From: Beggs, Tauren R - DNR
Sent: Tuesday, January 18, 2022 11:42 AM
To: Nicole L. LaPlant
Subject: RE: Status Update - Jagemann Plating Co Inc, BRRTS # 02-36-555544

Hi Nicole,

Thanks for the update and the notification of the modifications to the workplan. I do not need this email uploaded to the portal.

Regards,

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

Tauren R. Beggs
Phone: (920) 510-3472
Tauren.Beggs@wisconsin.gov (preferred contact method during work at home)

From: Nicole L. LaPlant <nlaplant@releeinc.com>
Sent: Friday, January 14, 2022 12:09 PM
To: Beggs, Tauren R - DNR <Tauren.Beggs@wisconsin.gov>
Subject: Status Update - Jagemann Plating Co Inc, BRRTS # 02-36-555544

Hello Tauren –

Attached are the PFAS groundwater analytical results of the exterior wells that were proposed for sampling in the November 2021 workplan. A map of the well locations is also included. It was proposed to sample MW-15 as well; however, we omitted sampling it during this event. We discovered it needs repair and will need to be redeveloped prior to sampling.

The temporary wells in the interior of the building were installed on January 9th. Based on the PFAS groundwater results, we added PFAS analysis of soil samples collected from beneath the building during the temp well installation.

We are scheduled to develop the temp wells this upcoming week of January 17 provided they yield sufficient water. We will return for sampling a week after development is fully completed. We will attempt to repair MW-15 while on-site for the development the temp wells; however, if we aren't successful it will have to wait until the ground is thawed.

If you'd like this update uploaded to the portal just let me know.

Thank you,
Nicole

Nicole L. LaPlant
Project Manager/Geologist
920-662-9641 | nlaplant@releeinc.com

Robert E. Lee & Associates, Inc.

Table A.2 Groundwater Analytical Results
Jagemann Plating, Inc.
1324 S. 26th Street, Manitowoc, Wisconsin

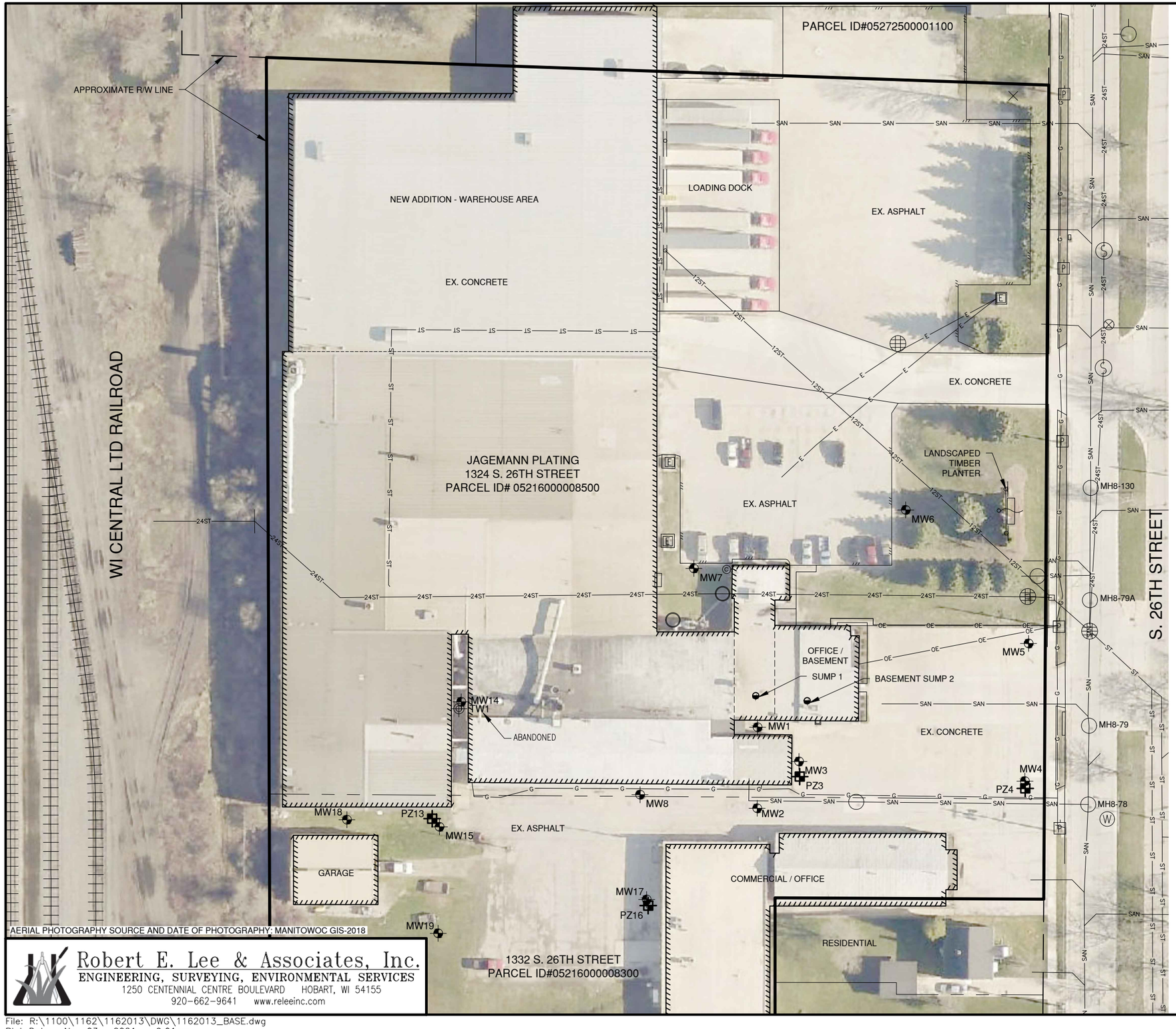
Parameter	CAS Number	Units	Cycle 10 &11 Recommended Ch. NR 140 ES	Cycle 10 & 11 Recommended Ch. NR 140 PAL	MW-1	MW-2	MW-3	PZ-3	MW-5	MW-8	PZ-13	MW-14	MW-19	FBR (Field Reagent Blank)	Trip Blank
					12/09/21	12/08/21	12/08/21	12/08/21	12/08/21	12/09/21	12/08/21	12/09/21	12/08/21	12/09/21	12/09/21
Perfluoroalkyl Carboxylates/Carboxylic Acids (PFCA)															
Perfluoro-n-butanoic acid (**PFBA**)	375-22-4	ng/L	10,000	2,000	**16**	**49**	**27**	ND	**5.1**	**14**	ND	**25**	**4.6**	ND	ND
Perfluoro-n-pentanoic acid (**PFPeA**)	2706-90-3	ng/L	No recommendations		**11**	**23**	**49**	ND	ND	**4.5**	ND	**18**	**2.6 J**	ND	ND
Perfluoro-n-hexanoic acid (**PFHxA**)	307-24-4	ng/L	150,000	30,000	**16**	**5.7**	**20**	ND	ND	**7.9**	ND	**52**	**1.9 J**	ND	ND
Perfluoro-n-heptanoic acid (**PFHpA**)	375-85-9	ng/L	No recommendations		**6.7**	**5.1**	**7.3 J**	ND	**0.57 J**	**5.9**	ND	**26**	**0.63 J**	ND	ND
Perfluoro-n-octanoic acid (**PFOA**)	335-67-1	ng/L	20*	2*	**20**	**12**	**17**	**0.85 J**	**4.3**	**19**	ND	**97**	**2.9 J**	ND	ND
Perfluoro-n-nonanoic acid (**PFNA**)	375-95-1	ng/L	30	3	**0.83 J**	**0.69 J**	ND	ND	ND	ND	ND	**0.70 J**	ND	ND	ND
Perfluoro-n-decanoic acid (**PFDA**)	335-76-2	ng/L	300	60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-n-undecanoic acid (**PFUnDA**)	2058-94-8	ng/L	3,000	600	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-n-dodecanoic acid (**PFDoA**)	307-55-1	ng/L	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-n-tridecanoic acid (**PFTrDA**)	72629-94-8	ng/L	No recommendations		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-n-tetradecanoic acid (**PFTeDA**)	376-06-7	ng/L	10,000	2,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-n-hexadecanoic acid (**PFHxDA**)	67905-19-5	ng/L	No recommendations		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-n-octadecanoic acid (**PFODA**)	16517-11-6	ng/L	400,000	80,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroalkyl Sulfonates/Sulfonic Acids (PFSA)															
Perfluoro-1-butanesulfonic acid (**PFBS**)	375-73-5	ng/L	450,000	90,000	**760**	**280**	**170**	**0.55 J**	**3.8**	**110**	ND	**180**	**6.9**	ND	ND
Perfluoro-1-pentanesulfonic acid (**PFPeS**)	2706-91-4	ng/L	---	---	**48**	**5**	**11 J**	ND	ND	**53**	ND	**86**	**0.62 J**	ND	ND
Perfluorohexanesulfonic acid (**PFHxS**)	355-46-4	ng/L	40	4	**120**	**21**	**51**	ND	**1.4 J**	**190**	ND	**350**	**0.95 J**	ND	ND
Perfluoro-1-heptanesulfonic acid (**PFHpS**)	375-92-8	ng/L	No recommendations		**20**	**4.4**	**14 J**	ND	ND	**25**	ND	**120**	ND	ND	ND
Perfluorooctanesulfonicacid (**PFOS**)	1763-23-1	ng/L	20*	2*	**1,100**	**300**	**1,000**	**9.2**	**5**	**650**	ND	**5,200**	ND	ND	ND
Perfluoro-1-nonesulfonic acid (**PFNS**)	68259-12-1	ng/L	No recommendations		ND	ND	ND	ND	ND	ND	ND	**1.1 J**	ND	ND	ND
Perfluoro-1-decanesulfonic acid (**PFDS**)	335-77-3	ng/L	No recommendations		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanesulfonic acid (**PFDOS**)	79780-39-5	ng/L	No recommendations		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroalkane Sulfonamides/Sufonamidoacetic Acids, Sulfonamidoethanols (FASA)															
Perfluoro-1-octanesulfonamide (**PFOSA**)	754-91-6	ng/L	---	---	ND	ND	ND	ND	ND	ND	ND	ND	**2.7 J**	ND	ND
N-methylperfluoro-1-octanesulfonamide (**MeFOSA**)	31506-32-8	ng/L	No recommendations		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide (**EtFOSA**)	4151-50-2	ng/L	20*	2*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid (**MeFOSAA**)	2355-31-9	ng/L	No recommendations		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro -1-octanesulfonamidoacetic acid (**EtFOSAA**)	2991-50-6	ng/L	20*	2*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-N-methylperfluoro-1-octanesulfonamido-ethanol (**MeFOSE**)	24448-09-7	ng/L	No recommendations		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (**EtFOSE**)	1691-99-2	ng/L	20*	2*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer Substances (FTS)															
1H, 1H, 2H, 2H-perfluorohexane sulfonic acid (**4:2FTS**)	757124-72-4	ng/L	No recommendations		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (**6:2FTS**)	27619-97-2	ng/L	No recommendations		ND	**17**	**19 J**	ND	ND	ND	ND	**20**	ND	ND	ND
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (**8:2FTS**)	39108-34-4	ng/L	No recommendations		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (**10:2FTS**)	120226-60-0	ng/L	No recommendations		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Replacement Chemicals															
Hexafluoropropylene oxide dimer acid (**GenX**)	13252-13-6	ng/L	300	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,8-dioxa-3H-perfluorononanioc acid (**DONA**)	919005-14-4	ng/L	3	0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (**9Cl-PF3ONS**)	756426-58-1	ng/L	No recommendations		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (**11Cl-PF3OUdS**)	763051-92-9	ng/L	No recommendations		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total PFOA and PFOS		ng/L	20*	2*	**1,120**	**312**	**1,017**	**10.05 J**	**9.3**	**669**	ND	**5,297**	**2.9J**	ND	ND
Total EtFOSE, EtFOSA, and EtFOSAA		ng/L	20*	2*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
PFAS laboratory analysis was completed using Modified USEPA Method 537.
ng/L = nanogram per liter
J = The amount detected is greater than the Method Detection Limit, but less than the Reporting Limit.
ND = Not Dectected

