23 15:17	

LABORATORY CONTROL SAMPLE & LCSD: 4708163

4708164

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
10:2 FTS	ng/L	3.8	3.4	3.8	89	100	50-150	11	30	
11Cl-PF3OUdS	ng/L	3.7	4.2	3.8	112	102	50-150	10	30	
4:2 FTS	ng/L	3.7	3.8	3.7	102	100	50-150	2	30	
6:2 FTS	ng/L	3.8	3.5	3.8	93	100	50-150	7	30	
8:2 FTS	ng/L	3.8	3.7	4.4	97	115	50-150	16	30	
9Cl-PF3ONS	ng/L	3.7	4.0	3.9	107	104	50-150	3	30	
ADONA	ng/L	3.7	4.1	4.2	108	113	50-150	4	30	
HFPO-DA	ng/L	4	3.6	3.7	90	92	50-150	2	30	
NEtFOSA	ng/L	4	3.4	3.5	85	88	50-150	3	30	
NEtFOSAA	ng/L	4	4.0	3.8	100	96	50-150	4	30	
NEtFOSE	ng/L	4	3.4	3.3	85	84	50-150	1	30	
NMeFOSA	ng/L	4	3.8	3.5	94	89	50-150	6	30	
NMeFOSAA	ng/L	4	4.0	4.3	102	109	50-150	7	30	
NMeFOSE	ng/L	4	3.4	3.3	85	84	50-150	1	30	
Perfluorobutanesulfonic acid	ng/L	3.5	4.2	4.2	119	121	50-150	1	30	
Perfluorodecanoic acid	ng/L	4	4.1	4.0	104	102	50-150	2	30	
Perfluorododecanoic acid	ng/L	4	4.6	4.4	116	111	50-150	5	30	
Perfluoroheptanoic acid	ng/L	4	4.2	4.2	107	106	50-150	1	30	
Perfluorohexanesulfonic acid	ng/L	3.6	3.8	3.8	103	105	50-150	2	30	

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

LABORATORY CONTROL SAMPLE & LCSD: 4708163		4708164								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Perfluorohexanoic acid	ng/L	4	4.2	4.3	107	109	50-150	2	30	
Perfluorononanoic acid	ng/L	4	4.2	4.3	106	107	50-150	2	30	
Perfluorooctanesulfonic acid	ng/L	3.7	4.5	4.1	121	110	50-150	9	30	
Perfluorooctanoic acid	ng/L	4	4.3	4.4	108	111	50-150	3	30	
Perfluorotetradecanoic acid	ng/L	4	4.1	3.7	103	93	50-150	10	30	
Perfluorotridecanoic acid	ng/L	4	4.2	4.1	105	102	50-150	3	30	
Perfluoroundecanoic acid	ng/L	4	4.3	4.0	109	101	50-150	8	30	
PFBA	ng/L	4	4.5	4.6	114	115	50-150	1	30	
PFDoS	ng/L	3.9	3.0	3.1	78	81	50-150	5	30	
PFDS	ng/L	3.8	3.5	3.2	92	83	50-150	10	30	
PFHpS	ng/L	3.8	4.3	4.2	113	111	50-150	1	30	
PFHxDA	ng/L	4	3.1	3.1	77	79	50-150	2	30	
PFNS	ng/L	3.8	4.0	3.7	106	96	50-150	9	30	
PFODA	ng/L	4	2.7	2.5	68	64	50-150	6	30	
PFOSA	ng/L	4	4.1	4.0	104	102	50-150	2	30	
PFPeA	ng/L	4	4.2	4.2	107	106	50-150	1	30	
PFPeS	ng/L	3.7	4.0	4.0	107	106	50-150	1	30	
13C2-PFDoA (S)	%				85	101	25-150			
13C2-PFTA (S)	%				80	94	25-150			
13C24:2FTS (S)	%				126	141	25-150			
13C26:2FTS (S)	%				122	119	25-150			
13C28:2FTS (S)	%				143	150	25-150			
13C2PFHxDA (S)	%				58	62	25-150			
13C3-PFBS (S)	%				107	119	25-150			
13C3-PFHxS (S)	%				111	123	25-150			
13C3HFPO-DA (S)	%				122	130	25-150			
13C4-PFBA (S)	%				112	124	25-150			
13C4-PFHpA (S)	%				108	123	25-150			
13C5-PFHxA (S)	%				110	120	25-150			
13C5-PFPeA (S)	%				111	124	25-150			
13C6-PFDA (S)	%				103	114	25-150			
13C7-PFUdA (S)	%				92	105	25-150			
13C8-PFOA (S)	%				110	121	25-150			
13C8-PFOS (S)	%				95	107	25-150			
13C8-PFOSA (S)	%				89	100	25-150			
13C9-PFNA (S)	%				104	115	25-150			
d3-MeFOSAA (S)	%				101	106	25-150			
d3-NMeFOSA (S)	%				68	84	20-150			
d5-EtFOSAA (S)	%				97	106	25-150			
d5-NEtFOSA (S)	%				75	87	20-150			
d7-NMeFOSE (S)	%				99	112	20-150			
d9-NEtFOSE (S)	%				101	112	20-150			