Highlighted values exceed the current recommended Ch. NR 140 Enforcement Standards (ES) for individual and/or combined values

Underlined values exceed the current recommended Ch. NR 140 Preventive Action Limits (PAL) for individual and/or combined values

* = Wisconsin Department of Health Services recommends a combined standard for EtFOSE, EtFOSA, and EtFOSAA; and PFOS and PFOA.



NORTH

0' 60' 120'

SCALE IN FEET

LEGEND

- MW1 — MONITORING WELL LOCATION
- TW — TEMPORARY WELL LOCATION
- PZ1 — PIEZOMETER LOCATION
- SUMP
- EX. SANITARY MANHOLE
- EX. STORM SEWER MANHOLE
- EX. STORM SEWER CATCH BASIN
- EX. FIRE HYDRANT
- EX. WATER VALVE
- EX. WATER MANHOLE
- EX. ELECTRIC PEDESTAL
- EX. POWER POLE
- ST — EX. STORM SEWER
- SAN — EX. SANITARY SEWER
- W — EX. WATERMAIN
- G — EX. GAS LINE
- E — EX. ELECTRIC LINE
- T — EX. TELEPHONE LINE
- F — EX. FIBER OPTICS LINE
- PROPERTY LINE
- RIGHT OF WAY LINE
- SITE BOUNDARY LINE

Robert E. Lee & Associates, Inc.
ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES
1250 CENTENNIAL CENTRE BOULEVARD HOBART, WI 54155
920-662-9641 www.releeinc.com

JAGEMANN PLATING COMPANY
1324 S. 26TH STREET
MANITOWOC, WI

MONITORING WELLS

FIGURE B.3.d

File: R:\1100\1162\1162013\DWG\1162013_BASE.dwg
Plot Date: Nov 03, 2021 - 9:01am

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

December 30, 2021

Nicole Laplant
ROBERT E. LEE & ASSOCIATES, IN
1250 Centennial Centre Blvd
Oneida, WI 54155

RE: Project: 1162-013 PFAS
Pace Project No.: 40238082

Dear Nicole Laplant:

Enclosed are the analytical results for sample(s) received by the laboratory on December 09, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

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

Sincerely,

Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Cody Applekamp, Robert E Lee & Associates, Inc.
Alan Gustafson, Robert E. Lee & Associates
Bruce Meissner, Robert E. Lee & Associates, Inc
Lori Rogers, Robert E Lee

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

SAMPLE SUMMARY

Project: 1162-013 PFAS
Pace Project No.: 40238082

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40238082001	**MW-19**	Water	12/08/21 12:00	12/09/21 15:25
40238082002	**MW-3**	Water	12/08/21 16:20	12/09/21 15:25
40238082003	**MW-2**	Water	12/08/21 15:30	12/09/21 15:25
40238082004	**PZ-3**	Water	12/08/21 14:25	12/09/21 15:25
40238082005	**PZ-13**	Water	12/08/21 13:15	12/09/21 15:25
40238082006	**MW-5**	Water	12/08/21 10:50	12/09/21 15:25
40238082007	**MW-14**	Water	12/09/21 13:50	12/09/21 15:25
40238082008	**MW-8**	Water	12/09/21 11:00	12/09/21 15:25
40238082009	**MW-1**	Water	12/09/21 12:45	12/09/21 15:25
40238082010	**FIELD REAGENT BLANK**	Water	12/09/21 14:10	12/09/21 15:25
40238082011	**TRIP BLANK**	Water	12/09/21 14:15	12/09/21 15:25

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

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

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here: 40238002

ALL SHADED AREAS are for LAB USE ONLY

Company: Robert E. Lee + Associates	Billing Information: REL
Address: 1250 Centennial Centre Blvd	
Report To: Nicole LaPlant	Email To: nlaplant@releeinc.com
Copy To:	Site Collection Info/Address:
Customer Project Name/Number: 11162-013 PFAS	State: WI County/City: Time Zone Collected: [ ] PT [ ] MT [X] CT [ ] ET
Phone: 920 662-9641 Email:	Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): Cody Applekamp	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: Immediately Packed on Ice: [X] Yes [ ] No
Sample Disposal: [ ] 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:

Container Preservative Type **: U, HCL

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 _____

Analyses: PFAS 33 UH 1st

Lab Profile/Line:

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: See SCUR	
Sulfide Present	Y N NA
Lead Acetate Strips: SCUR 12/9/21 SRK	

LAB USE ONLY:
Lab Sample # / Comments:

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Lab Sample # / Comments
MW-19	GW	G	12-8-21	1700				1	001
MW-3				1620					002
MW-2				1530					003
~~MW~~ PZ-3				1425					004
PZ-13				1315					005
MW-5				1050					006
MW-14			12-9-21	1350					007
MW-8				1100					008
MW-1				1245					009

* 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 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

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

Lab Tracking #: 2697657

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#:
Cooler 1 Temp Upon Receipt: 4.0 oC
Cooler 1 Therm Corr. Factor: _____ oC
Cooler 1 Corrected Temp: _____ oC
Comments: 12/9/21 SRK See SCUR

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
REL	12-9-21 1525	Pace	12/9/21 1525
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Non Conformance(s): YES / NO

Page: 2 of: 2

CHAIN-OF-CUSTODY Analytical Request Document

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LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here: 410358082

ALL SHADED AREAS are for LAB USE ONLY

Company: REL	Billing Information: REL
Address:	
Report To: Nicole LaPlant	Email To:
Copy To:	Site Collection Info/Address:
Customer Project Name/Number: 1162-013	State: / County/City: Time Zone Collected: [ ] PT [ ] MT [ ] CT [ ] ET
Phone: Email:	Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): Cody Applebaum	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: Immediately Packed on Ice: [X] Yes [ ] No
Sample Disposal: [ ] 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:

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 _____

Analyses: PFAS 537 List 33

Lab Profile/Line:

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:	See SLW 12/9/21 SRK

LAB USE ONLY:
Lab Sample # / Comments:

* 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	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	PFAS 537 List 33	Lab Sample # / Comments
Field Reagent Blank	W	G	12-9-21	1410				1	X	010
Trip Blank	↓	↓	↓	1415				1	X	011

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

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

Lab Tracking #: 2697658

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#:
Cooler 1 Temp Upon Receipt: 4-0 oC
Cooler 1 Therm Corr. Factor: _____ oC
Cooler 1 Corrected Temp: _____ oC
Comments: 12/9/21 SRK See SLW

Relinquished by/Company: (Signature) REL	Date/Time: 12-9-21 1525	Received by/Company: (Signature) Pace	Date/Time: 12/9/21 1525
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: 2 of: 2

Sample Preservation Receipt Form

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

Client Name: REL Project # 40258082

All containers needing preservation have been checked and noted below: ☐Yes ☐No ☒N/A Initial when completed: Date/ Time:

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

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

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

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

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

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

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

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

Sample Condition Upon Receipt Form (SCUR)

Project #:

WO# : 40238082

40238082

Client Name: REL

Courier: ☐ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☒ Client ☐ Pace Other:

Tracking #:

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

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

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ None ☐ Other

Thermometer Used SR - 102 **Type of Ice:** (Wet) Blue Dry None ☒ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 3.5 /Corr: 4.0

Person examining contents:

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

Date: 12/9/21 /Initials: SRK

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

Labeled By Initials: MP

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

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: Date/Time:

Comments/ Resolution:

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

Report of Analysis

Pace Analytical Services, LLC
1241 Bellevue Street
Suite 9
Green Bay, WI 54302
Attention: Brian Basten

Project Name: 1162-013 PFAS

Project Number: 40238082

Lot Number:**WL14102**

Date Completed:12/30/2021

12/30/2021 12:33 PM
Approved and released by:
Project Manager II: **Edward Barnett**

Case Narrative
Pace Analytical Services, LLC
Lot Number: WL14102

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation:

Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, Fecal Coliform SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, Solid Chemical Material: TOC Walkley-Black.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

PFAS

Surrogate recovery for the following samples was outside the upper control limit: WL14102-001, WL14102-002, WL14102-003, WL14102-004, WL14102-005, WL14102-006, WL14102-007, WL14102-008, WL14102-009, WL14102-010 and WL14102-011. The samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for prep batch 26558 exceeded acceptance criteria for the following analytes: 6:2 FTS EIS. The associated target analyte passed, therefore the data were reported.

Sample Summary

Pace Analytical Services, LLC

Lot Number: WL14102

Project Name: 1162-013 PFAS

Project Number: 40238082

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-19	Aqueous	12/08/2021 1200	12/14/2021
002	MW-3	Aqueous	12/08/2021 1620	12/14/2021
003	MW-2	Aqueous	12/08/2021 1530	12/14/2021
004	PZ-3	Aqueous	12/08/2021 1425	12/14/2021
005	PZ-13	Aqueous	12/08/2021 1315	12/14/2021
006	MW-5	Aqueous	12/08/2021 1050	12/14/2021
007	MW-14	Aqueous	12/09/2021 1350	12/14/2021
008	MW-8	Aqueous	12/09/2021 1100	12/14/2021
009	MW-1	Aqueous	12/09/2021 1245	12/14/2021
010	FIELD REAGENT BLANK	Aqueous	12/09/2021 1410	12/14/2021
011	TRIP BLANK	Aqueous	12/09/2021 1415	12/14/2021

(11 samples)

Detection Summary

Pace Analytical Services, LLC

Lot Number: WL14102

Project Name: 1162-013 PFAS

Project Number: 40238082

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-19	Aqueous	PFBS	PFAS by ID	6.9		ng/L	7
001	MW-19	Aqueous	PFOSA	PFAS by ID	2.7	J	ng/L	7
001	MW-19	Aqueous	PFPeS	PFAS by ID	0.62	J	ng/L	7
001	MW-19	Aqueous	PFHxS	PFAS by ID	0.95	J	ng/L	7
001	MW-19	Aqueous	PFBA	PFAS by ID	4.6		ng/L	7
001	MW-19	Aqueous	PFHpA	PFAS by ID	0.63	J	ng/L	7
001	MW-19	Aqueous	PFHxA	PFAS by ID	1.9	J	ng/L	7
001	MW-19	Aqueous	PFOA	PFAS by ID	2.9	J	ng/L	7
001	MW-19	Aqueous	PFPeA	PFAS by ID	2.6	J	ng/L	7
002	MW-3	Aqueous	6:2 FTS	PFAS by ID	19	J	ng/L	9
002	MW-3	Aqueous	PFBS	PFAS by ID	170		ng/L	9
002	MW-3	Aqueous	PFHpS	PFAS by ID	14	J	ng/L	9
002	MW-3	Aqueous	PFPeS	PFAS by ID	11	J	ng/L	9
002	MW-3	Aqueous	PFHxS	PFAS by ID	51		ng/L	9
002	MW-3	Aqueous	PFBA	PFAS by ID	27		ng/L	9
002	MW-3	Aqueous	PFHpA	PFAS by ID	7.3	J	ng/L	9
002	MW-3	Aqueous	PFHxA	PFAS by ID	20		ng/L	9
002	MW-3	Aqueous	PFOA	PFAS by ID	17		ng/L	9
002	MW-3	Aqueous	PFPeA	PFAS by ID	49		ng/L	9
002	MW-3	Aqueous	PFOS	PFAS by ID	1000		ng/L	9
003	MW-2	Aqueous	6:2 FTS	PFAS by ID	17		ng/L	11
003	MW-2	Aqueous	PFBS	PFAS by ID	280		ng/L	11
003	MW-2	Aqueous	PFHpS	PFAS by ID	4.4		ng/L	11
003	MW-2	Aqueous	PFPeS	PFAS by ID	5.0		ng/L	11
003	MW-2	Aqueous	PFHxS	PFAS by ID	21		ng/L	11
003	MW-2	Aqueous	PFBA	PFAS by ID	49		ng/L	11
003	MW-2	Aqueous	PFHpA	PFAS by ID	5.1		ng/L	11
003	MW-2	Aqueous	PFHxA	PFAS by ID	5.7		ng/L	11
003	MW-2	Aqueous	PFNA	PFAS by ID	0.69	J	ng/L	11
003	MW-2	Aqueous	PFOA	PFAS by ID	12		ng/L	11
003	MW-2	Aqueous	PFPeA	PFAS by ID	23		ng/L	11
003	MW-2	Aqueous	PFOS	PFAS by ID	300		ng/L	11
004	PZ-3	Aqueous	PFBS	PFAS by ID	0.55	J	ng/L	13
004	PZ-3	Aqueous	PFOA	PFAS by ID	0.85	J	ng/L	13
004	PZ-3	Aqueous	PFOS	PFAS by ID	9.2		ng/L	13
006	MW-5	Aqueous	PFBS	PFAS by ID	3.8		ng/L	17
006	MW-5	Aqueous	PFHxS	PFAS by ID	1.4	J	ng/L	17
006	MW-5	Aqueous	PFBA	PFAS by ID	5.1		ng/L	17
006	MW-5	Aqueous	PFHpA	PFAS by ID	0.57	J	ng/L	17
006	MW-5	Aqueous	PFOA	PFAS by ID	4.3		ng/L	17
006	MW-5	Aqueous	PFOS	PFAS by ID	5.0		ng/L	17
007	MW-14	Aqueous	6:2 FTS	PFAS by ID	20		ng/L	19
007	MW-14	Aqueous	PFBS	PFAS by ID	180		ng/L	19

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
007	MW-14	Aqueous	PFHpS	PFAS by ID	120		ng/L	19
007	MW-14	Aqueous	PFNS	PFAS by ID	1.1	J	ng/L	19
007	MW-14	Aqueous	PFPeS	PFAS by ID	86		ng/L	19
007	MW-14	Aqueous	PFHxS	PFAS by ID	350		ng/L	19
007	MW-14	Aqueous	PFBA	PFAS by ID	25		ng/L	19
007	MW-14	Aqueous	PFHpA	PFAS by ID	26		ng/L	19
007	MW-14	Aqueous	PFHxA	PFAS by ID	52		ng/L	19
007	MW-14	Aqueous	PFNA	PFAS by ID	0.70	J	ng/L	19
007	MW-14	Aqueous	PFOA	PFAS by ID	97		ng/L	19
007	MW-14	Aqueous	PFPeA	PFAS by ID	18		ng/L	19
007	MW-14	Aqueous	PFOS	PFAS by ID	5200		ng/L	19
008	MW-8	Aqueous	PFBS	PFAS by ID	110		ng/L	21
008	MW-8	Aqueous	PFHpS	PFAS by ID	25		ng/L	21
008	MW-8	Aqueous	PFPeS	PFAS by ID	53		ng/L	21
008	MW-8	Aqueous	PFHxS	PFAS by ID	190		ng/L	21
008	MW-8	Aqueous	PFBA	PFAS by ID	14		ng/L	21
008	MW-8	Aqueous	PFHpA	PFAS by ID	5.9		ng/L	21
008	MW-8	Aqueous	PFHxA	PFAS by ID	7.9		ng/L	21
008	MW-8	Aqueous	PFOA	PFAS by ID	19		ng/L	21
008	MW-8	Aqueous	PFPeA	PFAS by ID	4.5		ng/L	21
008	MW-8	Aqueous	PFOS	PFAS by ID	650		ng/L	21
009	MW-1	Aqueous	PFBS	PFAS by ID	760		ng/L	23
009	MW-1	Aqueous	PFHpS	PFAS by ID	20		ng/L	23
009	MW-1	Aqueous	PFPeS	PFAS by ID	48		ng/L	23
009	MW-1	Aqueous	PFHxS	PFAS by ID	120		ng/L	23
009	MW-1	Aqueous	PFBA	PFAS by ID	16		ng/L	23
009	MW-1	Aqueous	PFHpA	PFAS by ID	6.7		ng/L	23
009	MW-1	Aqueous	PFHxA	PFAS by ID	16		ng/L	23
009	MW-1	Aqueous	PFNA	PFAS by ID	0.83	J	ng/L	23
009	MW-1	Aqueous	PFOA	PFAS by ID	20		ng/L	23
009	MW-1	Aqueous	PFPeA	PFAS by ID	11		ng/L	23
009	MW-1	Aqueous	PFOS	PFAS by ID	1100		ng/L	23

(75 detections)

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WL14102-001
Description: MW-19 | Matrix: Aqueous
Date Sampled: 12/08/2021 1200 | Project Name: 1162-013 PFAS
Date Received: 12/14/2021 | Project Number: 40238082

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/23/2021 1505	MMM	12/21/2021 1616	26411

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.0	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.0	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.0	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.65	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.0	0.83	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.81	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.0	1.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	6.9		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	2.7	J	3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.62	J	3.5	0.52	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.0	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.95	J	3.5	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	4.6		3.5	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.63	J	3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	J	3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.9	J	3.5	0.72	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.6	J	3.5	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	205	25-150
13C2_6:2FTS		149	25-150
13C2_8:2FTS		117	25-150
13C2_PFDoA		98	25-150
13C2_PFTeDA		84	25-150
13C3_PFBS		103	25-150
13C3_PFHxS		111	25-150
13C3-HFPO-DA		92	25-150
13C4_PFBA		60	25-150

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

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

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC
Laboratory ID: WL14102-001
Description: MW-19
Matrix: Aqueous
Date Sampled: 12/08/2021 1200
Project Name: 1162-013 PFAS
Date Received: 12/14/2021
Project Number: 40238082

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		103	25-150
13C5_PFHxA		105	25-150
13C5_PFPeA		90	25-150
13C6_PFDA		100	25-150
13C7_PFUdA		94	25-150
13C8_PFOA		100	25-150
13C8_PFOS		107	25-150
13C8_PFOSA		107	10-150
13C9_PFNA		107	25-150
d-EtFOSA		65	10-150
d5-EtFOSAA		98	25-150
d9-EtFOSE		63	10-150
d-MeFOSA		69	10-150
d3-MeFOSAA		98	25-150
d7-MeFOSE		64	10-150

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

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WL14102-002
Description: MW-3 | Matrix: Aqueous
Date Sampled: 12/08/2021 1620 | Project Name: 1162-013 PFAS
Date Received: 12/14/2021 | Project Number: 40238082

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	5	12/23/2021 1516	MMM	12/21/2021 1616	26411

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		34	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		34	2.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		34	6.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	19	J	34	8.5	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	34	3.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		34	8.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		34	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		34	5.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		34	3.2	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		34	4.1	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		68	5.4	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		34	4.0	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		34	5.5	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	170		17	1.8	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		17	3.3	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	14	J	17	2.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		17	3.0	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		17	2.6	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	11	J	17	2.5	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		34	4.4	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	51		17	2.3	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	27		17	2.6	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		17	2.2	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		17	2.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	7.3	J	17	1.9	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20		17	2.9	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		17	2.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	17		17	3.5	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	49		17	2.3	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		17	2.5	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		17	2.2	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		17	2.7	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1000		17	8.5	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	154	25-150
13C2_6:2FTS		124	25-150
13C2_8:2FTS		116	25-150
13C2_PFDoA		108	25-150
13C2_PFTeDA		101	25-150
13C3_PFBS		114	25-150
13C3_PFHxS		113	25-150
13C3-HFPO-DA		100	25-150
13C4_PFBA		109	25-150

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

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC		Laboratory ID: WL14102-002	
Description: MW-3		Matrix: Aqueous	
Date Sampled: 12/08/2021 1620	Project Name: 1162-013 PFAS		
Date Received: 12/14/2021	Project Number: 40238082		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		111	25-150
13C5_PFHxA		114	25-150
13C5_PFPeA		108	25-150
13C6_PFDA		102	25-150
13C7_PFUdA		102	25-150
13C8_PFOA		104	25-150
13C8_PFOS		106	25-150
13C8_PFOSA		118	10-150
13C9_PFNA		107	25-150
d-EtFOSA		99	10-150
d5-EtFOSAA		109	25-150
d9-EtFOSE		94	10-150
d-MeFOSA		104	10-150
d3-MeFOSAA		112	25-150
d7-MeFOSE		99	10-150

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

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WL14102-003
Description: MW-2 | Matrix: Aqueous
Date Sampled: 12/08/2021 1530 | Project Name: 1162-013 PFAS
Date Received: 12/14/2021 | Project Number: 40238082

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/23/2021 1527	MMM	12/21/2021 1616	26411