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

MATRIX SPIKE SAMPLE: 4717930		10661126001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
10:2 FTS	ng/L	<0.91	3.7	2.7	57	50-150	
11Cl-PF3OUdS	ng/L	<0.55	3.6	3.5	95	50-150	
4:2 FTS	ng/L	<0.46	3.6	3.7	103	50-150	
6:2 FTS	ng/L	47.9	3.7	52.6	129	50-150	
8:2 FTS	ng/L	3.7	3.7	8.5	130	50-150	
9Cl-PF3ONS	ng/L	<0.47	3.6	4.2	115	50-150	
ADONA	ng/L	<0.91	3.6	3.4	94	50-150	
HFPO-DA	ng/L	<0.49	3.9	3.4	89	50-150	
NEtFOSA	ng/L	<0.57	3.9	3.4	88	50-150	
NEtFOSAA	ng/L	<0.81	3.9	4.3	110	50-150	
NEtFOSE	ng/L	<0.88	3.9	3.2	84	50-150	
NMeFOSA	ng/L	<0.55	3.9	3.6	92	50-150	
NMeFOSAA	ng/L	<0.69	3.9	4.1	107	50-150	
NMeFOSE	ng/L	<0.52	3.9	3.1	79	50-150	
Perfluorobutanesulfonic acid	ng/L	3.9	3.4	8.3	127	50-150	
Perfluorodecanoic acid	ng/L	2.7	3.9	7.1	114	50-150	
Perfluorododecanoic acid	ng/L	<0.48	3.9	4.0	101	50-150	
Perfluoroheptanoic acid	ng/L	31.7	3.9	35.8	106	50-150	
Perfluorohexanesulfonic acid	ng/L	36.9	3.5	40.3	96	50-150	
Perfluorohexanoic acid	ng/L	76.2	3.9	79.3	82	50-150	
Perfluorononanoic acid	ng/L	8.6	3.9	12.8	110	50-150	
Perfluorooctanesulfonic acid	ng/L	65.9	3.6	77.8	332	50-150 M1	
Perfluorooctanoic acid	ng/L	30.9	3.9	35.1	109	50-150	
Perfluorotetradecanoic acid	ng/L	<0.59	3.9	4.1	104	50-150	
Perfluorotridecanoic acid	ng/L	<0.62	3.9	3.4	84	50-150	
Perfluoroundecanoic acid	ng/L	6.5	3.9	5.9	-17	50-150 M1	
PFBA	ng/L	44.0	3.9	53.0	233	50-150 M1	
PFDoS	ng/L	<0.59	3.7	3.0	81	50-150	
PFDS	ng/L	<0.63	3.7	3.9	105	50-150	
PFHpS	ng/L	0.96J	3.7	5.1	112	50-150	
PFHxDA	ng/L	<0.45	3.9	2.9	70	50-150	
PFNS	ng/L	<0.58	3.7	4.3	115	50-150	
PFODA	ng/L	<0.61	3.9	2.6	66	50-150	
PFOSA	ng/L	<0.71	3.9	4.5	106	50-150	
PFPeA	ng/L	174	3.9	180	148	50-150	
PFPeS	ng/L	3.2	3.6	7.3	112	50-150	
13C2-PFDoA (S)	%				108	25-150	
13C2-PFTA (S)	%				82	25-150	
13C24:2FTS (S)	%				413	25-150 SO	
13C26:2FTS (S)	%				334	25-150 SO	
13C28:2FTS (S)	%				317	25-150 SO	
13C2PFHxDA (S)	%				94	25-150	
13C3-PFBS (S)	%				96	25-150	
13C3-PFHxS (S)	%				92	25-150	
13C3HFPO-DA (S)	%				80	25-150	
13C4-PFBA (S)	%				64	25-150	
13C4-PFHpA (S)	%				84	25-150	