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	17		7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.2	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.2	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.67	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.2	0.86	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.2	1.2	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	280		3.6	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	4.4		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	5.0		3.6	0.53	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.2	0.94	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	21		3.6	0.50	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	49		3.6	0.54	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	5.1		3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	5.7		3.6	0.62	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.69	J	3.6	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	12		3.6	0.75	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	23		3.6	0.49	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	300		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	208	25-150
13C2_6:2FTS		146	25-150
13C2_8:2FTS		119	25-150
13C2_PFDoA		102	25-150
13C2_PFTeDA		87	25-150
13C3_PFBS		105	25-150
13C3_PFHxS		105	25-150
13C3-HFPO-DA		86	25-150
13C4_PFBA		84	25-150

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

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC			Laboratory ID: WL14102-003
Description: MW-2			Matrix: Aqueous
Date Sampled: 12/08/2021 1530		Project Name: 1162-013 PFAS	
Date Received: 12/14/2021		Project Number: 40238082	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		106	25-150
13C5_PFHxA		107	25-150
13C5_PFPeA		100	25-150
13C6_PFDA		96	25-150
13C7_PFUdA		98	25-150
13C8_PFOA		97	25-150
13C8_PFOS		108	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		103	25-150
d-EtFOSA		82	10-150
d5-EtFOSAA		109	25-150
d9-EtFOSE		88	10-150
d-MeFOSA		83	10-150
d3-MeFOSAA		108	25-150
d7-MeFOSE		87	10-150

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

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC
Laboratory ID: WL14102-004
Description: PZ-3
Matrix: Aqueous
Date Sampled: 12/08/2021 1425
Project Name: 1162-013 PFAS
Date Received: 12/14/2021
Project Number: 40238082

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/23/2021 1537	MMM	12/21/2021 1616	26411

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		6.8	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		6.8	0.81	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		6.8	1.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.55	J	3.4	0.35	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		6.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.58	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.85	J	3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	9.2		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	153	25-150
13C2_6:2FTS		131	25-150
13C2_8:2FTS		111	25-150
13C2_PFDoA		108	25-150
13C2_PFTeDA		94	25-150
13C3_PFBS		108	25-150
13C3_PFHxS		107	25-150
13C3-HFPO-DA		103	25-150
13C4_PFBA		98	25-150

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

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Client: Pace Analytical Services, LLC
Laboratory ID: WL14102-004
Description: PZ-3
Matrix: Aqueous
Date Sampled: 12/08/2021 1425
Project Name: 1162-013 PFAS
Date Received: 12/14/2021
Project Number: 40238082

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		110	25-150
13C5_PFHxA		108	25-150
13C5_PFPeA		104	25-150
13C6_PFDA		101	25-150
13C7_PFUdA		94	25-150
13C8_PFOA		103	25-150
13C8_PFOS		105	25-150
13C8_PFOSA		117	10-150
13C9_PFNA		107	25-150
d-EtFOSA		79	10-150
d5-EtFOSAA		115	25-150
d9-EtFOSE		86	10-150
d-MeFOSA		77	10-150
d3-MeFOSAA		111	25-150
d7-MeFOSE		87	10-150

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

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WL14102-005
Description: PZ-13 | Matrix: Aqueous
Date Sampled: 12/08/2021 1315 | Project Name: 1162-013 PFAS
Date Received: 12/14/2021 | Project Number: 40238082

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/23/2021 1630	MMM	12/22/2021 1654	26558

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		6.9	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		6.9	0.82	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		6.9	1.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.4	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		6.9	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	164	25-150
13C2_6:2FTS	N	161	25-150
13C2_8:2FTS		111	25-150
13C2_PFDoA		99	25-150
13C2_PFTeDA		102	25-150
13C3_PFBS		107	25-150
13C3_PFHxS		107	25-150
13C3-HFPO-DA		112	25-150
13C4_PFBA		96	25-150

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

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC
Laboratory ID: WL14102-005
Description: PZ-13
Matrix: Aqueous
Date Sampled: 12/08/2021 1315
Project Name: 1162-013 PFAS
Date Received: 12/14/2021
Project Number: 40238082

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		106	25-150
13C5_PFHxA		107	25-150
13C5_PFPeA		104	25-150
13C6_PFDA		102	25-150
13C7_PFUdA		106	25-150
13C8_PFOA		102	25-150
13C8_PFOS		103	25-150
13C8_PFOSA		117	10-150
13C9_PFNA		108	25-150
d-EtFOSA		72	10-150
d5-EtFOSAA		109	25-150
d9-EtFOSE		92	10-150
d-MeFOSA		85	10-150
d3-MeFOSAA		106	25-150
d7-MeFOSE		91	10-150

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

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WL14102-006
Description: MW-5 | Matrix: Aqueous
Date Sampled: 12/08/2021 1050 | Project Name: 1162-013 PFAS
Date Received: 12/14/2021 | Project Number: 40238082

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/23/2021 1641	MMM	12/22/2021 1654	26558

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		6.9	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.64	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		6.9	0.82	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		6.9	1.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	3.8		3.4	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		6.9	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.4	J	3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	5.1		3.4	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.57	J	3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	4.3		3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	5.0		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	257	25-150
13C2_6:2FTS	N	210	25-150
13C2_8:2FTS		115	25-150
13C2_PFDoA		105	25-150
13C2_PFTeDA		105	25-150
13C3_PFBS		107	25-150
13C3_PFHxS		119	25-150
13C3-HFPO-DA		84	25-150
13C4_PFBA		70	25-150

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

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC
Laboratory ID: WL14102-006
Description: MW-5
Matrix: Aqueous
Date Sampled: 12/08/2021 1050
Project Name: 1162-013 PFAS
Date Received: 12/14/2021
Project Number: 40238082

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		108	25-150
13C5_PFHxA		104	25-150
13C5_PFPeA		89	25-150
13C6_PFDA		103	25-150
13C7_PFUdA		97	25-150
13C8_PFOA		99	25-150
13C8_PFOS		108	25-150
13C8_PFOSA		119	10-150
13C9_PFNA		111	25-150
d-EtFOSA		84	10-150
d5-EtFOSAA		106	25-150
d9-EtFOSE		94	10-150
d-MeFOSA		83	10-150
d3-MeFOSAA		110	25-150
d7-MeFOSE		88	10-150

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

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC — Laboratory ID: WL14102-007
Description: MW-14 — Matrix: Aqueous
Date Sampled: 12/09/2021 1350 — Project Name: 1162-013 PFAS
Date Received: 12/14/2021 — Project Number: 40238082

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/23/2021 1652	MMM	12/22/2021 1654	26558
2	SOP SPE	PFAS by ID SOP	20	12/29/2021 1038	MMM	12/22/2021 1654	26558

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	20		6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		6.9	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		6.9	0.82	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.81	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		6.9	1.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	180		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	120		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.1	J	3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	86		3.5	0.51	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		6.9	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	350		3.5	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	25		3.5	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	26		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	52		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.70	J	3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	97		3.5	0.72	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	18		3.5	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	5200		69	35	ng/L	2

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	287	25-150	N	156	25-150
13C2_6:2FTS		114	25-150		111	25-150
13C2_8:2FTS	N	168	25-150		122	25-150
13C2_PFDoA		106	25-150		114	25-150
13C2_PFTeDA		95	25-150		118	25-150
13C3_PFBS		103	25-150		114	25-150
13C3_PFHxS		101	25-150		120	25-150
13C3-HFPO-DA		73	25-150		120	25-150

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

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC
Laboratory ID: WL14102-007
Description: MW-14
Matrix: Aqueous
Date Sampled: 12/09/2021 1350
Project Name: 1162-013 PFAS
Date Received: 12/14/2021
Project Number: 40238082

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C4_PFBA		54	25-150		118	25-150
13C4_PFHpA		96	25-150		118	25-150
13C5_PFHxA		96	25-150		120	25-150
13C5_PFPeA		82	25-150		113	25-150
13C6_PFDA		105	25-150		109	25-150
13C7_PFUdA		109	25-150		111	25-150
13C8_PFOA		77	25-150		114	25-150
13C8_PFOS		84	25-150		109	25-150
13C8_PFOSA		113	10-150		114	10-150
13C9_PFNA		80	25-150		109	25-150
d-EtFOSA		93	10-150		119	10-150
d5-EtFOSAA		120	25-150		125	25-150
d9-EtFOSE		100	10-150		107	10-150
d-MeFOSA		96	10-150		130	10-150
d3-MeFOSAA		126	25-150		120	25-150
d7-MeFOSE		95	10-150		103	10-150

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

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WL14102-008
Description: MW-8 | Matrix: Aqueous
Date Sampled: 12/09/2021 1100 | Project Name: 1162-013 PFAS
Date Received: 12/14/2021 | Project Number: 40238082

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/23/2021 1702	MMM	12/22/2021 1654	26558

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.7	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		6.7	1.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		6.7	0.80	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		13	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		6.7	1.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	110		3.4	0.35	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	25		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	53		3.4	0.50	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		6.7	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	190		3.4	0.46	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	14		3.4	0.51	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	5.9		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	7.9		3.4	0.58	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	19		3.4	0.70	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	4.5		3.4	0.46	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	650		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	180	25-150
13C2_6:2FTS		88	25-150
13C2_8:2FTS		111	25-150
13C2_PFDoA		96	25-150
13C2_PFTeDA		96	25-150
13C3_PFBS		109	25-150
13C3_PFHxS		107	25-150
13C3-HFPO-DA		81	25-150
13C4_PFBA		72	25-150

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

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC
Laboratory ID: WL14102-008
Description: MW-8
Matrix: Aqueous
Date Sampled: 12/09/2021 1100
Project Name: 1162-013 PFAS
Date Received: 12/14/2021
Project Number: 40238082

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		101	25-150
13C5_PFHxA		45	25-150
13C5_PFPeA		102	25-150
13C6_PFDA		99	25-150
13C7_PFUdA		97	25-150
13C8_PFOA		93	25-150
13C8_PFOS		106	25-150
13C8_PFOSA		113	10-150
13C9_PFNA		97	25-150
d-EtFOSA		83	10-150
d5-EtFOSAA		97	25-150
d9-EtFOSE		87	10-150
d-MeFOSA		83	10-150
d3-MeFOSAA		109	25-150
d7-MeFOSE		85	10-150

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

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC — Laboratory ID: WL14102-009
Description: MW-1 — Matrix: Aqueous
Date Sampled: 12/09/2021 1245 — Project Name: 1162-013 PFAS
Date Received: 12/14/2021 — Project Number: 40238082

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/23/2021 1713	MMM	12/22/2021 1654	26558
2	SOP SPE	PFAS by ID SOP	5	12/29/2021 1048	MMM	12/22/2021 1654	26558

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.8	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		6.8	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		6.8	0.82	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.80	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		6.8	1.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	760		17	1.8	ng/L	2
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	48		3.4	0.51	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		6.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	120		3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	16		3.4	0.51	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	6.7		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	16		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.83	J	3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20		3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	11		3.4	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1100		17	8.6	ng/L	2

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	230	25-150	N	163	25-150
13C2_6:2FTS		124	25-150		113	25-150
13C2_8:2FTS		106	25-150		107	25-150
13C2_PFDoA		115	25-150		107	25-150
13C2_PFTeDA		98	25-150		114	25-150
13C3_PFBS		99	25-150		115	25-150
13C3_PFHxS		110	25-150		115	25-150
13C3-HFPO-DA		75	25-150		114	25-150

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

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC
Laboratory ID: WL14102-009
Description: MW-1
Matrix: Aqueous
Date Sampled: 12/09/2021 1245
Project Name: 1162-013 PFAS
Date Received: 12/14/2021
Project Number: 40238082

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C4_PFBA		68	25-150		109	25-150
13C4_PFHpA		108	25-150		106	25-150
13C5_PFHxA		82	25-150		110	25-150
13C5_PFPeA		87	25-150		114	25-150
13C6_PFDA		101	25-150		109	25-150
13C7_PFUdA		99	25-150		114	25-150
13C8_PFOA		98	25-150		113	25-150
13C8_PFOS		99	25-150		109	25-150
13C8_PFOSA		116	10-150		116	10-150
13C9_PFNA		96	25-150		105	25-150
d-EtFOSA		89	10-150		118	10-150
d5-EtFOSAA		110	25-150		122	25-150
d9-EtFOSE		87	10-150		101	10-150
d-MeFOSA		102	10-150		108	10-150
d3-MeFOSAA		111	25-150		113	25-150
d7-MeFOSE		89	10-150		115	10-150

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

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC
Laboratory ID: WL14102-010
Description: FIELD REAGENT BLANK
Matrix: Aqueous
Date Sampled: 12/09/2021 1410
Project Name: 1162-013 PFAS
Date Received: 12/14/2021
Project Number: 40238082

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/23/2021 1723	MMM	12/22/2021 1654	26558

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.2	0.50	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.2	0.68	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.2	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.2	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.2	0.90	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.2	0.50	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		8.2	1.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.2	0.77	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		8.2	0.98	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		16	1.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.2	0.96	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		8.2	1.3	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.1	0.43	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	0.80	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	0.51	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	0.73	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	0.63	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		8.2	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.1	0.57	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.1	0.62	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	0.49	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.1	0.46	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.1	0.71	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.1	0.48	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.1	0.85	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.1	0.56	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	0.62	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	0.64	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.1	2.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		125	25-150
13C2_6:2FTS	N	215	25-150
13C2_8:2FTS		94	25-150
13C2_PFDoA		103	25-150
13C2_PFTeDA		96	25-150
13C3_PFBS		112	25-150
13C3_PFHxS		112	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		109	25-150

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

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC
Laboratory ID: WL14102-010
Description: FIELD REAGENT BLANK
Matrix: Aqueous
Date Sampled: 12/09/2021 1410
Project Name: 1162-013 PFAS
Date Received: 12/14/2021
Project Number: 40238082

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		105	25-150
13C5_PFHxA		105	25-150
13C5_PFPeA		106	25-150
13C6_PFDA		104	25-150
13C7_PFUdA		97	25-150
13C8_PFOA		111	25-150
13C8_PFOS		100	25-150
13C8_PFOSA		112	10-150
13C9_PFNA		101	25-150
d-EtFOSA		73	10-150
d5-EtFOSAA		106	25-150
d9-EtFOSE		99	10-150
d-MeFOSA		76	10-150
d3-MeFOSAA		112	25-150
d7-MeFOSE		94	10-150

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

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC
Laboratory ID: WL14102-011
Description: TRIP BLANK
Matrix: Aqueous
Date Sampled: 12/09/2021 1415
Project Name: 1162-013 PFAS
Date Received: 12/14/2021
Project Number: 40238082

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/23/2021 1734	MMM	12/22/2021 1654	26558

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.2	0.49	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.2	0.68	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.2	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.2	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.2	0.89	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.2	0.49	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		8.2	1.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.2	0.77	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		8.2	0.97	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		16	1.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.2	0.95	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		8.2	1.3	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.1	0.42	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	0.79	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	0.51	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	0.73	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	0.63	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		8.2	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.1	0.56	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	0.48	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.1	0.46	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.1	0.70	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.1	0.47	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.1	0.85	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.1	0.56	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	0.64	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.1	2.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		137	25-150
13C2_6:2FTS	N	237	25-150
13C2_8:2FTS		109	25-150
13C2_PFDoA		103	25-150
13C2_PFTeDA		92	25-150
13C3_PFBS		113	25-150
13C3_PFHxS		115	25-150
13C3-HFPO-DA		105	25-150
13C4_PFBA		108	25-150

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

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

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC
Laboratory ID: WL14102-011
Description: TRIP BLANK
Matrix: Aqueous
Date Sampled: 12/09/2021 1415
Project Name: 1162-013 PFAS
Date Received: 12/14/2021
Project Number: 40238082

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		108	25-150
13C5_PFHxA		105	25-150
13C5_PFPeA		109	25-150
13C6_PFDA		102	25-150
13C7_PFUdA		96	25-150
13C8_PFOA		105	25-150
13C8_PFOS		106	25-150
13C8_PFOSA		118	10-150
13C9_PFNA		106	25-150
d-EtFOSA		85	10-150
d5-EtFOSAA		115	25-150
d9-EtFOSE		99	10-150
d-MeFOSA		91	10-150
d3-MeFOSAA		113	25-150
d7-MeFOSE		104	10-150