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

MATRIX SPIKE SAMPLE: 4717930

Parameter	Units	10661126001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
13C5-PFHxA (S)	%.				85	25-150	
13C5-PFPeA (S)	%.				82	25-150	
13C6-PFDA (S)	%.				123	25-150	
13C7-PFUdA (S)	%.				122	25-150	
13C8-PFOA (S)	%.				102	25-150	
13C8-PFOS (S)	%.				104	25-150	
13C8-PFOSA (S)	%.				96	25-150	
13C9-PFNA (S)	%.				111	25-150	
d3-MeFOSAA (S)	%.				104	25-150	
d3-NMeFOSA (S)	%.				59	10-150	
d5-EtFOSAA (S)	%.				112	25-150	
d5-NEtFOSA (S)	%.				57	10-150	
d7-NMeFOSE (S)	%.				83	10-150	
d9-NEtFOSE (S)	%.				76	10-150	

SAMPLE DUPLICATE: 4717931

Parameter	Units	10661126003 Result	Dup Result	RPD	Max RPD	Qualifiers
10:2 FTS	ng/L	0.94J	0.94J		30	
11Cl-PF3OUdS	ng/L	<0.54	<0.56		30	
4:2 FTS	ng/L	<0.46	<0.47		30	
6:2 FTS	ng/L	79.9	78.9	1	30	
8:2 FTS	ng/L	11.4	11.7	3	30	
9Cl-PF3ONS	ng/L	<0.46	<0.47		30	
ADONA	ng/L	<0.90	<0.92		30	
HFPO-DA	ng/L	<0.48	<0.49		30	
NEtFOSA	ng/L	<0.56	<0.57		30	
NEtFOSAA	ng/L	<0.80	<0.82		30	
NEtFOSE	ng/L	<0.87	<0.89		30	
NMeFOSA	ng/L	<0.54	<0.55		30	
NMeFOSAA	ng/L	<0.68	<0.69		30	
NMeFOSE	ng/L	<0.51	<0.52		30	
Perfluorobutanesulfonic acid	ng/L	17.4	17.5	1	30	
Perfluorodecanoic acid	ng/L	6.4	6.6	3	30	
Perfluorododecanoic acid	ng/L	<0.47	<0.48		30	
Perfluoroheptanoic acid	ng/L	37.7	38.0	1	30	
Perfluorohexanesulfonic acid	ng/L	262	274	4	30	
Perfluorohexanoic acid	ng/L	138	137	1	30	
Perfluorononanoic acid	ng/L	12.1	12.2	1	30	
Perfluorooctanesulfonic acid	ng/L	671	637	5	30	
Perfluorooctanoic acid	ng/L	50.0	49.7	1	30	
Perfluorotetradecanoic acid	ng/L	<0.59	<0.60		30	
Perfluorotridecanoic acid	ng/L	<0.61	<0.62		30	
Perfluoroundecanoic acid	ng/L	6.7	6.9	4	30	
PFBA	ng/L	48.0	52.8	10	30	

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QUALITY CONTROL DATA

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

SAMPLE DUPLICATE: 4717931

Parameter	Units	10661126003 Result	Dup Result	RPD	Max RPD	Qualifiers
PFDoS	ng/L	<0.58	<0.59		30	
PFDS	ng/L	0.77J	0.66J		30	
PFHpS	ng/L	10	9.9	1	30	
PFHxDA	ng/L	<0.44	0.78J		30	
PFNS	ng/L	2.5	2.5	1	30	
PFODA	ng/L	<0.60	<0.62		30	
PFOSA	ng/L	4.8	5.3	9	30	
PFPeA	ng/L	147	146	1	30	
PFPeS	ng/L	24.7	23.8	4	30	
13C2-PFDoA (S)	%	101	74			
13C2-PFTA (S)	%	66	28			
13C24:2FTS (S)	%	445	450			S0
13C26:2FTS (S)	%	359	363			S0
13C28:2FTS (S)	%	342	299			S0
13C2PFHxDA (S)	%	44	4			S0
13C3-PFBS (S)	%	100	100			
13C3-PFHxS (S)	%	89	92			
13C3HFPO-DA (S)	%	81	80			
13C4-PFBA (S)	%	65	65			
13C4-PFHpA (S)	%	86	84			
13C5-PFHxA (S)	%	85	85			
13C5-PFPeA (S)	%	84	84			
13C6-PFDA (S)	%	126	116			
13C7-PFUdA (S)	%	120	104			
13C8-PFOA (S)	%	100	99			
13C8-PFOS (S)	%	94	95			
13C8-PFOSA (S)	%	71	32			
13C9-PFNA (S)	%	95	93			
d3-MeFOSAA (S)	%	113	93			
d3-NMeFOSA (S)	%	4	0			S0
d5-EtFOSAA (S)	%	110	93			
d5-NEtFOSA (S)	%	3	0			S0
d7-NMeFOSE (S)	%	29	5			S0
d9-NEtFOSE (S)	%	26	3			S0

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QUALIFIERS

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

DL - Adjusted Method Detection Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

S0 Surrogate recovery outside laboratory control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 60702913 Superior Terminal PFA

Pace Project No.: 10661126

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10661126001	PR-PD02-SW01	ENV-SOP-MIN4-0178	893620	ENV-SOP-MIN4-0178	898762
10661126002	PR-PD03-SW01	ENV-SOP-MIN4-0178	893620	ENV-SOP-MIN4-0178	898762
10661126003	PR-PD03-SW01-DUP	ENV-SOP-MIN4-0178	893620	ENV-SOP-MIN4-0178	898762
10661126004	PR-ER8-02-07112023	ENV-SOP-MIN4-0178	893620	ENV-SOP-MIN4-0178	898762

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CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Affix Worko

WO#: 10661126



10661126

Company: **AECOM**

Billing Information: **Bill to AECOM**

Address: **11 E Superior St, STE 548**

Report To: **leo.linneman.stons@aecom.com**

Email To: _____

Copy To: _____

Site Collection Info/Address: **Enbridge Superior Terminal**

Customer Project Name/Number: **00702913 Superior Terminal PFAS**

State: **WI** County/City: **Superior** Time Zone Collected: [] PT [] MT [X] CT [] ET

Phone: **608-828-8208**

Site/Facility ID #: _____

Compliance Monitoring? [] Yes [] No

Collected By (print): **Will M. ...**

Purchase Order #: _____ Quote #: _____

DW PWS ID #: _____ DW Location Code: _____

Collected By (signature): **Will M. ...**

Turnaround Date Required: **Standard**

Immediately Packed on Ice: [X] Yes [] No

Sample Disposal: [X] Dispose as appropriate [] Return [] Archive: _____ [] Hold: _____