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

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

QC Summary

PFAS by LC/MS/MS - MB

Sample ID: WQ26411-001
Batch: 26411
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/21/2021 1616

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	12/22/2021 2159
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	12/22/2021 2159
8:2 FTS	ND		1	8.0	1.6	ng/L	12/22/2021 2159
6:2 FTS	ND		1	8.0	2.0	ng/L	12/22/2021 2159
4:2 FTS	ND		1	8.0	0.87	ng/L	12/22/2021 2159
GenX	ND		1	8.0	2.1	ng/L	12/22/2021 2159
ADONA	ND		1	8.0	0.48	ng/L	12/22/2021 2159
EtFOSA	ND		1	8.0	1.4	ng/L	12/22/2021 2159
EtFOSAA	ND		1	8.0	0.75	ng/L	12/22/2021 2159
EtFOSE	ND		1	8.0	0.95	ng/L	12/22/2021 2159
MeFOSA	ND		1	16	1.3	ng/L	12/22/2021 2159
MeFOSAA	ND		1	8.0	0.93	ng/L	12/22/2021 2159
MeFOSE	ND		1	8.0	1.3	ng/L	12/22/2021 2159
PFBS	ND		1	4.0	0.41	ng/L	12/22/2021 2159
PFDS	ND		1	4.0	0.78	ng/L	12/22/2021 2159
PFHpS	ND		1	4.0	0.50	ng/L	12/22/2021 2159
PFNS	ND		1	4.0	0.71	ng/L	12/22/2021 2159
PFOSA	ND		1	4.0	0.61	ng/L	12/22/2021 2159
PFPeS	ND		1	4.0	0.59	ng/L	12/22/2021 2159
PFDOS	ND		1	8.0	1.0	ng/L	12/22/2021 2159
PFHxS	ND		1	4.0	0.55	ng/L	12/22/2021 2159
PFBA	ND		1	4.0	0.60	ng/L	12/22/2021 2159
PFDA	ND		1	4.0	0.52	ng/L	12/22/2021 2159
PFDoA	ND		1	4.0	0.47	ng/L	12/22/2021 2159
PFHpA	ND		1	4.0	0.45	ng/L	12/22/2021 2159
PFHxA	ND		1	4.0	0.69	ng/L	12/22/2021 2159
PFNA	ND		1	4.0	0.46	ng/L	12/22/2021 2159
PFOA	ND		1	4.0	0.83	ng/L	12/22/2021 2159
PFPeA	ND		1	4.0	0.54	ng/L	12/22/2021 2159
PFTeDA	ND		1	4.0	0.60	ng/L	12/22/2021 2159
PFTrDA	ND		1	4.0	0.53	ng/L	12/22/2021 2159
PFUdA	ND		1	4.0	0.63	ng/L	12/22/2021 2159
PFOS	ND		1	4.0	2.0	ng/L	12/22/2021 2159

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		115	25-150
13C2_6:2FTS		131	25-150
13C2_8:2FTS		104	25-150
13C2_PFDoA		95	25-150
13C2_PFTeDA		94	25-150
13C3_PFBS		98	25-150
13C3_PFHxS		99	25-150
13C3-HFPO-DA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - MB

Sample ID: WQ26411-001
Batch: 26411
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/21/2021 1616

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		98	25-150
13C4_PFHpA		106	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		104	25-150
13C6_PFDA		100	25-150
13C7_PFUdA		101	25-150
13C8_PFOA		105	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		99	25-150
d-EtFOSA		85	10-150
d5-EtFOSAA		102	25-150
d9-EtFOSE		97	10-150
d-MeFOSA		76	10-150
d3-MeFOSAA		88	25-150
d7-MeFOSE		93	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - LCS

Sample ID: WQ26411-002
Batch: 26411
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/21/2021 1616

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	94	50-150	12/22/2021 2209
11Cl-PF3OUdS	15	14		1	91	50-150	12/22/2021 2209
8:2 FTS	15	15		1	99	50-150	12/22/2021 2209
6:2 FTS	15	16		1	105	50-150	12/22/2021 2209
4:2 FTS	15	14		1	91	50-150	12/22/2021 2209
GenX	32	35		1	110	50-150	12/22/2021 2209
ADONA	15	15		1	98	50-150	12/22/2021 2209
EtFOSA	16	18		1	112	50-150	12/22/2021 2209
EtFOSAA	16	15		1	91	50-150	12/22/2021 2209
EtFOSE	16	17		1	104	50-150	12/22/2021 2209
MeFOSA	16	18		1	113	50-150	12/22/2021 2209
MeFOSAA	16	15		1	96	50-150	12/22/2021 2209
MeFOSE	16	16		1	100	50-150	12/22/2021 2209
PFBS	14	13		1	93	50-150	12/22/2021 2209
PFDS	15	15		1	99	50-150	12/22/2021 2209
PFHpS	15	15		1	100	50-150	12/22/2021 2209
PFNS	15	15		1	100	50-150	12/22/2021 2209
PFOSA	16	16		1	98	50-150	12/22/2021 2209
PFPeS	15	16		1	105	50-150	12/22/2021 2209
PFDOS	15	14		1	91	50-150	12/22/2021 2209
PFHxS	15	14		1	99	50-150	12/22/2021 2209
PFBA	16	16		1	97	50-150	12/22/2021 2209
PFDA	16	16		1	99	50-150	12/22/2021 2209
PFDoA	16	20		1	125	50-150	12/22/2021 2209
PFHpA	16	17		1	109	50-150	12/22/2021 2209
PFHxA	16	17		1	107	50-150	12/22/2021 2209
PFNA	16	16		1	101	50-150	12/22/2021 2209
PFOA	16	17		1	106	50-150	12/22/2021 2209
PFPeA	16	16		1	102	50-150	12/22/2021 2209
PFTeDA	16	17		1	108	50-150	12/22/2021 2209
PFTrDA	16	17		1	106	50-150	12/22/2021 2209
PFUdA	16	15		1	95	50-150	12/22/2021 2209
PFOS	15	15		1	104	50-150	12/22/2021 2209

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		120	25-150
13C2_6:2FTS	N	199	25-150
13C2_8:2FTS		103	25-150
13C2_PFDoA		81	25-150
13C2_PFTeDA		84	25-150
13C3_PFBS		97	25-150
13C3_PFHxS		100	25-150
13C3-HFPO-DA		87	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - LCS

Sample ID: WQ26411-002
Batch: 26411
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/21/2021 1616

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		100	25-150
13C4_PFHpA		103	25-150
13C5_PFHxA		101	25-150
13C5_PFPeA		106	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		99	25-150
13C8_PFOA		108	25-150
13C8_PFOS		101	25-150
13C8_PFOSA		102	10-150
13C9_PFNA		99	25-150
d-EtFOSA		74	10-150
d5-EtFOSAA		98	25-150
d9-EtFOSE		81	10-150
d-MeFOSA		85	10-150
d3-MeFOSAA		92	25-150
d7-MeFOSE		104	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - MB

Sample ID: WQ26558-001
Batch: 26558
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/22/2021 1654