Rush: [] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [] 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [] Yes [X] No Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
PR-DD02-SW01	WT	G	7/11/23	1200				2
PR-PD03-SW01	WT	G	7/11/23	1105				2
PR-PD03-SW01-DW	WT	G	7/11/23	1105				2
PR-ERB-02-07112023	OT	G	7/11/23	1235				1

WIS D36 (PFAS)

Container Preservative Type

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses

Lab Profile/Line: **44709**

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:			
Sample pH Acceptable	Y	N	NA
pH Strips:			
Sulfide Present	Y	N	NA
Lead Acetate Strips:			

LAB USE ONLY: Lab Sample # / Comments:

00
02
03
04

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: **Wet** Blue Dry None

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Packing Material Used: _____

Lab Tracking #: **2846409**

Radchem sample(s) screened (<500 cpm): Y N NA

Samples received via: FEDEX UPS **Client** Courier Pace Courier

Relinquished by/Company: (Signature) **Will M. ... AECOM**

Date/Time: **7/11/23 1355**

Received by/Company: (Signature) **Megan Auberg / PACE**

Date/Time: **7/11/23 1355**

Table #: _____

Relinquished by/Company: (Signature) **Jane ...**

Date/Time: **7/11 14:15**

Received by/Company: (Signature) **[Signature]**

Date/Time: **7/12/23 0800**

Template: _____ Prelogin: _____

Relinquished by/Company: (Signature) **[Signature]**

Date/Time: **7/12/23 1115**

Received by/Company: (Signature) _____

Date/Time: _____

PM: _____ PB: _____

Lab Sample Temperature Info:

Temp Blank Received: **Y** N NA

Therm ID#: _____

Cooler 1 Temp Upon Receipt: _____ oC

Cooler 1 Therm Corr. Factor: _____ oC

Cooler 1 Corrected Temp: **3.8** oC

Comments: _____

Trip Blank Received: Y N NA

HCL MeOH TSP Other

Non Conformance(s): _____ Page: **1**

YES / NO of: **1**

Sample Condition Upon Receipt Client Name: AECOM

Project #: **WO#: 10661126**
PM: TS1 Due Date: 08/10/23
CLIENT: AECOM

Courier: FedEx UPS USPS Client
 Pace SpeeDee Commercial

See Exceptions ENV-FRM-MIN4-0142

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A

Packing Material: Bubble Wrap Bubble Bags None Other Pls Temp Blank? Yes No

Thermometer: T1 (0461) T2 (0436) T3 (0459) T4 (0402) T5 (0178) T6 (0235) T7 (0042) T8 (0775) T9(0727) 01339252/1710
Type of Ice: Wet Blue Dry None Melted

Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No N/A
Temp should be above freezing to 6 °C Cooler temp Read w/Temp Blank: 4.2 °C Average Corrected Temp (no temp blank only): _____ °C
Correction Factor: -0.4 Cooler Temp Corrected w/temp blank: 3.8 °C See Exceptions ENV-FRM-MIN4-0142 1 Container

USDA Regulated Soil: (N/A, water sample/other: _____) Date/Initials of Person Examining Contents: CL 7/14/23

Did samples originate in a quarantine zone within the United States: AL, AR, AZ CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? Yes No
Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

Location (Check one): <input type="checkbox"/> Duluth <input checked="" type="checkbox"/> Minneapolis <input type="checkbox"/> Virginia	COMMENTS
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4. If fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 <input type="checkbox"/> No
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E.coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrom <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other _____
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Sufficient Sample Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	11. If no, write ID/Date/Time of container below: <input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142
All containers needing a acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12. Sample # <input type="checkbox"/> NaOH <input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Positive for Residual Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS (water) and Dioxin/PFAS TS1 7/14/23 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A (*If adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.)	pH Paper Lot # Residual Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in Methyl Mercury Container? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. <input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
3 Trip Blanks Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION
Person Contacted: _____ Date/Time: _____
Comments/Resolution: _____
Project Manager Review: Jina Sloan Date: 7/14/23

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).
Labeled By: CL Line: 2