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	12/23/2021 1609
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	12/23/2021 1609
8:2 FTS	ND		1	8.0	1.6	ng/L	12/23/2021 1609
6:2 FTS	ND		1	8.0	2.0	ng/L	12/23/2021 1609
4:2 FTS	ND		1	8.0	0.87	ng/L	12/23/2021 1609
GenX	ND		1	8.0	2.1	ng/L	12/23/2021 1609
ADONA	ND		1	8.0	0.48	ng/L	12/23/2021 1609
EtFOSA	ND		1	8.0	1.4	ng/L	12/23/2021 1609
EtFOSAA	ND		1	8.0	0.75	ng/L	12/23/2021 1609
EtFOSE	ND		1	8.0	0.95	ng/L	12/23/2021 1609
MeFOSA	ND		1	16	1.3	ng/L	12/23/2021 1609
MeFOSAA	ND		1	8.0	0.93	ng/L	12/23/2021 1609
MeFOSE	ND		1	8.0	1.3	ng/L	12/23/2021 1609
PFBS	ND		1	4.0	0.41	ng/L	12/23/2021 1609
PFDS	ND		1	4.0	0.78	ng/L	12/23/2021 1609
PFHpS	ND		1	4.0	0.50	ng/L	12/23/2021 1609
PFNS	ND		1	4.0	0.71	ng/L	12/23/2021 1609
PFOSA	ND		1	4.0	0.61	ng/L	12/23/2021 1609
PFPeS	ND		1	4.0	0.59	ng/L	12/23/2021 1609
PFDOS	ND		1	8.0	1.0	ng/L	12/23/2021 1609
PFHxS	ND		1	4.0	0.55	ng/L	12/23/2021 1609
PFBA	ND		1	4.0	0.60	ng/L	12/23/2021 1609
PFDA	ND		1	4.0	0.52	ng/L	12/23/2021 1609
PFDoA	ND		1	4.0	0.47	ng/L	12/23/2021 1609
PFHpA	ND		1	4.0	0.45	ng/L	12/23/2021 1609
PFHxA	ND		1	4.0	0.69	ng/L	12/23/2021 1609
PFNA	ND		1	4.0	0.46	ng/L	12/23/2021 1609
PFOA	ND		1	4.0	0.83	ng/L	12/23/2021 1609
PFPeA	ND		1	4.0	0.54	ng/L	12/23/2021 1609
PFTeDA	ND		1	4.0	0.60	ng/L	12/23/2021 1609
PFTrDA	ND		1	4.0	0.53	ng/L	12/23/2021 1609
PFUdA	ND		1	4.0	0.63	ng/L	12/23/2021 1609
PFOS	ND		1	4.0	2.0	ng/L	12/23/2021 1609

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		117	25-150
13C2_6:2FTS	N	175	25-150
13C2_8:2FTS		106	25-150
13C2_PFDoA		98	25-150
13C2_PFTeDA		61	25-150
13C3_PFBS		109	25-150
13C3_PFHxS		104	25-150
13C3-HFPO-DA		101	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - MB

Sample ID: WQ26558-001
Batch: 26558
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/22/2021 1654

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		107	25-150
13C4_PFHpA		106	25-150
13C5_PFHxA		106	25-150
13C5_PFPeA		101	25-150
13C6_PFDA		100	25-150
13C7_PFUdA		95	25-150
13C8_PFOA		109	25-150
13C8_PFOS		100	25-150
13C8_PFOSA		119	10-150
13C9_PFNA		105	25-150
d-EtFOSA		80	10-150
d5-EtFOSAA		101	25-150
d9-EtFOSE		92	10-150
d-MeFOSA		79	10-150
d3-MeFOSAA		113	25-150
d7-MeFOSE		95	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - LCS

Sample ID: WQ26558-002
Batch: 26558
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/22/2021 1654

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	102	50-150	12/23/2021 1620
11Cl-PF3OUdS	15	14		1	96	50-150	12/23/2021 1620
8:2 FTS	15	14		1	94	50-150	12/23/2021 1620
6:2 FTS	15	15		1	100	50-150	12/23/2021 1620
4:2 FTS	15	15		1	101	50-150	12/23/2021 1620
GenX	32	36		1	111	50-150	12/23/2021 1620
ADONA	15	15		1	103	50-150	12/23/2021 1620
EtFOSA	16	19		1	116	50-150	12/23/2021 1620
EtFOSAA	16	16		1	102	50-150	12/23/2021 1620
EtFOSE	16	16		1	100	50-150	12/23/2021 1620
MeFOSA	16	20		1	124	50-150	12/23/2021 1620
MeFOSAA	16	15		1	96	50-150	12/23/2021 1620
MeFOSE	16	17		1	105	50-150	12/23/2021 1620
PFBS	14	13		1	94	50-150	12/23/2021 1620
PFDS	15	15		1	97	50-150	12/23/2021 1620
PFHpS	15	15		1	97	50-150	12/23/2021 1620
PFNS	15	16		1	103	50-150	12/23/2021 1620
PFOSA	16	16		1	101	50-150	12/23/2021 1620
PFPeS	15	16		1	105	50-150	12/23/2021 1620
PFDOS	15	13		1	84	50-150	12/23/2021 1620
PFHxS	15	15		1	102	50-150	12/23/2021 1620
PFBA	16	15		1	96	50-150	12/23/2021 1620
PFDA	16	16		1	99	50-150	12/23/2021 1620
PFDoA	16	16		1	102	50-150	12/23/2021 1620
PFHpA	16	16		1	102	50-150	12/23/2021 1620
PFHxA	16	16		1	99	50-150	12/23/2021 1620
PFNA	16	16		1	101	50-150	12/23/2021 1620
PFOA	16	16		1	103	50-150	12/23/2021 1620
PFPeA	16	16		1	101	50-150	12/23/2021 1620
PFTeDA	16	17		1	105	50-150	12/23/2021 1620
PFTrDA	16	15		1	94	50-150	12/23/2021 1620
PFUdA	16	15		1	93	50-150	12/23/2021 1620
PFOS	15	15		1	102	50-150	12/23/2021 1620

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		135	25-150
13C2_6:2FTS	N	170	25-150
13C2_8:2FTS		111	25-150
13C2_PFDoA		104	25-150
13C2_PFTeDA		78	25-150
13C3_PFBS		111	25-150
13C3_PFHxS		112	25-150
13C3-HFPO-DA		102	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - LCS

Sample ID: WQ26558-002
Batch: 26558
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/22/2021 1654

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		113	25-150
13C4_PFHpA		113	25-150
13C5_PFHxA		108	25-150
13C5_PFPeA		106	25-150
13C6_PFDA		105	25-150
13C7_PFUdA		105	25-150
13C8_PFOA		112	25-150
13C8_PFOS		106	25-150
13C8_PFOSA		118	10-150
13C9_PFNA		106	25-150
d-EtFOSA		67	10-150
d5-EtFOSAA		109	25-150
d9-EtFOSE		97	10-150
d-MeFOSA		69	10-150
d3-MeFOSAA		117	25-150
d7-MeFOSE		99	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

Chain of Custody

and

Miscellaneous Documents

Internal Transfer Chain of Custody

Samples Pre-Logged into eCOC

State Of Origin: WI

Cert. Needed: [X] Yes [ ] No

Owner Received Date: 12/9/2021 Results Requested By: 1/3/2022

Workorder: 40238082 Workorder Name: 1162-013 PFAS

Pace Analytical
www.pacelabs.com

Report To	Subcontract To
Brian Basten Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace Analytical West Columbia 106 Vantage Point Drive West Columbia, SC 29172 Phone (803)791-9700

WL14102

MKM

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers	PFAS WI 32	LAB USE ONLY
1	MW-9	PS	12/8/2021 12:00	40238082001	Water	1	X	
2	MW-3	PS	12/8/2021 16:20	40238082002	Water	1	X	
3	MW-2	PS	12/8/2021 15:30	40238082003	Water	1	X	
4	PZ-9	PS	12/8/2021 14:25	40238082004	Water	1	X	
5	PZ-13	PS	12/8/2021 13:15	40238082005	Water	1	X	
6	MW-5	PS	12/9/2021 10:50	40238082006	Water	1	X	
7	MW-14	PS	12/9/2021 13:50	40238082007	Water	1	X	
8	MW-8	PS	12/9/2021 11:00	40238082008	Water	1	X	
9	MW-1	PS	12/9/2021 12:45	40238082009	Water	1	X	
10	FIELD REAGENT BLANK	PS	12/9/2021 14:10	40238082010	Water	1	X	
11	TRIP BLANK	PS	12/9/2021 14:15	40238082011	Water	1	X	

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	12/13/21 1600		
2				
3	UPS	12/14/21 1620	[signature]	12-14-21 1620

Comments

Cooler Temperature on Receipt 3.4 °C | Custody Seal (Y) or N | Received on Ice (Y) or N | Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

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

Pace Analytical

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

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: PACB

Cooler Inspected by/date: KDRW / 12/14/2021 Lot #: WL14102

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

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

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

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

3.6 / 3.6 °C NA / NA °C NA / NA °C NA / NA °C

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

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

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

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

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

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

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

SR barcode labels applied by: KDRW Date: 12/14/2021

Comments: