From:	Miller, Anthony W.
To:	Sykora, Candace A - DNR; Kloczko, Nathan F - DHS
Cc:	Boerner, Audrey; Hager, Jim; Bob Fuller; Steinbach, Matt - DNR; Steinke, Stacy J - DNR; Rozeboom, David B - DNR; Irving, Roy M - DHS; Giese, Elizabeth; Kathryn Schauf; Sullivan, Tim; Sonja Leenhouts; Wright, Clifford C.; Leah Ziemba
Subject:	BRRTS: #02-18-587957 - Copies of Letters to Owners of PW-9, PW-12 & PW-17 - WRR (55929.007)
Date:	Wednesday, September 15, 2021 3:42:06 PM
Attachments:	PW-09.pdf PW-12.pdf PW-17.pdf All Attachments(3).pdf

Candace & Nathan –

Attached are copies of letters to the owners of private wells PW-9, PW-12, and PW-17 that were sampled for PFAS on September 1st as part of the investigation associated with the WRR facility in Eau Claire. No PFAS compounds were detected in the sample from PW-9, while traces of PFBA were measured in PW-12 (2.6 ng/L) and PW-17 (2.8 ng/L), far below its NR 140 PAL and ES of 2,000 ng/L and 10,000 ng/L, respectively. Copies of the laboratory reports are attached to each letter that were sent via Fed Ex today.

To date, we've sampled 15 of the 17 private wells whose owners received the July 2021 survey questionnaire requesting approval to collect water samples from their well for PFAS analysis. Letters with the results of private wells sampled in July and August were previously sent to you. We haven't received a response from the owner of PW-5 to either of our letters sent on July 14th and August 12th and the owner of PW-6 declined to have his well sampled. GF plans to collect groundwater samples for PFAS analysis from WRR monitoring wells in late September/early October and will collect samples from PW-5 if approval is received beforehand. As before, we'll forward the results of private well samples to you after we receive the lab reports. Let me know if you have any questions in the meantime.

Anthony W. Miller, P.S.S. | Project Manager | Senior Environmental Scientist
Gannett Fleming, Inc. | 8040 Excelsior Dr., Suite 303, Madison, WI 53717
Main Tel: 608.327.5050 | **Cell:** 608.354.7730 | awmiller@gfnet.com
Excellence Delivered As Promised
Gannett Fleming is ISO 9001:2015 Certified.

WRR Environmental Services Co., Inc.

VIA Federal Express

September 15, 2021
File #55929.007

[redacted]
5447 South Lowes Creek Road
Eau Claire, WI 54701

Dear Neighbor of WRR Environmental Services:

On September 1, 2021, WRR Environmental Services Co., Inc.'s (WRR) environmental consultant, Gannett Fleming, Inc. (GF), collected a water sample from your home at 5447 South Lowes Creek Road. The sample was collected as part of an investigation to determine the extent of groundwater impacted by per- and poly-fluoroalkyl substances (PFAS) that may be associated with a type of firefighting foam (AFFF) used to suppress fires at the WRR facility on Ryder Road in 2007 and 2010. The investigation activities at the WRR site are being conducted under the oversight of the Wisconsin Department of Natural Resources (WDNR).

Our designation for your water sample is PW-9. The water sample collected from your home in September was sent to ALS Environmental Laboratory in Holland, Michigan, for analysis of 33 individual PFAS compounds. No PFAS compounds were detected in the water sample collected from your well. Copies of the lab reports for the sample collected from your well and the field blank that accompanied your sample when it was shipped to the laboratory are included with this letter.

Copies of this letter and the September 2021 lab reports are being sent to the WDNR and WDHS for their records. We thank you for your cooperation in our investigation. At this time, we do not anticipate the need to collect additional samples from your well. If you have any questions regarding the on-going PFAS investigation, please contact Ms. Candace Sykora with the WDNR at (715) 928-0452 or candace.sykora@wisconsin.gov. If you have any questions regarding the potential health impacts from PFAS, please contact Mr. Nathan Kloczko with the WDHS at (608) 267-3227 or Nathan.kloczko@dhs.wisconsin.gov.

If you have any questions about this letter or the results of the sample collected from your well, please contact Anthony Miller with GF at (608) 400-6815 or awmiller@gfnet.com.

Sincerely,

Jim Hager
President – WRR Environmental Services Co., Inc.

Enc.

cc: Candace Sykora (WDNR)
Nathan Kloczko (WDHS)

14-Sep-2021

Anthony Miller
Gannett Fleming, Inc.
8040 Excelsior Drive
Suite 303
Madison, WI 53717-1338

Re: **WRR (55929.007)** Work Order: **21090339**

Dear Anthony,

ALS Environmental received 1 sample on 03-Sep-2021 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 16.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Jodi Blouw

Electronically approved by: Jodi Blouw

Jodi Blouw

Report of Laboratory Analysis

Certificate No: WI: 399084510

ALS Group, USA

Date: 14-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: **21090339**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
21090339-01	PW-9	Drinking Wat		9/1/2021 16:10	9/3/2021 09:30	☐

ALS Group, USA

Date: 14-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
WorkOrder: **21090339**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
ng/L	Nanograms per Liter

ALS Group, USA

Date: 14-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: 21090339

Case Narrative

Samples for the above noted Work Order were received on 09/03/2021. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Extractable Organics:
No deviations or anomalies were noted.

ALS Group, USA

Date: *14-Sep-21*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: PW-9
Collection Date: 9/1/2021 04:10 PM

Work Order: 21090339
Lab ID: 21090339-01
Matrix: DRINKING WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 9/10/21		Analyst: **SK**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U		0.89	4.8	ng/L	1	9/13/2021 16:40
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	U		0.63	4.8	ng/L	1	9/13/2021 16:40
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1.1	4.8	ng/L	1	9/13/2021 16:40
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	U		0.86	4.8	ng/L	1	9/13/2021 16:40
Perfluorobutanesulfonic Acid (PFBS)	U		0.33	4.8	ng/L	1	9/13/2021 16:40
Perfluorobutanoic Acid (PFBA)	U		2.5	4.8	ng/L	1	9/13/2021 16:40
Perfluorodecanesulfonic Acid (PFDS)	U		1.3	4.8	ng/L	1	9/13/2021 16:40
Perfluorodecanoic Acid (PFDA)	U		1.2	4.8	ng/L	1	9/13/2021 16:40
Perfluorododecanesulfonic Acid (PFDoS)	U		1.4	4.8	ng/L	1	9/13/2021 16:40
Perfluorododecanoic Acid (PFDoA)	U		1.4	4.8	ng/L	1	9/13/2021 16:40
Perfluoroheptanesulfonic Acid (PFHpS)	U		0.54	4.8	ng/L	1	9/13/2021 16:40
Perfluoroheptanoic Acid (PFHpA)	U		0.42	4.8	ng/L	1	9/13/2021 16:40
Perfluorohexadecanoic Acid (PFHxDA)	U		0.36	4.8	ng/L	1	9/13/2021 16:40
Perfluorohexanesulfonic Acid (PFHxS)	U		0.35	4.8	ng/L	1	9/13/2021 16:40
Perfluorohexanoic Acid (PFHxA)	U		1.1	4.8	ng/L	1	9/13/2021 16:40
Perfluorononanesulfonic Acid (PFNS)	U		0.47	4.8	ng/L	1	9/13/2021 16:40
Perfluorononanoic Acid (PFNA)	U		0.83	4.8	ng/L	1	9/13/2021 16:40
Perfluorooctadecanoic Acid (PFODA)	U		0.62	4.8	ng/L	1	9/13/2021 16:40
Perfluorooctanesulfonamide (PFOSA)	U		0.68	4.8	ng/L	1	9/13/2021 16:40
Perfluorooctanesulfonic Acid (PFOS)	U		0.85	1.9	ng/L	1	9/13/2021 16:40
Perfluorooctanoic Acid (PFOA)	U		0.60	1.9	ng/L	1	9/13/2021 16:40
Perfluoropentanesulfonic Acid (PFPeS)	U		0.53	4.8	ng/L	1	9/13/2021 16:40
Perfluoropentanoic Acid (PFPeA)	U		1.2	4.8	ng/L	1	9/13/2021 16:40
Perfluorotetradecanoic Acid (PFTeA)	U		2.5	4.8	ng/L	1	9/13/2021 16:40
Perfluorotridecanoic Acid (PFTriA)	U		0.74	4.8	ng/L	1	9/13/2021 16:40
Perfluoroundecanoic Acid (PFUnA)	U		0.93	4.8	ng/L	1	9/13/2021 16:40
N-ethylperfluoro-1-octanesulfonamide	U		1.1	4.8	ng/L	1	9/13/2021 16:40
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		0.60	4.8	ng/L	1	9/13/2021 16:40
N-Ethylperfluorooctanesulfonamidoethanol	U		0.49	4.8	ng/L	1	9/13/2021 16:40
N-methylperfluoro-1-octanesulfonamide	U		0.76	4.8	ng/L	1	9/13/2021 16:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *14-Sep-21*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: PW-9
Collection Date: 9/1/2021 04:10 PM

Work Order: 21090339
Lab ID: 21090339-01
Matrix: DRINKING WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoacetic Acid	U		0.61	4.8	ng/L	1	9/13/2021 16:40
N-Methylperfluorooctanesulfonamidoethanol	U		0.46	4.8	ng/L	1	9/13/2021 16:40
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		1.1	4.8	ng/L	1	9/13/2021 16:40
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		0.54	4.8	ng/L	1	9/13/2021 16:40
11Cl-Pf3OUdS	U		0.45	4.8	ng/L	1	9/13/2021 16:40
9Cl-PF3ONS	U		0.43	4.8	ng/L	1	9/13/2021 16:40
Surr: 13C2-FtS 4:2	*120*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C2-FtS 6:2	*118*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C2-FtS 8:2	*129*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C2-PFDA	*82.3*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C2-PFDoA	*110*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C2-PFHxA	*86.1*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C2-PFHxDA	*111*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C2-PFTeA	*143*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C2-PFUnA	*86.5*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C3-HFPO-DA	*91.0*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C3-PFBS	*103*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C4-PFBA	*92.1*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C4-PFHpA	*97.6*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C4-PFOA	*109*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C4-PFOS	*95.1*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C5-PFNA	*93.9*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C5-PFPeA	*107*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 13C8-FOSA	*92.6*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: 18O2-PFHxS	*97.0*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: d5-N-EtFOSA	*95.4*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: d5-N-EtFOSAA	*94.2*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: d9-N-EtFOSE	*103*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: d3-N-MeFOSA	*101*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: d3-N-MeFOSAA	*94.9*			*50-150*	*%REC*	1	9/13/2021 16:40
Surr: d7-N-MeFOSE	*111*			*50-150*	*%REC*	1	9/13/2021 16:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **183466** Instrument ID **LCMS1** Method: **E537 Mod**

MBLK Sample ID: **MBLK-183466-183466** Units: **ng/L** Analysis Date: **9/13/2021 03:48 PM**

Client ID: Run ID: **LCMS1_210913A** SeqNo: **7742085** Prep Date: **9/10/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.94	5.0								
Fluorotelomer Sulphonic Acid	U	0.66	5.0								
Fluorotelomer Sulphonic Acid	U	1.1	5.0								
Fluorotelomer Sulphonic Acid	U	0.9	5.0								
Perfluorobutanesulfonic Acid (	U	0.35	5.0								
Perfluorobutanoic Acid (PFBA)	U	2.6	5.0								
Perfluorodecanesulfonic Acid	U	1.4	5.0								
Perfluorodecanoic Acid (PFDA	U	1.2	5.0								
Perfluorododecanesulfonic Aci	U	1.4	5.0								
Perfluorododecanoic Acid (PFI	U	1.4	5.0								
Perfluoroheptanesulfonic Acid	U	0.57	5.0								
Perfluoroheptanoic Acid (PFH	U	0.44	5.0								
Perfluorohexadecanoic Acid (F	U	0.38	5.0								
Perfluorohexanesulfonic Acid	U	0.37	5.0								
Perfluorohexanoic Acid (PFHx	U	1.2	5.0								
Perfluorononanesulfonic Acid	U	0.5	5.0								
Perfluorononanoic Acid (PFNA	U	0.87	5.0								
Perfluorooctadecanoic Acid (P	U	0.65	5.0								
Perfluorooctanesulfonamide (F	U	0.71	5.0								
Perfluorooctanesulfonic Acid (	U	0.89	2.0								
Perfluorooctanoic Acid (PFOA	U	0.63	2.0								
Perfluoropentanesulfonic Acid	U	0.56	5.0								
Perfluoropentanoic Acid (PFPe	U	1.3	5.0								
Perfluorotetradecanoic Acid (F	U	2.6	5.0								
Perfluorotridecanoic Acid (PFT	U	0.77	5.0								
Perfluoroundecanoic Acid (PFI	U	0.97	5.0								
N-ethylperfluoro-1-octanesulfo	U	1.2	5.0								
N-Ethylperfluorooctanesulfona	U	0.63	5.0								
N-Ethylperfluorooctanesulfona	U	0.52	5.0								
N-methylperfluoro-1-octanesul	U	0.79	5.0								
N-Methylperfluorooctanesulfor	U	0.64	5.0								
N-Methylperfluorooctanesulfor	U	0.48	5.0								
Hexafluoropropylene oxide din	U	1.2	5.0								
4,8-Dioxa-3H-perfluorononano	U	0.56	5.0								
11Cl-Pf3OUdS	U	0.47	5.0								
9Cl-PF3ONS	U	0.45	5.0								
Surr: 13C2-FtS 4:2	*191.4*	0	0	*149.4*	0	*128*	*50-150*	0			
Surr: 13C2-FtS 6:2	*161.3*	0	0	*152*	0	*106*	*50-150*	0			
Surr: 13C2-FtS 8:2	*182.5*	0	0	*153.3*	0	*119*	*50-150*	0			
Surr: 13C2-PFDA	*142.1*	0	0	*160*	0	*88.8*	*50-150*	0			
Surr: 13C2-PFDoA	*163.5*	0	0	*160*	0	*102*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183466** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxA	*136.4*	0	0	*160*	0	*85.2*	*50-150*	0
Surr: 13C2-PFHxDA	*161.1*	0	0	*160*	0	*101*	*50-150*	0
Surr: 13C2-PFTeA	*181.5*	0	0	*160*	0	*113*	*50-150*	0
Surr: 13C2-PFUnA	*148.4*	0	0	*160*	0	*92.7*	*50-150*	0
Surr: 13C3-HFPO-DA	*155*	0	0	*160*	0	*96.9*	*50-150*	0
Surr: 13C3-PFBS	*142.3*	0	0	*148.8*	0	*95.7*	*50-150*	0
Surr: 13C4-PFBA	*141*	0	0	*160*	0	*88.1*	*50-150*	0
Surr: 13C4-PFHpA	*206.5*	0	0	*160*	0	*129*	*50-150*	0
Surr: 13C4-PFOA	*136.7*	0	0	*160*	0	*85.4*	*50-150*	0
Surr: 13C4-PFOS	*117.2*	0	0	*152.8*	0	*76.7*	*50-150*	0
Surr: 13C5-PFNA	*178.9*	0	0	*160*	0	*112*	*50-150*	0
Surr: 13C5-PFPeA	*164.5*	0	0	*160*	0	*103*	*50-150*	0
Surr: 13C8-FOSA	*173.4*	0	0	*160*	0	*108*	*50-150*	0
Surr: 18O2-PFHxS	*138.3*	0	0	*151.2*	0	*91.5*	*50-150*	0
Surr: d5-N-EtFOSA	*133.5*	0	0	*160*	0	*83.4*	*50-150*	0
Surr: d5-N-EtFOSAA	*152.6*	0	0	*160*	0	*95.4*	*50-150*	0
Surr: d9-N-EtFOSE	*143.9*	0	0	*160*	0	*90*	*50-150*	0
Surr: d3-N-MeFOSA	*144.6*	0	0	*160*	0	*90.4*	*50-150*	0
Surr: d3-N-MeFOSAA	*146.8*	0	0	*160*	0	*91.8*	*50-150*	0
Surr: d7-N-MeFOSE	*157*	0	0	*160*	0	*98.1*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090339
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183466** Instrument ID **LCMS1** Method: **E537 Mod**

LCS	Sample ID: **LCS-183466-183466**				Units: **ng/L**				Analysis Date: **9/13/2021 03:58 PM**		
Client ID:		Run ID: **LCMS1_210913A**			SeqNo: **7742086**		Prep Date: **9/10/2021**		DF: **1**		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	29.18	0.96	5.1	30.64	0	95.3	63-143	0			
Fluorotelomer Sulphonic Acid	29.34	1.2	5.1	31.45	0	93.3	67-138	0			
Fluorotelomer Sulphonic Acid	28.89	0.93	5.1	31.56	0	91.5	40-160	0			
Perfluorobutanesulfonic Acid (	26.96	0.36	5.1	29	0	93	72-130	0			
Perfluorobutanoic Acid (PFBA)	35.03	2.7	5.1	32.79	0	107	73-129	0			
Perfluorodecanesulfonic Acid	34.68	1.4	5.1	31.56	0	110	53-142	0			
Perfluorodecanoic Acid (PFDA	31.13	1.3	5.1	32.79	0	95	71-129	0			
Perfluorododecanesulfonic Aci	27.53	1.5	5.1	31.76	0	86.7	69-134	0			
Perfluorododecanoic Acid (PFI	33.61	1.5	5.1	32.79	0	103	72-134	0			
Perfluoroheptanesulfonic Acid	30.68	0.58	5.1	31.25	0	98.2	69-134	0			
Perfluoroheptanoic Acid (PFH	27.85	0.45	5.1	32.79	0	84.9	72-130	0			
Perfluorohexadecanoic Acid (F	29.32	0.39	5.1	32.79	0	89.4	70-130	0			
Perfluorohexanesulfonic Acid	31.15	0.38	5.1	29.82	0	104	68-131	0			
Perfluorohexanoic Acid (PFHx	32.07	1.2	5.1	32.79	0	97.8	72-129	0			
Perfluorononanesulfonic Acid	27.5	0.51	5.1	31.45	0	87.4	69-127	0			
Perfluorononanoic Acid (PFNA	34.22	0.89	5.1	32.79	0	104	69-130	0			
Perfluorooctadecanoic Acid (P	33.19	0.66	5.1	32.79	0	101	70-130	0			
Perfluorooctanesulfonamide (F	30.32	0.73	5.1	32.79	0	92.5	67-137	0			
Perfluorooctanesulfonic Acid (I	28.79	0.91	2.0	30.43	0	94.6	65-140	0			
Perfluorooctanoic Acid (PFOA	34.92	0.65	2.0	32.79	0	107	71-133	0			
Perfluoropentanesulfonic Acid	32.57	0.57	5.1	30.74	0	106	71-127	0			
Perfluoropentanoic Acid (PFPe	27.61	1.3	5.1	32.79	0	84.2	72-129	0			
Perfluorotetradecanoic Acid (F	26.46	2.7	5.1	32.79	0	80.7	71-132	0			
Perfluorotridecanoic Acid (PFT	23.97	0.79	5.1	32.79	0	73.1	65-144	0			
Perfluoroundecanoic Acid (PFI	34.56	1	5.1	32.79	0	105	69-133	0			
N-ethylperfluoro-1-octanesulfo	27.51	1.2	5.1	32.79	0	83.9	70-130	0			
N-Ethylperfluorooctanesulfona	30.41	0.64	5.1	32.79	0	92.8	61-135	0			
N-Ethylperfluorooctanesulfona	30.67	0.53	5.1	32.79	0	93.5	70-130	0			
N-methylperfluoro-1-octanesul	25.3	0.81	5.1	32.79	0	77.2	70-130	0			
N-Methylperfluorooctanesulfor	24.07	0.66	5.1	32.79	0	73.4	65-136	0			
N-Methylperfluorooctanesulfor	29.77	0.5	5.1	32.79	0	90.8	68-141	0			
Hexafluoropropylene oxide din	30.94	1.2	5.1	32.79	0	94.4	70-130	0			
11Cl-Pf3OUdS	27.87	0.48	5.1	30.84	0	90.4	70-130	0			
9Cl-PF3ONS	31.65	0.46	5.1	30.53	0	104	70-130	0			
Surr: 13C2-FtS 4:2	*207.1*	0	0	*153.1*	0	*135*	*50-150*	0			
Surr: 13C2-FtS 8:2	*235.1*	0	0	*157*	0	*150*	*50-150*	0			
Surr: 13C2-PFDA	*152.1*	0	0	*163.9*	0	*92.8*	*50-150*	0			
Surr: 13C2-PFDoA	*201.7*	0	0	*163.9*	0	*123*	*50-150*	0			
Surr: 13C2-PFHxA	*170.5*	0	0	*163.9*	0	*104*	*50-150*	0			
Surr: 13C2-PFHxDA	*207.1*	0	0	*163.9*	0	*126*	*50-150*	0			
Surr: 13C2-PFUnA	*151.1*	0	0	*163.9*	0	*92.2*	*50-150*	0			
Surr: 13C3-HFPO-DA	*176.8*	0	0	*163.9*	0	*108*	*50-150*	0			
Surr: 13C3-PFBS	*186.2*	0	0	*152.5*	0	*122*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183466**	Instrument ID **LCMS1**			Method: **E537 Mod**				
Surr: 13C4-PFBA	*173.4*	0	0	*163.9*	0	*106*	*50-150*	0
Surr: 13C4-PFHpA	*189.2*	0	0	*163.9*	0	*115*	*50-150*	0
Surr: 13C4-PFOA	*219.3*	0	0	*163.9*	0	*134*	*50-150*	0
Surr: 13C4-PFOS	*169.8*	0	0	*156.6*	0	*108*	*50-150*	0
Surr: 13C5-PFNA	*179*	0	0	*163.9*	0	*109*	*50-150*	0
Surr: 13C5-PFPeA	*210.4*	0	0	*163.9*	0	*128*	*50-150*	0
Surr: 13C8-FOSA	*164.4*	0	0	*163.9*	0	*100*	*50-150*	0
Surr: 18O2-PFHxS	*167.1*	0	0	*154.9*	0	*108*	*50-150*	0
Surr: d5-N-EtFOSA	*167.6*	0	0	*163.9*	0	*102*	*50-150*	0
Surr: d5-N-EtFOSAA	*184*	0	0	*163.9*	0	*112*	*50-150*	0
Surr: d9-N-EtFOSE	*201*	0	0	*163.9*	0	*123*	*50-150*	0
Surr: d3-N-MeFOSA	*179*	0	0	*163.9*	0	*109*	*50-150*	0
Surr: d3-N-MeFOSAA	*185.5*	0	0	*163.9*	0	*113*	*50-150*	0
Surr: d7-N-MeFOSE	*215*	0	0	*163.9*	0	*131*	*50-150*	0

LCS	Sample ID: **LCS-183466-183466**				Units: **ng/L**			Analysis Date: **9/14/2021 10:42 AM**			
Client ID:		Run ID: **LCMS1_210914A**			SeqNo: **7743970**			Prep Date: **9/10/2021**		DF: **1**	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	30.97	0.68	5.1	31.05	0	99.8	64-140	0			
4,8-Dioxa-3H-perfluorononano	23.88	0.58	5.1	30.84	0	77.4	70-130	0			
Surr: 13C2-FtS 6:2	*212.6*	0	0	*155.7*	0	*137*	*50-150*	0			
Surr: 13C2-PFTeA	*166.1*	0	0	*163.9*	0	*101*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090339
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183466** Instrument ID **LCMS1** Method: **E537 Mod**

MS Sample ID: **21090837-01H MS** Units: **ng/L** Analysis Date: **9/13/2021 04:09 PM**
Client ID: Run ID: **LCMS1_210913A** SeqNo: **7742087** Prep Date: **9/10/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	26.51	0.87	4.7	27.89	0	95	63-143	0			
Fluorotelomer Sulphonic Acid	30.91	0.62	4.7	28.26	0	109	64-140	0			
Fluorotelomer Sulphonic Acid	31.47	1.1	4.7	28.64	0	110	67-138	0			
Fluorotelomer Sulphonic Acid	27.03	0.84	4.7	28.73	0	94.1	40-160	0			
Perfluorobutanesulfonic Acid (	26.29	0.33	4.7	26.4	0	99.6	72-130	0			
Perfluorobutanoic Acid (PFBA)	34.34	2.4	4.7	29.85	0	115	73-129	0			
Perfluorodecanesulfonic Acid	30.72	1.3	4.7	28.73	0	107	53-142	0			
Perfluorodecanoic Acid (PFDA	31.89	1.2	4.7	29.85	0	107	71-129	0			
Perfluorododecanesulfonic Aci	27.62	1.4	4.7	28.92	0	95.5	69-134	0			
Perfluorododecanoic Acid (PFI	27.8	1.3	4.7	29.85	0.1387	92.7	72-134	0			
Perfluoroheptanesulfonic Acid	34.74	0.53	4.7	28.45	0	122	69-134	0			
Perfluoroheptanoic Acid (PFH	25.61	0.41	4.7	29.85	0	85.8	72-130	0			
Perfluorohexadecanoic Acid (F	28.7	0.36	4.7	29.85	0	96.1	70-130	0			
Perfluorohexanesulfonic Acid	32.36	0.34	4.7	27.15	0	119	68-131	0			
Perfluorohexanoic Acid (PFHx	33.89	1.1	4.7	29.85	0	114	72-129	0			
Perfluorononanesulfonic Acid	32.4	0.46	4.7	28.64	0	113	69-127	0			
Perfluorononanoic Acid (PFNA	33.04	0.81	4.7	29.85	0.09446	110	69-130	0			
Perfluorooctadecanoic Acid (P	31.44	0.61	4.7	29.85	0.0679	105	70-130	0			
Perfluorooctanesulfonamide (F	28.32	0.66	4.7	29.85	0.0679	94.6	67-137	0			
Perfluorooctanesulfonic Acid (	26.71	0.83	1.9	27.71	0	96.4	65-140	0			
Perfluorooctanoic Acid (PFOA	34.07	0.59	1.9	29.85	0.4044	113	71-133	0			
Perfluoropentanesulfonic Acid	29.26	0.52	4.7	27.99	0	105	71-127	0			
Perfluoropentanoic Acid (PFPe	27.05	1.2	4.7	29.85	0.3306	89.5	72-129	0			
Perfluorotetradecanoic Acid (F	26.15	2.5	4.7	29.85	0	87.6	71-132	0			
Perfluorotridecanoic Acid (PFT	24.83	0.72	4.7	29.85	0	83.2	65-144	0			
Perfluoroundecanoic Acid (PFI	32.56	0.91	4.7	29.85	0.0797	109	69-133	0			
N-ethylperfluoro-1-octanesulfo	22.1	1.1	4.7	29.85	0	74	70-130	0			
N-Ethylperfluorooctanesulfona	27.13	0.58	4.7	29.85	0	90.9	61-135	0			
N-Ethylperfluorooctanesulfona	30.46	0.48	4.7	29.85	0	102	70-130	0			
N-methylperfluoro-1-octanesul	16.71	0.74	4.7	29.85	0	56	70-130	0			S
N-Methylperfluorooctanesulfor	24.61	0.6	4.7	29.85	0	82.4	65-136	0			
N-Methylperfluorooctanesulfor	28.09	0.45	4.7	29.85	0	94.1	68-141	0			
Hexafluoropropylene oxide din	27.44	1.1	4.7	29.85	0	91.9	70-130	0			
4,8-Dioxa-3H-perfluorononano	24.03	0.52	4.7	28.08	0	85.6	70-130	0			
11Cl-Pf3OUdS	29.02	0.44	4.7	28.08	0	103	70-130	0			
9Cl-PF3ONS	30.99	0.42	4.7	27.8	0	111	70-130	0			
Surr: 13C2-FtS 4:2	*171.1*	0	0	*139.4*	0	*123*	*50-150*	0			
Surr: 13C2-FtS 6:2	*152.4*	0	0	*141.8*	0	*108*	*50-150*	0			
Surr: 13C2-FtS 8:2	*177.1*	0	0	*143*	0	*124*	*50-150*	0			
Surr: 13C2-PFDA	*125.5*	0	0	*149.3*	0	*84.1*	*50-150*	0			
Surr: 13C2-PFDoA	*176.3*	0	0	*149.3*	0	*118*	*50-150*	0			
Surr: 13C2-PFHxA	*123.2*	0	0	*149.3*	0	*82.6*	*50-150*	0			
Surr: 13C2-PFHxDA	*155.3*	0	0	*149.3*	0	*104*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183466** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFTeA	*179.4*	0	0	*149.3*	0	*120*	*50-150*	0
Surr: 13C2-PFUnA	*133.6*	0	0	*149.3*	0	*89.5*	*50-150*	0
Surr: 13C3-HFPO-DA	*148.2*	0	0	*149.3*	0	*99.3*	*50-150*	0
Surr: 13C3-PFBS	*143.7*	0	0	*138.8*	0	*104*	*50-150*	0
Surr: 13C4-PFBA	*137.9*	0	0	*149.3*	0	*92.4*	*50-150*	0
Surr: 13C4-PFHpA	*179.3*	0	0	*149.3*	0	*120*	*50-150*	0
Surr: 13C4-PFOA	*145*	0	0	*149.3*	0	*97.1*	*50-150*	0
Surr: 13C4-PFOS	*120.9*	0	0	*142.5*	0	*84.8*	*50-150*	0
Surr: 13C5-PFNA	*166.8*	0	0	*149.3*	0	*112*	*50-150*	0
Surr: 13C5-PFPeA	*163.4*	0	0	*149.3*	0	*109*	*50-150*	0
Surr: 13C8-FOSA	*161.5*	0	0	*149.3*	0	*108*	*50-150*	0
Surr: 18O2-PFHxS	*146.6*	0	0	*141*	0	*104*	*50-150*	0
Surr: d5-N-EtFOSA	*125.3*	0	0	*149.3*	0	*84*	*50-150*	0
Surr: d5-N-EtFOSAA	*154*	0	0	*149.3*	0	*103*	*50-150*	0
Surr: d9-N-EtFOSE	*147.3*	0	0	*149.3*	0	*98.7*	*50-150*	0
Surr: d3-N-MeFOSA	*157*	0	0	*149.3*	0	*105*	*50-150*	0
Surr: d3-N-MeFOSAA	*155.9*	0	0	*149.3*	0	*104*	*50-150*	0
Surr: d7-N-MeFOSE	*165*	0	0	*149.3*	0	*111*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090339
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183466** Instrument ID **LCMS1** Method: **E537 Mod**

DUP Sample ID: **21090050-03A DUP** Units: **ng/L** Analysis Date: **9/13/2021 04:30 PM**
Client ID: Run ID: **LCMS1_210913A** SeqNo: **7742089** Prep Date: **9/10/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.94	5.0	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid	3.658	0.66	5.0	0	0	0	0-0	3.442	0	30	J
Fluorotelomer Sulphonic Acid	U	1.1	5.0	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid	U	0.9	5.0	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (	18.69	0.35	5.0	0	0	0	0-0	20.89	11.1	30	
Perfluorobutanoic Acid (PFBA)	8.154	2.6	5.0	0	0	0	0-0	6.909	16.5	30	
Perfluorodecanesulfonic Acid	U	1.4	5.0	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA	U	1.2	5.0	0	0	0	0-0	0	0	30	
Perfluorododecanesulfonic Aci	U	1.4	5.0	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PFI	U	1.4	5.0	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid	1.642	0.57	5.0	0	0	0	0-0	1.243	0	30	J
Perfluoroheptanoic Acid (PFH	3.066	0.44	5.0	0	0	0	0-0	3.938	0	30	J
Perfluorohexadecanoic Acid (F	U	0.38	5.0	0	0	0	0-0	0	0	30	
Perfluorohexanesulfonic Acid	3.61	0.37	5.0	0	0	0	0-0	2.199	0	30	J
Perfluorohexanoic Acid (PFHx	12.71	1.2	5.0	0	0	0	0-0	10.59	18.3	30	
Perfluorononanesulfonic Acid	U	0.5	5.0	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA	1.082	0.87	5.0	0	0	0	0-0	0	0	30	J
Perfluorooctadecanoic Acid (P	U	0.65	5.0	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (F	U	0.71	5.0	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (	10.06	0.89	2.0	0	0	0	0-0	7.81	25.2	30	
Perfluorooctanoic Acid (PFOA	7.926	0.63	2.0	0	0	0	0-0	7.248	8.93	30	
Perfluoropentanesulfonic Acid	U	0.56	5.0	0	0	0	0-0	0	0	30	
Perfluoropentanoic Acid (PFPe	15.34	1.3	5.0	0	0	0	0-0	18.5	18.7	30	
Perfluorotetradecanoic Acid (F	U	2.6	5.0	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFT	U	0.77	5.0	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFI	U	0.97	5.0	0	0	0	0-0	0	0	30	
N-ethylperfluoro-1-octanesulfo	U	1.2	5.0	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfona	U	0.63	5.0	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfona	U	0.52	5.0	0	0	0	0-0	0	0	30	
N-methylperfluoro-1-octanesul	U	0.79	5.0	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfor	U	0.64	5.0	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfor	U	0.48	5.0	0	0	0	0-0	0	0	30	
Hexafluoropropylene oxide din	U	1.2	5.0	0	0	0	0-0	0	0	30	
4,8-Dioxa-3H-perfluorononano	U	0.56	5.0	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	U	0.47	5.0	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	U	0.45	5.0	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	*276.9*	0	0	*149.4*	0	*185*	*50-150*	181.2	*41.8*	*30*	*SR*
Surr: 13C2-FtS 6:2	*195.1*	0	0	*152*	0	*128*	*50-150*	181.1	*7.45*	*30*	
Surr: 13C2-FtS 8:2	*181.2*	0	0	*153.3*	0	*118*	*50-150*	206.3	*12.9*	*30*	
Surr: 13C2-PFDA	*124.6*	0	0	*160*	0	*77.9*	*50-150*	196	*44.6*	*30*	*R*
Surr: 13C2-PFDoA	*110.6*	0	0	*160*	0	*69.1*	*50-150*	153.4	*32.4*	*30*	*R*
Surr: 13C2-PFHxA	*128.1*	0	0	*160*	0	*80.1*	*50-150*	189	*38.4*	*30*	*R*
Surr: 13C2-PFHxDA	*77.89*	0	0	*160*	0	*48.7*	*50-150*	80.29	*3.03*	*30*	*S*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090339
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183466**	Instrument ID **LCMS1**			Method: **E537 Mod**							
Surr: 13C2-PFTeA	*111.6*	0	0	*160*	0	*69.7*	*50-150*	88.1	*23.5*	*30*	
Surr: 13C2-PFUnA	*107.4*	0	0	*160*	0	*67.1*	*50-150*	166.2	*43*	*30*	*R*
Surr: 13C3-HFPO-DA	*124.1*	0	0	*160*	0	*77.6*	*50-150*	130.6	*5.08*	*30*	
Surr: 13C3-PFBS	*126.7*	0	0	*148.8*	0	*85.1*	*50-150*	132.2	*4.29*	*30*	
Surr: 13C4-PFBA	*132.5*	0	0	*160*	0	*82.8*	*50-150*	178.6	*29.6*	*30*	
Surr: 13C4-PFHpA	*119.5*	0	0	*160*	0	*74.7*	*50-150*	193.5	*47.3*	*30*	*R*
Surr: 13C4-PFOA	*146.7*	0	0	*160*	0	*91.7*	*50-150*	184.6	*22.8*	*30*	
Surr: 13C4-PFOS	*117.2*	0	0	*152.8*	0	*76.7*	*50-150*	161	*31.5*	*30*	*R*
Surr: 13C5-PFNA	*121.9*	0	0	*160*	0	*76.2*	*50-150*	202.9	*49.8*	*30*	*R*
Surr: 13C5-PFPeA	*155.5*	0	0	*160*	0	*97.2*	*50-150*	155.8	*0.161*	*30*	
Surr: 13C8-FOSA	*108.9*	0	0	*160*	0	*68.1*	*50-150*	123.6	*12.6*	*30*	
Surr: 18O2-PFHxS	*106.7*	0	0	*151.2*	0	*70.6*	*50-150*	156	*37.5*	*30*	*R*
Surr: d5-N-EtFOSA	*117.2*	0	0	*160*	0	*73.2*	*50-150*	120.9	*3.11*	*30*	
Surr: d5-N-EtFOSAA	*122.5*	0	0	*160*	0	*76.5*	*50-150*	133.9	*8.9*	*30*	
Surr: d9-N-EtFOSE	*143.3*	0	0	*160*	0	*89.5*	*50-150*	126.6	*12.4*	*30*	
Surr: d3-N-MeFOSA	*123.9*	0	0	*160*	0	*77.4*	*50-150*	120.1	*3.07*	*30*	
Surr: d3-N-MeFOSAA	*115.6*	0	0	*160*	0	*72.3*	*50-150*	126.1	*8.64*	*30*	
Surr: d7-N-MeFOSE	*124.6*	0	0	*160*	0	*77.9*	*50-150*	155.3	*22*	*30*	

The following samples were analyzed in this batch: 21090339-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Spring City, PA +1 610 948 4903
South Charleston, WV +1 304 356 3168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

Page 1 of 1

COC ID: 229899

ALS Project Manager: JW

ALS Work Order #: 21090339

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	ALS 2021	Project Name	WRR	A	PFAS 537 M
Work Order		Project Number	55929.007	B	
Company Name	Gannett Fleming, Inc	Bill To Company	Gannett Fleming, Inc	C	
Send Report To	Tony Miller	Invoice Attn	Accounts Payable	D	
Address	8040 Excelsior Drive Suite 302	Address	8040 Excelsior Drive Suite 302	E F	
City/State/Zip	Madison, WI 53717-1338	City/State/Zip	Madison, WI 53717-1338	G	
Phone	(608) 836-1500	Phone	(608) 836-1500	H	
Fax		Fax		I	
e-Mail Address	awmiller@gfnet.com	e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	PW-9	9/1/21	16:10	DW	—	2	X										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																JW	
10																	

Sampler(s) Please Print & Sign: Marcus Mussey

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Std. 10 WK Days ☐ 5 WK Days ☐ Other ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by:	Date: 9/2/21	Time: 12:30	Received by: FedEx
Relinquished by: FedEx	Date: 9/3/21	Time: 0930	Received by (Laboratory):
Logged by (Laboratory):	Date: 9/3/21	Time: 1258	Checked by (Laboratory):

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Notes:

Cooler ID	Cooler Temp.
IR3	2.1°C

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Group, USA

Sample Receipt Checklist

Client Name: **GANNETTFLEMING - WI** Date/Time Received: **03-Sep-21 09:30**

Work Order: **21090339** Received by: **LYS**

Checklist completed by Lydia Sweet (eSignature) 03-Sep-21 (Date) Reviewed by: Jodi Blouw (eSignature) 03-Sep-21 (Date)

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.1/3.1c	IR1	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	9/3/2021 12:57:53 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

13-Sep-2021

Anthony Miller
Gannett Fleming, Inc.
8040 Excelsior Drive
Suite 303
Madison, WI 53717-1338

Re: **WRR (55929.007)** Work Order: **21090342**

Dear Anthony,

ALS Environmental received 1 sample on 03-Sep-2021 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 16.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Jodi Blouw

Electronically approved by: Bill Carey

Jodi Blouw

Report of Laboratory Analysis

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: **21090342**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
21090342-01	Field Blank	Water		9/1/2021 16:15	9/3/2021 09:30	☐

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
WorkOrder: **21090342**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
ng/L	Nanograms per Liter

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: 21090342

Case Narrative

The attached "Sample Receipt Checklist" documents the date of receipt, status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. A copy of the laboratory's scope of accreditation is available upon request.

Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

Any flags on MS/MSD samples not addressed in this narrative are unrelated to samples in this report.

With the following exceptions, all sample analyses achieved analytical criteria.

Batch 183229, Method E537 Mod, Sample Field Blank (21090342-01A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. 13C8-FOSA, d3-N-MeFOSA, d3-N-MeFOSAA, d5-N-EtFOSA

Batch 183229, Method E537 Mod, Sample LCS-183229: The LCS recovery was above the upper control limit. All the sample results in the batch were non-detect. No qualification is necessary for this analyte: PFTriA, PFPeS, 10:2 FTS

ALS Group, USA

Date: *13-Sep-21*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: Field Blank
Collection Date: 9/1/2021 04:15 PM

Work Order: 21090342
Lab ID: 21090342-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 9/7/21		Analyst: **SK**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U		0.98	5.3	ng/L	1	9/13/2021 15:27
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	U		0.70	5.3	ng/L	1	9/13/2021 15:27
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1.2	5.3	ng/L	1	9/13/2021 15:27
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	U		0.95	5.3	ng/L	1	9/13/2021 15:27
Perfluorobutanesulfonic Acid (PFBS)	U		0.37	5.3	ng/L	1	9/13/2021 15:27
Perfluorobutanoic Acid (PFBA)	U		2.7	5.3	ng/L	1	9/13/2021 15:27
Perfluorodecanesulfonic Acid (PFDS)	U		1.4	5.3	ng/L	1	9/13/2021 15:27
Perfluorodecanoic Acid (PFDA)	U		1.3	5.3	ng/L	1	9/13/2021 15:27
Perfluorododecanesulfonic Acid (PFDoS)	U		1.5	5.3	ng/L	1	9/13/2021 15:27
Perfluorododecanoic Acid (PFDoA)	U		1.5	5.3	ng/L	1	9/13/2021 15:27
Perfluoroheptanesulfonic Acid (PFHpS)	U		0.59	5.3	ng/L	1	9/13/2021 15:27
Perfluoroheptanoic Acid (PFHpA)	U		0.46	5.3	ng/L	1	9/13/2021 15:27
Perfluorohexadecanoic Acid (PFHxDA)	U		0.40	5.3	ng/L	1	9/13/2021 15:27
Perfluorohexanesulfonic Acid (PFHxS)	U		0.39	5.3	ng/L	1	9/13/2021 15:27
Perfluorohexanoic Acid (PFHxA)	U		1.3	5.3	ng/L	1	9/13/2021 15:27
Perfluorononanesulfonic Acid (PFNS)	U		0.52	5.3	ng/L	1	9/13/2021 15:27
Perfluorononanoic Acid (PFNA)	U		0.91	5.3	ng/L	1	9/13/2021 15:27
Perfluorooctadecanoic Acid (PFODA)	U		0.68	5.3	ng/L	1	9/13/2021 15:27
Perfluorooctanesulfonamide (PFOSA)	U		0.75	5.3	ng/L	1	9/13/2021 15:27
Perfluorooctanesulfonic Acid (PFOS)	U		0.94	2.1	ng/L	1	9/13/2021 15:27
Perfluorooctanoic Acid (PFOA)	U		0.66	2.1	ng/L	1	9/13/2021 15:27
Perfluoropentanesulfonic Acid (PFPeS)	U		0.58	5.3	ng/L	1	9/13/2021 15:27
Perfluoropentanoic Acid (PFPeA)	U		1.3	5.3	ng/L	1	9/13/2021 15:27
Perfluorotetradecanoic Acid (PFTeA)	U		2.8	5.3	ng/L	1	9/13/2021 15:27
Perfluorotridecanoic Acid (PFTriA)	U		0.81	5.3	ng/L	1	9/13/2021 15:27
Perfluoroundecanoic Acid (PFUnA)	U		1.0	5.3	ng/L	1	9/13/2021 15:27
N-ethylperfluoro-1-octanesulfonamide	U		1.2	5.3	ng/L	1	9/13/2021 15:27
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		0.66	5.3	ng/L	1	9/13/2021 15:27
N-Ethylperfluorooctanesulfonamidoethanol	U		0.54	5.3	ng/L	1	9/13/2021 15:27
N-methylperfluoro-1-octanesulfonamide	U		0.83	5.3	ng/L	1	9/13/2021 15:27

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *13-Sep-21*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: Field Blank
Collection Date: 9/1/2021 04:15 PM

Work Order: 21090342
Lab ID: 21090342-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoacetic Acid	U		0.68	5.3	ng/L	1	9/13/2021 15:27
N-Methylperfluorooctanesulfonamidoethanol	U		0.51	5.3	ng/L	1	9/13/2021 15:27
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		1.2	5.3	ng/L	1	9/13/2021 15:27
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		0.59	5.3	ng/L	1	9/13/2021 15:27
11Cl-Pf3OUdS	U		0.49	5.3	ng/L	1	9/13/2021 15:27
9Cl-PF3ONS	U		0.47	5.3	ng/L	1	9/13/2021 15:27
Surr: 13C2-FtS 4:2	*75.9*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-FtS 6:2	*75.5*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-FtS 8:2	*91.6*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFDA	*82.0*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFDoA	*65.6*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFHxA	*72.6*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFHxDA	*64.2*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFTeA	*64.2*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFUnA	*79.0*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C3-HFPO-DA	*57.4*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C3-PFBS	*59.5*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C4-PFBA	*71.1*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C4-PFHpA	*69.3*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C4-PFOA	*70.8*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C4-PFOS	*63.5*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C5-PFNA	*75.1*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C5-PFPeA	*64.3*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C8-FOSA	*48.5*	S		*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 18O2-PFHxS	*57.5*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d5-N-EtFOSA	*46.8*	S		*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d5-N-EtFOSAA	*58.7*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d9-N-EtFOSE	*61.8*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d3-N-MeFOSA	*45.8*	S		*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d3-N-MeFOSAA	*49.6*	S		*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d7-N-MeFOSE	*65.6*			*50-150*	*%REC*	1	9/13/2021 15:27

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

MBLK Sample ID: **MBLK-183229-183229** Units: **ng/L** Analysis Date: **9/9/2021 12:38 PM**

Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732976** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	U	5.0								
Fluorotelomer Sulphonic Acid 6:2 (FtS	U	5.0								
Fluorotelomer Sulphonic Acid 8:2 (FtS	U	5.0								
Fluorotelomer Sulphonic Acid 10:2 (Ft	U	5.0								
Perfluorobutanesulfonic Acid (PFBS)	U	5.0								
Perfluorobutanoic Acid (PFBA)	U	5.0								
Perfluorodecanesulfonic Acid (PFDS)	U	5.0								
Perfluorodecanoic Acid (PFDA)	U	5.0								
Perfluorododecanesulfonic Acid (PFDo	U	5.0								
Perfluorododecanoic Acid (PFDoA)	U	5.0								
Perfluoroheptanesulfonic Acid (PFHpS	U	5.0								
Perfluoroheptanoic Acid (PFHpA)	U	5.0								
Perfluorohexadecanoic Acid (PFHxDA	U	5.0								
Perfluorohexanesulfonic Acid (PFHxS)	U	5.0								
Perfluorohexanoic Acid (PFHxA)	U	5.0								
Perfluorononanesulfonic Acid (PFNS)	U	5.0								
Perfluorononanoic Acid (PFNA)	U	5.0								
Perfluorooctadecanoic Acid (PFODA)	U	5.0								
Perfluorooctanesulfonamide (PFOSA)	U	5.0								
Perfluorooctanesulfonic Acid (PFOS)	U	2.0								
Perfluorooctanoic Acid (PFOA)	U	2.0								
Perfluoropentanesulfonic Acid (PFPeS	U	5.0								
Perfluoropentanoic Acid (PFPeA)	U	5.0								
Perfluorotetradecanoic Acid (PFTeA)	U	5.0								
Perfluorotridecanoic Acid (PFTriA)	U	5.0								
Perfluoroundecanoic Acid (PFUnA)	U	5.0								
N-ethylperfluoro-1-octanesulfonamide	U	5.0								
N-Ethylperfluorooctanesulfonamidoace	U	5.0								
N-Ethylperfluorooctanesulfonamidoeth	U	5.0								
N-methylperfluoro-1-octanesulfonamid	U	5.0								
N-Methylperfluorooctanesulfonamidoa	U	5.0								
N-Methylperfluorooctanesulfonamidoe	U	5.0								
Hexafluoropropylene oxide dimer acid	U	5.0								
4,8-Dioxa-3H-perfluorononanoic Acid (	U	5.0								
11Cl-Pf3OUdS	U	5.0								
9Cl-PF3ONS	U	5.0								
Surr: 13C2-FtS 4:2	*118*	0	*149.4*	0	*78.9*	*50-150*	0			
Surr: 13C2-FtS 6:2	*122.4*	0	*152*	0	*80.5*	*50-150*	0			
Surr: 13C2-FtS 8:2	*142.1*	0	*153.3*	0	*92.7*	*50-150*	0			
Surr: 13C2-PFDA	*132.4*	0	*160*	0	*82.8*	*50-150*	0			
Surr: 13C2-PFDoA	*133.8*	0	*160*	0	*83.6*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxA	*130*	0	*160*	0	*81.2*	*50-150*	0
Surr: 13C2-PFHxDA	*117.7*	0	*160*	0	*73.5*	*50-150*	0
Surr: 13C2-PFTeA	*112.4*	0	*160*	0	*70.2*	*50-150*	0
Surr: 13C2-PFUnA	*124.3*	0	*160*	0	*77.7*	*50-150*	0
Surr: 13C3-HFPO-DA	*107.2*	0	*160*	0	*67*	*50-150*	0
Surr: 13C3-PFBS	*94.74*	0	*148.8*	0	*63.7*	*50-150*	0
Surr: 13C4-PFBA	*127.6*	0	*160*	0	*79.8*	*50-150*	0
Surr: 13C4-PFHpA	*115.4*	0	*160*	0	*72.2*	*50-150*	0
Surr: 13C4-PFOA	*142*	0	*160*	0	*88.8*	*50-150*	0
Surr: 13C4-PFOS	*119.4*	0	*152.8*	0	*78.2*	*50-150*	0
Surr: 13C5-PFNA	*151*	0	*160*	0	*94.4*	*50-150*	0
Surr: 13C5-PFPeA	*112.6*	0	*160*	0	*70.4*	*50-150*	0
Surr: 13C8-FOSA	*104.1*	0	*160*	0	*65*	*50-150*	0
Surr: 18O2-PFHxS	*95.91*	0	*151.2*	0	*63.4*	*50-150*	0
Surr: d5-N-EtFOSA	*86.01*	0	*160*	0	*53.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*98.53*	0	*160*	0	*61.6*	*50-150*	0
Surr: d9-N-EtFOSE	*91.37*	0	*160*	0	*57.1*	*50-150*	0
Surr: d3-N-MeFOSA	*90.8*	0	*160*	0	*56.8*	*50-150*	0
Surr: d3-N-MeFOSAA	*87.38*	0	*160*	0	*54.6*	*50-150*	0
Surr: d7-N-MeFOSE	*99.92*	0	*160*	0	*62.4*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090342
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

LCS Sample ID: **LCS-183229-183229** Units: **ng/L** Analysis Date: **9/10/2021 05:42 PM**
Client ID: Run ID: **LCMS1_210910C** SeqNo: **7740426** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	33.69	5.0	29.9	0	113	63-143	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS	34.84	5.0	30.3	0	115	64-140	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	33.58	5.0	30.7	0	109	67-138	0			
Fluorotelomer Sulphonic Acid 10:2 (Ft	51.05	5.0	30.8	0	166	40-160	0			S
Perfluorobutanesulfonic Acid (PFBS)	33.82	5.0	28.3	0	120	72-130	0			
Perfluorobutanoic Acid (PFBA)	31.54	5.0	32	0	98.6	73-129	0			
Perfluorodecanesulfonic Acid (PFDS)	25.88	5.0	30.8	0	84	53-142	0			
Perfluorodecanoic Acid (PFDA)	29.95	5.0	32	0	93.6	71-129	0			
Perfluorododecanesulfonic Acid (PFDo	24.91	5.0	31	0	80.4	69-134	0			
Perfluorododecanoic Acid (PFDoA)	29.28	5.0	32	0	91.5	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS	32.12	5.0	30.5	0	105	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	37.87	5.0	32	0	118	72-130	0			
Perfluorohexadecanoic Acid (PFHxDA	34.75	5.0	32	0	109	70-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	27.08	5.0	29.1	0	93.1	68-131	0			
Perfluorohexanoic Acid (PFHxA)	28.46	5.0	32	0	88.9	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	28.71	5.0	30.7	0	93.5	69-127	0			
Perfluorononanoic Acid (PFNA)	31.5	5.0	32	0	98.4	69-130	0			
Perfluorooctadecanoic Acid (PFODA)	29.75	5.0	32	0	93	70-130	0			
Perfluorooctanesulfonamide (PFOSA)	35.43	5.0	32	0	111	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	29.15	2.0	29.7	0	98.1	65-140	0			
Perfluorooctanoic Acid (PFOA)	33.88	2.0	32	0	106	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	38.27	5.0	30	0	128	71-127	0			S
Perfluoropentanoic Acid (PFPeA)	35.21	5.0	32	0	110	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	32.84	5.0	32	0	103	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	49.51	5.0	32	0	155	65-144	0			S
Perfluoroundecanoic Acid (PFUnA)	32.25	5.0	32	0	101	69-133	0			
N-ethylperfluoro-1-octanesulfonamide	26.98	5.0	32	0	84.3	70-130	0			
N-Ethylperfluorooctanesulfonamidoace	35.2	5.0	32	0	110	61-135	0			
N-Ethylperfluorooctanesulfonamidoeth	37.05	5.0	32	0	116	70-130	0			
N-methylperfluoro-1-octanesulfonamid	28.92	5.0	32	0	90.4	70-130	0			
N-Methylperfluorooctanesulfonamidoa	41.38	5.0	32	0	129	65-136	0			
N-Methylperfluorooctanesulfonamidoe	38.37	5.0	32	0	120	68-141	0			
Hexafluoropropylene oxide dimer acid	32.5	5.0	32	0	102	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	29.47	5.0	30.1	0	97.9	70-130	0			
11Cl-Pf3OUdS	23.89	5.0	30.1	0	79.4	70-130	0			
9Cl-PF3ONS	28.64	5.0	29.8	0	96.1	70-130	0			
Surr: 13C2-FtS 4:2	*117*	0	*149.4*	0	*78.3*	*50-150*	0			
Surr: 13C2-FtS 6:2	*130.3*	0	*152*	0	*85.7*	*50-150*	0			
Surr: 13C2-FtS 8:2	*148.1*	0	*153.3*	0	*96.6*	*50-150*	0			
Surr: 13C2-PFDA	*153.7*	0	*160*	0	*96.1*	*50-150*	0			
Surr: 13C2-PFDoA	*153.4*	0	*160*	0	*95.9*	*50-150*	0			
Surr: 13C2-PFHxA	*169*	0	*160*	0	*106*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxDA	*130.3*	0	*160*	0	*81.4*	*50-150*	0
Surr: 13C2-PFTeA	*113.9*	0	*160*	0	*71.2*	*50-150*	0
Surr: 13C2-PFUnA	*131.7*	0	*160*	0	*82.3*	*50-150*	0
Surr: 13C3-HFPO-DA	*151.4*	0	*160*	0	*94.6*	*50-150*	0
Surr: 13C3-PFBS	*105.2*	0	*148.8*	0	*70.7*	*50-150*	0
Surr: 13C4-PFBA	*148.5*	0	*160*	0	*92.8*	*50-150*	0
Surr: 13C4-PFHpA	*147.5*	0	*160*	0	*92.2*	*50-150*	0
Surr: 13C4-PFOA	*138.2*	0	*160*	0	*86.4*	*50-150*	0
Surr: 13C4-PFOS	*132.9*	0	*152.8*	0	*87*	*50-150*	0
Surr: 13C5-PFNA	*143.6*	0	*160*	0	*89.8*	*50-150*	0
Surr: 13C5-PFPeA	*129.4*	0	*160*	0	*80.9*	*50-150*	0
Surr: 13C8-FOSA	*101.4*	0	*160*	0	*63.4*	*50-150*	0
Surr: 18O2-PFHxS	*117.3*	0	*151.2*	0	*77.6*	*50-150*	0
Surr: d5-N-EtFOSA	*112.6*	0	*160*	0	*70.4*	*50-150*	0
Surr: d5-N-EtFOSAA	*113.3*	0	*160*	0	*70.8*	*50-150*	0
Surr: d9-N-EtFOSE	*107.6*	0	*160*	0	*67.2*	*50-150*	0
Surr: d3-N-MeFOSA	*117.8*	0	*160*	0	*73.6*	*50-150*	0
Surr: d3-N-MeFOSAA	*110.5*	0	*160*	0	*69.1*	*50-150*	0
Surr: d7-N-MeFOSE	*121.6*	0	*160*	0	*76*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090342
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

MS Sample ID: **21082518-06A MS** Units: **ng/L** Analysis Date: **9/9/2021 01:10 PM**

Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732979** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	32.13	4.9	29.2	0	110	63-143	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	52.94	4.9	29.98	17.26	119	67-138	0			
Fluorotelomer Sulphonic Acid 10:2 (Ft	35.69	4.9	30.08	0	119	40-160	0			
Perfluorobutanesulfonic Acid (PFBS)	29.3	4.9	27.64	0.9496	103	72-130	0			
Perfluorobutanoic Acid (PFBA)	184.2	4.9	31.25	153.4	98.4	73-129	0			O
Perfluorodecanesulfonic Acid (PFDS)	23.55	4.9	30.08	0	78.3	53-142	0			
Perfluorodecanoic Acid (PFDA)	42.47	4.9	31.25	7.515	112	71-129	0			
Perfluorododecanesulfonic Acid (PFDo	24.02	4.9	30.27	0	79.4	69-134	0			
Perfluorododecanoic Acid (PFDoA)	28.28	4.9	31.25	0	90.5	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS	33.81	4.9	29.79	0	114	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	165.1	4.9	31.25	127.3	121	72-130	0			O
Perfluorohexadecanoic Acid (PFHxDA	30.77	4.9	31.25	0	98.4	70-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	28.66	4.9	28.42	0.7053	98.4	68-131	0			
Perfluorohexanoic Acid (PFHxA)	322	4.9	31.25	321.4	1.93	72-129	0			SO
Perfluorononanesulfonic Acid (PFNS)	29.19	4.9	29.98	0	97.4	69-127	0			
Perfluorononanoic Acid (PFNA)	36.78	4.9	31.25	10	85.7	69-130	0			
Perfluorooctadecanoic Acid (PFODA)	30.77	4.9	31.25	0	98.4	70-130	0			
Perfluorooctanesulfonamide (PFOSA)	27.27	4.9	31.25	0	87.3	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	30.5	2.0	29	5.276	87	65-140	0			
Perfluorooctanoic Acid (PFOA)	53.23	2.0	31.25	21.85	100	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	38.94	4.9	29.3	0	133	71-127	0			S
Perfluorotetradecanoic Acid (PFTeA)	24.86	4.9	31.25	0	79.6	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	31.24	4.9	31.25	0	100	65-144	0			
Perfluoroundecanoic Acid (PFUnA)	30.62	4.9	31.25	0	98	69-133	0			
N-ethylperfluoro-1-octanesulfonamide	30.12	4.9	31.25	0	96.4	70-130	0			
N-Ethylperfluorooctanesulfonamidoace	28.27	4.9	31.25	0	90.4	61-135	0			
N-Ethylperfluorooctanesulfonamidoeth	34.42	4.9	31.25	0	110	70-130	0			
N-methylperfluoro-1-octanesulfonamid	29	4.9	31.25	0	92.8	70-130	0			
N-Methylperfluorooctanesulfonamidoa	38.55	4.9	31.25	0	123	65-136	0			
N-Methylperfluorooctanesulfonamidoe	32.7	4.9	31.25	0	105	68-141	0			
Hexafluoropropylene oxide dimer acid	33.46	4.9	31.25	0	107	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	21.89	4.9	29.39	0	74.5	70-130	0			
11Cl-Pf3OUdS	22.49	4.9	29.39	0	76.5	70-130	0			
9Cl-PF3ONS	27.7	4.9	29.1	0	95.2	70-130	0			
Surr: 13C2-FtS 4:2	*118*	0	*145.9*	0	*80.8*	*50-150*	0			
Surr: 13C2-FtS 6:2	*179.6*	0	*148.4*	0	*121*	*50-150*	0			
Surr: 13C2-FtS 8:2	*173.4*	0	*149.7*	0	*116*	*50-150*	0			
Surr: 13C2-PFDA	*136.3*	0	*156.2*	0	*87.2*	*50-150*	0			
Surr: 13C2-PFDoA	*129.8*	0	*156.2*	0	*83.1*	*50-150*	0			
Surr: 13C2-PFHxA	*128.4*	0	*156.2*	0	*82.2*	*50-150*	0			
Surr: 13C2-PFHxDA	*146*	0	*156.2*	0	*93.5*	*50-150*	0			
Surr: 13C2-PFTeA	*135.7*	0	*156.2*	0	*86.8*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFUnA	*120.3*	0	*156.2*	0	*77*	*50-150*	0
Surr: 13C3-HFPO-DA	*129.3*	0	*156.2*	0	*82.8*	*50-150*	0
Surr: 13C3-PFBS	*119.1*	0	*145.3*	0	*82*	*50-150*	0
Surr: 13C4-PFBA	*133.4*	0	*156.2*	0	*85.4*	*50-150*	0
Surr: 13C4-PFHpA	*146.6*	0	*156.2*	0	*93.8*	*50-150*	0
Surr: 13C4-PFOA	*142*	0	*156.2*	0	*90.9*	*50-150*	0
Surr: 13C4-PFOS	*128.1*	0	*149.2*	0	*85.9*	*50-150*	0
Surr: 13C5-PFNA	*164.2*	0	*156.2*	0	*105*	*50-150*	0
Surr: 13C5-PFPeA	*125.4*	0	*156.2*	0	*80.3*	*50-150*	0
Surr: 13C8-FOSA	*128.3*	0	*156.2*	0	*82.1*	*50-150*	0
Surr: 18O2-PFHxS	*99.02*	0	*147.7*	0	*67.1*	*50-150*	0
Surr: d5-N-EtFOSA	*107.5*	0	*156.2*	0	*68.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*107.7*	0	*156.2*	0	*68.9*	*50-150*	0
Surr: d9-N-EtFOSE	*108.5*	0	*156.2*	0	*69.4*	*50-150*	0
Surr: d3-N-MeFOSA	*131.7*	0	*156.2*	0	*84.3*	*50-150*	0
Surr: d3-N-MeFOSAA	*99.18*	0	*156.2*	0	*63.5*	*50-150*	0
Surr: d7-N-MeFOSE	*114.9*	0	*156.2*	0	*73.5*	*50-150*	0

MS Sample ID: **21082518-06A MS** Units: **ng/L** Analysis Date: **9/10/2021 05:53 PM**

Client ID: Run ID: **LCMS1_210910C** SeqNo: **7740427** Prep Date: **9/7/2021** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 6:2 (FtS	1053	49	29.59	1032	71.4	64-140	0			O
Perfluoropentanoic Acid (PFPeA)	677.2	49	31.25	663	45.3	72-129	0			SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090342
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

DUP Sample ID: **21082518-04A DUP** Units: **ng/L** Analysis Date: **9/9/2021 12:59 PM**

Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732978** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	U	4.8	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 6:2 (FtS	1.046	4.8	0	0	0	0-0	2.07	0	30	J
Fluorotelomer Sulphonic Acid 8:2 (FtS	U	4.8	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 10:2 (Ft	U	4.8	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (PFBS)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorobutanoic Acid (PFBA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorodecanesulfonic Acid (PFDS)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorododecanesulfonic Acid (PFDo	U	4.8	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PFDoA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid (PFHpS	0.6308	4.8	0	0	0	0-0	0	0	30	J
Perfluoroheptanoic Acid (PFHpA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorohexadecanoic Acid (PFHxDA	U	4.8	0	0	0	0-0	0	0	30	
Perfluorohexanesulfonic Acid (PFHxS)	U	4.8	0	0	0	0-0	1.643	0	30	
Perfluorohexanoic Acid (PFHxA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorononanesulfonic Acid (PFNS)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorooctadecanoic Acid (PFODA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (PFOSA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (PFOS)	2.111	1.9	0	0	0	0-0	1.939	8.49	30	
Perfluorooctanoic Acid (PFOA)	U	1.9	0	0	0	0-0	0	0	30	
Perfluoropentanesulfonic Acid (PFPeS	U	4.8	0	0	0	0-0	0	0	30	
Perfluoropentanoic Acid (PFPeA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorotetradecanoic Acid (PFTeA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFTriA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFUnA)	U	4.8	0	0	0	0-0	0	0	30	
N-ethylperfluoro-1-octanesulfonamide	U	4.8	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfonamidoace	U	4.8	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfonamidoeth	U	4.8	0	0	0	0-0	0	0	30	
N-methylperfluoro-1-octanesulfonamid	U	4.8	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfonamidoa	U	4.8	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfonamidoe	U	4.8	0	0	0	0-0	0	0	30	
Hexafluoropropylene oxide dimer acid	U	4.8	0	0	0	0-0	0	0	30	
4,8-Dioxa-3H-perfluorononanoic Acid (	U	4.8	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	U	4.8	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	U	4.8	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	*145*	0	*143.7*	0	*101*	*50-150*	331.6	*78.3*	*30*	*R*
Surr: 13C2-FtS 6:2	*203.1*	0	*146.2*	0	*139*	*50-150*	274.8	*30*	*30*	*R*
Surr: 13C2-FtS 8:2	*226.7*	0	*147.4*	0	*154*	*50-150*	160.5	*34.2*	*30*	*SR*
Surr: 13C2-PFDA	*173.3*	0	*153.8*	0	*113*	*50-150*	142	*19.9*	*30*	
Surr: 13C2-PFDoA	*177.1*	0	*153.8*	0	*115*	*50-150*	132.8	*28.6*	*30*	
Surr: 13C2-PFHxA	*159.9*	0	*153.8*	0	*104*	*50-150*	160	*0.0525*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090342
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxDA	*189.1*	0	*153.8*	0	*123*	*50-150*	125.4	*40.5*	*30*	*R*
Surr: 13C2-PFTeA	*179.8*	0	*153.8*	0	*117*	*50-150*	136.1	*27.7*	*30*	
Surr: 13C2-PFUnA	*156.6*	0	*153.8*	0	*102*	*50-150*	135.1	*14.7*	*30*	
Surr: 13C3-HFPO-DA	*161.3*	0	*153.8*	0	*105*	*50-150*	136	*17*	*30*	
Surr: 13C3-PFBS	*149.2*	0	*143.1*	0	*104*	*50-150*	133.3	*11.3*	*30*	
Surr: 13C4-PFBA	*168.6*	0	*153.8*	0	*110*	*50-150*	145.6	*14.7*	*30*	
Surr: 13C4-PFHpA	*178.8*	0	*153.8*	0	*116*	*50-150*	165.6	*7.63*	*30*	
Surr: 13C4-PFOA	*182.2*	0	*153.8*	0	*118*	*50-150*	171.3	*6.16*	*30*	
Surr: 13C4-PFOS	*157.4*	0	*146.9*	0	*107*	*50-150*	124.9	*23*	*30*	
Surr: 13C5-PFNA	*202.5*	0	*153.8*	0	*132*	*50-150*	153.8	*27.3*	*30*	
Surr: 13C5-PFPeA	*179.2*	0	*153.8*	0	*116*	*50-150*	156	*13.8*	*30*	
Surr: 13C8-FOSA	*165.2*	0	*153.8*	0	*107*	*50-150*	154.7	*6.57*	*30*	
Surr: 18O2-PFHxS	*120.3*	0	*145.4*	0	*82.8*	*50-150*	109	*9.86*	*30*	
Surr: d5-N-EtFOSA	*153.3*	0	*153.8*	0	*99.6*	*50-150*	124.9	*20.4*	*30*	
Surr: d5-N-EtFOSAA	*159.8*	0	*153.8*	0	*104*	*50-150*	148.3	*7.45*	*30*	
Surr: d9-N-EtFOSE	*159*	0	*153.8*	0	*103*	*50-150*	143.8	*10*	*30*	
Surr: d3-N-MeFOSA	*159.6*	0	*153.8*	0	*104*	*50-150*	156.3	*2.13*	*30*	
Surr: d3-N-MeFOSAA	*139.9*	0	*153.8*	0	*90.9*	*50-150*	138.4	*1.11*	*30*	
Surr: d7-N-MeFOSE	*172.8*	0	*153.8*	0	*112*	*50-150*	138.3	*22.2*	*30*	

The following samples were analyzed in this batch: 21090342-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Spring City, PA +1 610 948 4903
South Charleston, WV +1 304 356 3168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

Page 1 of 1

COC ID: 229896

ALS Project Manager: JW | ALS Work Order #: 21090342

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	ALS 2021	Project Name	WRR	A	PFAS 537 M
Work Order		Project Number	55929.007	B	
Company Name	Gannett Fleming, Inc	Bill To Company	Gannett Fleming, Inc	C	
Send Report To	Tony Miller	Invoice Attn	Accounts Payable	D	
Address	8040 Excelsior Drive Suite 303	Address	8040 Excelsior Drive Suite 303	E F	
City/State/Zip	Madison, WI 53717-1338	City/State/Zip	Madison, WI 53717-1338	G	
Phone	(608) 836-1500	Phone	(608) 836-1500	H	
Fax		Fax		I	
e-Mail Address	awmiller@gfnet.com	e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Field Blank	9/1	16:15	W	—	2	X										
2																	
3																	
4																	
5																	
6																	JP
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Megan Mussey

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Std 10 WK Days ☐ 5 WK Days ☐ Other 3 WK Days ☐ 24 Hour

Results Due Date:

	Date:	Time:		
Relinquished by:	9/2/21	12:30	Received by: FedEx	
Relinquished by: FedEx	9/3/21	0930	Received by (Laboratory):	
Logged by (Laboratory):	9/3/21	1301	Checked by (Laboratory):	

Notes:

Cooler ID	Cooler Temp.
1R3	2.1°C

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Group, USA

Sample Receipt Checklist

Client Name: **GANNETTFLEMING - WI** Date/Time Received: **03-Sep-21 09:30**

Work Order: **21090342** Received by: **LYS**

Checklist completed by Lydia Sweet (eSignature) 03-Sep-21 (Date) Reviewed by: Jodi Blouw (eSignature) 03-Sep-21 (Date)

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.1/3.1c	IR3	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	9/3/2021 1:03:16 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

WRR Environmental Services Co., Inc.

VIA Federal Express

September 15, 2021
File #55929.007

[redacted]
5440 Wild Rose Lane
Eau Claire, WI 54701.9300

Dear Neighbor of WRR Environmental Services:

On September 1, 2021, WRR Environmental Services Co., Inc.'s (WRR) environmental consultant, Gannett Fleming, Inc. (GF), collected a water sample from your home at 5440 Wild Rose Lane. The sample was collected as part of an investigation to determine the extent of groundwater impacted by per- and poly-fluoroalkyl substances (PFAS) that may be associated with a type of firefighting foam (AFFF) used to suppress fires at the WRR facility on Ryder Road in 2007 and 2010. The investigation activities at the WRR site are being conducted under the oversight of the Wisconsin Department of Natural Resources (WDNR).

Our designation for your water sample is PW-12. The water sample collected from your home in September was sent to ALS Environmental Laboratory in Holland, Michigan, for analysis of 33 individual PFAS compounds. One PFAS compound, PFBA was detected in the water sample collected from your well but at a concentration, 2.6 nanograms per liter (ng/L), far below the Wisconsin Department of Health Services' (WDHS) and WDNR's proposed recommended NR 140 preventive action limit and enforcement standard of 2,000 and 10,000 ng/L, respectively. Copies of the lab reports for the sample collected from your well and the field blank that accompanied your sample when it was shipped to the laboratory are included with this letter.

Copies of this letter and the September 2021 lab reports are being sent to the WDNR and WDHS for their records. We thank you for your cooperation in our investigation. At this time, we do not anticipate the need to collect additional samples from your well.

If you have any questions regarding the on-going PFAS investigation, please contact Ms. Candace Sykora with the WDNR at (715) 928-0452 or candace.sykora@wisconsin.gov. If you have any questions regarding the potential health impacts from PFAS, please contact Mr. Nathan Kloczko with the WDHS at (608) 267-3227 or Nathan.kloczko@dhs.wisconsin.gov. If you have any

questions about this letter or the results of the sample collected from your well, please contact Anthony Miller with GF at (608) 400-6815 or awmiller@gfnet.com.

Sincerely,

Jim Hager
President – WRR Environmental Services Co., Inc.

Enc.
cc: Candace Sykora (WDNR)
Nathan Kloczko (WDHS)

13-Sep-2021

Anthony Miller
Gannett Fleming, Inc.
8040 Excelsior Drive
Suite 303
Madison, WI 53717-1338

Re: **WRR (55929.007)** Work Order: **21090340**

Dear Anthony,

ALS Environmental received 1 sample on 03-Sep-2021 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 18.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Jodi Blouw

Electronically approved by: Bill Carey

Jodi Blouw

Report of Laboratory Analysis

Certificate No: WI: 399084510

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: **21090340**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
21090340-01	PW-12	Drinking Wat		9/1/2021 15:15	9/3/2021 09:30	☐

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
WorkOrder: **21090340**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
ng/L	Nanograms per Liter

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: 21090340

Case Narrative

The attached "Sample Receipt Checklist" documents the date of receipt, status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. A copy of the laboratory's scope of accreditation is available upon request.

Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

Any flags on MS/MSD samples not addressed in this narrative are unrelated to samples in this report.

With the following exceptions, all sample analyses achieved analytical criteria.

Batch 183229, Method E537 Mod, Sample LCS-183229: The LCS recovery was above the upper control limit. All the sample results in the batch were non-detect. No qualification is necessary for this analyte: PFTriA, PFPeS, 10:2 FTS

ALS Group, USA

Date: *13-Sep-21*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: PW-12
Collection Date: 9/1/2021 03:15 PM

Work Order: 21090340
Lab ID: 21090340-01
Matrix: DRINKING WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 9/7/21		Analyst: **SK**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U		0.93	5.0	ng/L	1	9/13/2021 15:16
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	U		0.66	5.0	ng/L	1	9/13/2021 15:16
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1.1	5.0	ng/L	1	9/13/2021 15:16
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	U		0.90	5.0	ng/L	1	9/13/2021 15:16
Perfluorobutanesulfonic Acid (PFBS)	U		0.35	5.0	ng/L	1	9/13/2021 15:16
Perfluorobutanoic Acid (PFBA)	**2.6**	J	**2.6**	**5.0**	**ng/L**	1	9/13/2021 15:16
Perfluorodecanesulfonic Acid (PFDS)	U		1.4	5.0	ng/L	1	9/13/2021 15:16
Perfluorodecanoic Acid (PFDA)	U		1.2	5.0	ng/L	1	9/13/2021 15:16
Perfluorododecanesulfonic Acid (PFDoS)	U		1.4	5.0	ng/L	1	9/13/2021 15:16
Perfluorododecanoic Acid (PFDoA)	U		1.4	5.0	ng/L	1	9/13/2021 15:16
Perfluoroheptanesulfonic Acid (PFHpS)	U		0.56	5.0	ng/L	1	9/13/2021 15:16
Perfluoroheptanoic Acid (PFHpA)	U		0.44	5.0	ng/L	1	9/13/2021 15:16
Perfluorohexadecanoic Acid (PFHxDA)	U		0.38	5.0	ng/L	1	9/13/2021 15:16
Perfluorohexanesulfonic Acid (PFHxS)	U		0.37	5.0	ng/L	1	9/13/2021 15:16
Perfluorohexanoic Acid (PFHxA)	U		1.2	5.0	ng/L	1	9/13/2021 15:16
Perfluorononanesulfonic Acid (PFNS)	U		0.49	5.0	ng/L	1	9/13/2021 15:16
Perfluorononanoic Acid (PFNA)	U		0.87	5.0	ng/L	1	9/13/2021 15:16
Perfluorooctadecanoic Acid (PFODA)	U		0.65	5.0	ng/L	1	9/13/2021 15:16
Perfluorooctanesulfonamide (PFOSA)	U		0.71	5.0	ng/L	1	9/13/2021 15:16
Perfluorooctanesulfonic Acid (PFOS)	U		0.89	2.0	ng/L	1	9/13/2021 15:16
Perfluorooctanoic Acid (PFOA)	U		0.63	2.0	ng/L	1	9/13/2021 15:16
Perfluoropentanesulfonic Acid (PFPeS)	U		0.55	5.0	ng/L	1	9/13/2021 15:16
Perfluoropentanoic Acid (PFPeA)	U		1.3	5.0	ng/L	1	9/13/2021 15:16
Perfluorotetradecanoic Acid (PFTeA)	U		2.6	5.0	ng/L	1	9/13/2021 15:16
Perfluorotridecanoic Acid (PFTriA)	U		0.77	5.0	ng/L	1	9/13/2021 15:16
Perfluoroundecanoic Acid (PFUnA)	U		0.97	5.0	ng/L	1	9/13/2021 15:16
N-ethylperfluoro-1-octanesulfonamide	U		1.1	5.0	ng/L	1	9/13/2021 15:16
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		0.62	5.0	ng/L	1	9/13/2021 15:16
N-Ethylperfluorooctanesulfonamidoethanol	U		0.51	5.0	ng/L	1	9/13/2021 15:16
N-methylperfluoro-1-octanesulfonamide	U		0.79	5.0	ng/L	1	9/13/2021 15:16

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *13-Sep-21*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: PW-12
Collection Date: 9/1/2021 03:15 PM

Work Order: 21090340
Lab ID: 21090340-01
Matrix: DRINKING WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoacetic Acid	U		0.64	5.0	ng/L	1	9/13/2021 15:16
N-Methylperfluorooctanesulfonamidoethanol	U		0.48	5.0	ng/L	1	9/13/2021 15:16
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		1.2	5.0	ng/L	1	9/13/2021 15:16
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		0.56	5.0	ng/L	1	9/13/2021 15:16
11Cl-Pf3OUdS	U		0.47	5.0	ng/L	1	9/13/2021 15:16
9Cl-PF3ONS	U		0.45	5.0	ng/L	1	9/13/2021 15:16
Surr: 13C2-FtS 4:2	*112*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C2-FtS 6:2	*87.9*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C2-FtS 8:2	*93.6*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C2-PFDA	*79.9*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C2-PFDoA	*108*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C2-PFHxA	*85.6*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C2-PFHxDA	*84.8*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C2-PFTeA	*87.2*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C2-PFUnA	*84.3*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C3-HFPO-DA	*73.2*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C3-PFBS	*79.7*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C4-PFBA	*99.0*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C4-PFHpA	*85.1*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C4-PFOA	*105*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C4-PFOS	*88.5*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C5-PFNA	*106*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C5-PFPeA	*88.8*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 13C8-FOSA	*76.3*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: 18O2-PFHxS	*112*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: d5-N-EtFOSA	*66.5*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: d5-N-EtFOSAA	*66.1*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: d9-N-EtFOSE	*74.1*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: d3-N-MeFOSA	*77.5*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: d3-N-MeFOSAA	*64.5*			*50-150*	*%REC*	1	9/13/2021 15:16
Surr: d7-N-MeFOSE	*78.6*			*50-150*	*%REC*	1	9/13/2021 15:16

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.

Work Order: 21090340

Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

MBLK Sample ID: **MBLK-183229-183229** Units: **ng/L** Analysis Date: **9/9/2021 12:38 PM**

Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732976** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.94	5.0								
Fluorotelomer Sulphonic Acid	U	0.66	5.0								
Fluorotelomer Sulphonic Acid	U	1.1	5.0								
Fluorotelomer Sulphonic Acid	U	0.9	5.0								
Perfluorobutanesulfonic Acid (	U	0.35	5.0								
Perfluorobutanoic Acid (PFBA)	U	2.6	5.0								
Perfluorodecanesulfonic Acid (	U	1.4	5.0								
Perfluorodecanoic Acid (PFDA	U	1.2	5.0								
Perfluorododecanesulfonic Aci	U	1.4	5.0								
Perfluorododecanoic Acid (PFI	U	1.4	5.0								
Perfluoroheptanesulfonic Acid	U	0.57	5.0								
Perfluoroheptanoic Acid (PFHp	U	0.44	5.0								
Perfluorohexadecanoic Acid (F	U	0.38	5.0								
Perfluorohexanesulfonic Acid (	U	0.37	5.0								
Perfluorohexanoic Acid (PFHx	U	1.2	5.0								
Perfluorononanesulfonic Acid	U	0.5	5.0								
Perfluorononanoic Acid (PFNA	U	0.87	5.0								
Perfluorooctadecanoic Acid (P	U	0.65	5.0								
Perfluorooctanesulfonamide (F	U	0.71	5.0								
Perfluorooctanesulfonic Acid (	U	0.89	2.0								
Perfluorooctanoic Acid (PFOA	U	0.63	2.0								
Perfluoropentanesulfonic Acid	U	0.56	5.0								
Perfluoropentanoic Acid (PFPe	U	1.3	5.0								
Perfluorotetradecanoic Acid (F	U	2.6	5.0								
Perfluorotridecanoic Acid (PFT	U	0.77	5.0								
Perfluoroundecanoic Acid (PFI	U	0.97	5.0								
N-ethylperfluoro-1-octanesulfo	U	1.2	5.0								
N-Ethylperfluorooctanesulfona	U	0.63	5.0								
N-Ethylperfluorooctanesulfona	U	0.52	5.0								
N-methylperfluoro-1-octanesul	U	0.79	5.0								
N-Methylperfluorooctanesulfor	U	0.64	5.0								
N-Methylperfluorooctanesulfor	U	0.48	5.0								
Hexafluoropropylene oxide din	U	1.2	5.0								
4,8-Dioxa-3H-perfluorononano	U	0.56	5.0								
11Cl-Pf3OUdS	U	0.47	5.0								
9Cl-PF3ONS	U	0.45	5.0								
Surr: 13C2-FtS 4:2	*118*	0	0	*149.4*	0	*78.9*	*50-150*	0			
Surr: 13C2-FtS 6:2	*122.4*	0	0	*152*	0	*80.5*	*50-150*	0			
Surr: 13C2-FtS 8:2	*142.1*	0	0	*153.3*	0	*92.7*	*50-150*	0			
Surr: 13C2-PFDA	*132.4*	0	0	*160*	0	*82.8*	*50-150*	0			
Surr: 13C2-PFDoA	*133.8*	0	0	*160*	0	*83.6*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxA	*130*	0	0	*160*	0	*81.2*	*50-150*	0
Surr: 13C2-PFHxDA	*117.7*	0	0	*160*	0	*73.5*	*50-150*	0
Surr: 13C2-PFTeA	*112.4*	0	0	*160*	0	*70.2*	*50-150*	0
Surr: 13C2-PFUnA	*124.3*	0	0	*160*	0	*77.7*	*50-150*	0
Surr: 13C3-HFPO-DA	*107.2*	0	0	*160*	0	*67*	*50-150*	0
Surr: 13C3-PFBS	*94.74*	0	0	*148.8*	0	*63.7*	*50-150*	0
Surr: 13C4-PFBA	*127.6*	0	0	*160*	0	*79.8*	*50-150*	0
Surr: 13C4-PFHpA	*115.4*	0	0	*160*	0	*72.2*	*50-150*	0
Surr: 13C4-PFOA	*142*	0	0	*160*	0	*88.8*	*50-150*	0
Surr: 13C4-PFOS	*119.4*	0	0	*152.8*	0	*78.2*	*50-150*	0
Surr: 13C5-PFNA	*151*	0	0	*160*	0	*94.4*	*50-150*	0
Surr: 13C5-PFPeA	*112.6*	0	0	*160*	0	*70.4*	*50-150*	0
Surr: 13C8-FOSA	*104.1*	0	0	*160*	0	*65*	*50-150*	0
Surr: 18O2-PFHxS	*95.91*	0	0	*151.2*	0	*63.4*	*50-150*	0
Surr: d5-N-EtFOSA	*86.01*	0	0	*160*	0	*53.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*98.53*	0	0	*160*	0	*61.6*	*50-150*	0
Surr: d9-N-EtFOSE	*91.37*	0	0	*160*	0	*57.1*	*50-150*	0
Surr: d3-N-MeFOSA	*90.8*	0	0	*160*	0	*56.8*	*50-150*	0
Surr: d3-N-MeFOSAA	*87.38*	0	0	*160*	0	*54.6*	*50-150*	0
Surr: d7-N-MeFOSE	*99.92*	0	0	*160*	0	*62.4*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090340
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

LCS	Sample ID: **LCS-183229-183229**				Units: **ng/L**			Analysis Date: **9/10/2021 05:42 PM**			
Client ID:		Run ID: **LCMS1_210910C**			SeqNo: **7740426**		Prep Date: **9/7/2021**		DF: **1**		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	33.69	0.94	5.0	29.9	0	113	63-143	0			
Fluorotelomer Sulphonic Acid	34.84	0.66	5.0	30.3	0	115	64-140	0			
Fluorotelomer Sulphonic Acid	33.58	1.1	5.0	30.7	0	109	67-138	0			
Fluorotelomer Sulphonic Acid	51.05	0.9	5.0	30.8	0	166	40-160	0			S
Perfluorobutanesulfonic Acid (	33.82	0.35	5.0	28.3	0	120	72-130	0			
Perfluorobutanoic Acid (PFBA)	31.54	2.6	5.0	32	0	98.6	73-129	0			
Perfluorodecanesulfonic Acid (	25.88	1.4	5.0	30.8	0	84	53-142	0			
Perfluorodecanoic Acid (PFDA	29.95	1.2	5.0	32	0	93.6	71-129	0			
Perfluorododecanesulfonic Aci	24.91	1.4	5.0	31	0	80.4	69-134	0			
Perfluorododecanoic Acid (PFI	29.28	1.4	5.0	32	0	91.5	72-134	0			
Perfluoroheptanesulfonic Acid	32.12	0.57	5.0	30.5	0	105	69-134	0			
Perfluoroheptanoic Acid (PFH	37.87	0.44	5.0	32	0	118	72-130	0			
Perfluorohexadecanoic Acid (F	34.75	0.38	5.0	32	0	109	70-130	0			
Perfluorohexanesulfonic Acid (	27.08	0.37	5.0	29.1	0	93.1	68-131	0			
Perfluorohexanoic Acid (PFHx	28.46	1.2	5.0	32	0	88.9	72-129	0			
Perfluorononanesulfonic Acid	28.71	0.5	5.0	30.7	0	93.5	69-127	0			
Perfluorononanoic Acid (PFNA	31.5	0.87	5.0	32	0	98.4	69-130	0			
Perfluorooctadecanoic Acid (P	29.75	0.65	5.0	32	0	93	70-130	0			
Perfluorooctanesulfonamide (F	35.43	0.71	5.0	32	0	111	67-137	0			
Perfluorooctanesulfonic Acid (	29.15	0.89	2.0	29.7	0	98.1	65-140	0			
Perfluorooctanoic Acid (PFOA	33.88	0.63	2.0	32	0	106	71-133	0			
Perfluoropentanesulfonic Acid	38.27	0.56	5.0	30	0	128	71-127	0			S
Perfluoropentanoic Acid (PFPe	35.21	1.3	5.0	32	0	110	72-129	0			
Perfluorotetradecanoic Acid (F	32.84	2.6	5.0	32	0	103	71-132	0			
Perfluorotridecanoic Acid (PFT	49.51	0.77	5.0	32	0	155	65-144	0			S
Perfluoroundecanoic Acid (PFI	32.25	0.97	5.0	32	0	101	69-133	0			
N-ethylperfluoro-1-octanesulfo	26.98	1.2	5.0	32	0	84.3	70-130	0			
N-Ethylperfluorooctanesulfona	35.2	0.63	5.0	32	0	110	61-135	0			
N-Ethylperfluorooctanesulfona	37.05	0.52	5.0	32	0	116	70-130	0			
N-methylperfluoro-1-octanesul	28.92	0.79	5.0	32	0	90.4	70-130	0			
N-Methylperfluorooctanesulfor	41.38	0.64	5.0	32	0	129	65-136	0			
N-Methylperfluorooctanesulfor	38.37	0.48	5.0	32	0	120	68-141	0			
Hexafluoropropylene oxide din	32.5	1.2	5.0	32	0	102	70-130	0			
4,8-Dioxa-3H-perfluorononano	29.47	0.56	5.0	30.1	0	97.9	70-130	0			
11Cl-Pf3OUdS	23.89	0.47	5.0	30.1	0	79.4	70-130	0			
9Cl-PF3ONS	28.64	0.45	5.0	29.8	0	96.1	70-130	0			
Surr: 13C2-FtS 4:2	*117*	0	0	*149.4*	0	*78.3*	*50-150*	0			
Surr: 13C2-FtS 6:2	*130.3*	0	0	*152*	0	*85.7*	*50-150*	0			
Surr: 13C2-FtS 8:2	*148.1*	0	0	*153.3*	0	*96.6*	*50-150*	0			
Surr: 13C2-PFDA	*153.7*	0	0	*160*	0	*96.1*	*50-150*	0			
Surr: 13C2-PFDoA	*153.4*	0	0	*160*	0	*95.9*	*50-150*	0			
Surr: 13C2-PFHxA	*169*	0	0	*160*	0	*106*	*50-150*	0			
Surr: 13C2-PFHxDA	*130.3*	0	0	*160*	0	*81.4*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFTeA	*113.9*	0	0	*160*	0	*71.2*	*50-150*	0
Surr: 13C2-PFUnA	*131.7*	0	0	*160*	0	*82.3*	*50-150*	0
Surr: 13C3-HFPO-DA	*151.4*	0	0	*160*	0	*94.6*	*50-150*	0
Surr: 13C3-PFBS	*105.2*	0	0	*148.8*	0	*70.7*	*50-150*	0
Surr: 13C4-PFBA	*148.5*	0	0	*160*	0	*92.8*	*50-150*	0
Surr: 13C4-PFHpA	*147.5*	0	0	*160*	0	*92.2*	*50-150*	0
Surr: 13C4-PFOA	*138.2*	0	0	*160*	0	*86.4*	*50-150*	0
Surr: 13C4-PFOS	*132.9*	0	0	*152.8*	0	*87*	*50-150*	0
Surr: 13C5-PFNA	*143.6*	0	0	*160*	0	*89.8*	*50-150*	0
Surr: 13C5-PFPeA	*129.4*	0	0	*160*	0	*80.9*	*50-150*	0
Surr: 13C8-FOSA	*101.4*	0	0	*160*	0	*63.4*	*50-150*	0
Surr: 18O2-PFHxS	*117.3*	0	0	*151.2*	0	*77.6*	*50-150*	0
Surr: d5-N-EtFOSA	*112.6*	0	0	*160*	0	*70.4*	*50-150*	0
Surr: d5-N-EtFOSAA	*113.3*	0	0	*160*	0	*70.8*	*50-150*	0
Surr: d9-N-EtFOSE	*107.6*	0	0	*160*	0	*67.2*	*50-150*	0
Surr: d3-N-MeFOSA	*117.8*	0	0	*160*	0	*73.6*	*50-150*	0
Surr: d3-N-MeFOSAA	*110.5*	0	0	*160*	0	*69.1*	*50-150*	0
Surr: d7-N-MeFOSE	*121.6*	0	0	*160*	0	*76*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090340
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

MS Sample ID: **21082518-06A MS** Units: **ng/L** Analysis Date: **9/9/2021 01:10 PM**
Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732979** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	32.13	0.91	4.9	29.2	0	110	63-143	0			
Fluorotelomer Sulphonic Acid	52.94	1.1	4.9	29.98	17.26	119	67-138	0			
Fluorotelomer Sulphonic Acid	35.69	0.88	4.9	30.08	0	119	40-160	0			
Perfluorobutanesulfonic Acid (	29.3	0.34	4.9	27.64	0.9496	103	72-130	0			
Perfluorobutanoic Acid (PFBA)	184.2	2.5	4.9	31.25	153.4	98.4	73-129	0			O
Perfluorodecanesulfonic Acid (	23.55	1.3	4.9	30.08	0	78.3	53-142	0			
Perfluorodecanoic Acid (PFDA	42.47	1.2	4.9	31.25	7.515	112	71-129	0			
Perfluorododecanesulfonic Aci	24.02	1.4	4.9	30.27	0	79.4	69-134	0			
Perfluorododecanoic Acid (PFI	28.28	1.4	4.9	31.25	0	90.5	72-134	0			
Perfluoroheptanesulfonic Acid	33.81	0.55	4.9	29.79	0	114	69-134	0			
Perfluoroheptanoic Acid (PFH	165.1	0.43	4.9	31.25	127.3	121	72-130	0			O
Perfluorohexadecanoic Acid (F	30.77	0.37	4.9	31.25	0	98.4	70-130	0			
Perfluorohexanesulfonic Acid (	28.66	0.36	4.9	28.42	0.7053	98.4	68-131	0			
Perfluorohexanoic Acid (PFHx	322	1.2	4.9	31.25	321.4	1.93	72-129	0			SO
Perfluorononanesulfonic Acid	29.19	0.48	4.9	29.98	0	97.4	69-127	0			
Perfluorononanoic Acid (PFNA	36.78	0.85	4.9	31.25	10	85.7	69-130	0			
Perfluorooctadecanoic Acid (P	30.77	0.63	4.9	31.25	0	98.4	70-130	0			
Perfluorooctanesulfonamide (F	27.27	0.69	4.9	31.25	0	87.3	67-137	0			
Perfluorooctanesulfonic Acid (	30.5	0.87	2.0	29	5.276	87	65-140	0			
Perfluorooctanoic Acid (PFOA	53.23	0.62	2.0	31.25	21.85	100	71-133	0			
Perfluoropentanesulfonic Acid	38.94	0.54	4.9	29.3	0	133	71-127	0			S
Perfluorotetradecanoic Acid (F	24.86	2.6	4.9	31.25	0	79.6	71-132	0			
Perfluorotridecanoic Acid (PFT	31.24	0.75	4.9	31.25	0	100	65-144	0			
Perfluoroundecanoic Acid (PFI	30.62	0.95	4.9	31.25	0	98	69-133	0			
N-ethylperfluoro-1-octanesulfo	30.12	1.1	4.9	31.25	0	96.4	70-130	0			
N-Ethylperfluorooctanesulfona	28.27	0.61	4.9	31.25	0	90.4	61-135	0			
N-Ethylperfluorooctanesulfona	34.42	0.5	4.9	31.25	0	110	70-130	0			
N-methylperfluoro-1-octanesul	29	0.77	4.9	31.25	0	92.8	70-130	0			
N-Methylperfluorooctanesulfor	38.55	0.63	4.9	31.25	0	123	65-136	0			
N-Methylperfluorooctanesulfor	32.7	0.47	4.9	31.25	0	105	68-141	0			
Hexafluoropropylene oxide din	33.46	1.1	4.9	31.25	0	107	70-130	0			
4,8-Dioxa-3H-perfluorononano	21.89	0.55	4.9	29.39	0	74.5	70-130	0			
11Cl-Pf3OUdS	22.49	0.46	4.9	29.39	0	76.5	70-130	0			
9Cl-PF3ONS	27.7	0.44	4.9	29.1	0	95.2	70-130	0			
Surr: 13C2-FtS 4:2	*118*	0	0	*145.9*	0	*80.8*	*50-150*	0			
Surr: 13C2-FtS 6:2	*179.6*	0	0	*148.4*	0	*121*	*50-150*	0			
Surr: 13C2-FtS 8:2	*173.4*	0	0	*149.7*	0	*116*	*50-150*	0			
Surr: 13C2-PFDA	*136.3*	0	0	*156.2*	0	*87.2*	*50-150*	0			
Surr: 13C2-PFDoA	*129.8*	0	0	*156.2*	0	*83.1*	*50-150*	0			
Surr: 13C2-PFHxA	*128.4*	0	0	*156.2*	0	*82.2*	*50-150*	0			
Surr: 13C2-PFHxDA	*146*	0	0	*156.2*	0	*93.5*	*50-150*	0			
Surr: 13C2-PFTeA	*135.7*	0	0	*156.2*	0	*86.8*	*50-150*	0			
Surr: 13C2-PFUnA	*120.3*	0	0	*156.2*	0	*77*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C3-HFPO-DA	*129.3*	0	0	*156.2*	0	*82.8*	*50-150*	0
Surr: 13C3-PFBS	*119.1*	0	0	*145.3*	0	*82*	*50-150*	0
Surr: 13C4-PFBA	*133.4*	0	0	*156.2*	0	*85.4*	*50-150*	0
Surr: 13C4-PFHpA	*146.6*	0	0	*156.2*	0	*93.8*	*50-150*	0
Surr: 13C4-PFOA	*142*	0	0	*156.2*	0	*90.9*	*50-150*	0
Surr: 13C4-PFOS	*128.1*	0	0	*149.2*	0	*85.9*	*50-150*	0
Surr: 13C5-PFNA	*164.2*	0	0	*156.2*	0	*105*	*50-150*	0
Surr: 13C5-PFPeA	*125.4*	0	0	*156.2*	0	*80.3*	*50-150*	0
Surr: 13C8-FOSA	*128.3*	0	0	*156.2*	0	*82.1*	*50-150*	0
Surr: 18O2-PFHxS	*99.02*	0	0	*147.7*	0	*67.1*	*50-150*	0
Surr: d5-N-EtFOSA	*107.5*	0	0	*156.2*	0	*68.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*107.7*	0	0	*156.2*	0	*68.9*	*50-150*	0
Surr: d9-N-EtFOSE	*108.5*	0	0	*156.2*	0	*69.4*	*50-150*	0
Surr: d3-N-MeFOSA	*131.7*	0	0	*156.2*	0	*84.3*	*50-150*	0
Surr: d3-N-MeFOSAA	*99.18*	0	0	*156.2*	0	*63.5*	*50-150*	0
Surr: d7-N-MeFOSE	*114.9*	0	0	*156.2*	0	*73.5*	*50-150*	0

MS Sample ID: **21082518-06A MS** Units: **ng/L** Analysis Date: **9/10/2021 05:53 PM**

Client ID: Run ID: **LCMS1_210910C** SeqNo: **7740427** Prep Date: **9/7/2021** DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	1053	6.5	49	29.59	1032	71.4	64-140	0			O
Perfluoropentanoic Acid (PFPe	677.2	12	49	31.25	663	45.3	72-129	0			SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090340
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

DUP Sample ID: **21082518-04A DUP** Units: **ng/L** Analysis Date: **9/9/2021 12:59 PM**
Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732978** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.9	4.8	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid	1.046	0.64	4.8	0	0	0	0-0	2.07	0	30	J
Fluorotelomer Sulphonic Acid	U	1.1	4.8	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid	U	0.87	4.8	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (	U	0.34	4.8	0	0	0	0-0	0	0	30	
Perfluorobutanoic Acid (PFBA)	U	2.5	4.8	0	0	0	0-0	0	0	30	
Perfluorodecanesulfonic Acid (	U	1.3	4.8	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA	U	1.2	4.8	0	0	0	0-0	0	0	30	
Perfluorododecanesulfonic Aci	U	1.4	4.8	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PFI	U	1.4	4.8	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid	0.6308	0.54	4.8	0	0	0	0-0	0	0	30	J
Perfluoroheptanoic Acid (PFH	U	0.42	4.8	0	0	0	0-0	0	0	30	
Perfluorohexadecanoic Acid (F	U	0.37	4.8	0	0	0	0-0	0	0	30	
Perfluorohexanesulfonic Acid (	U	0.35	4.8	0	0	0	0-0	1.643	0	30	
Perfluorohexanoic Acid (PFHx	U	1.2	4.8	0	0	0	0-0	0	0	30	
Perfluorononanesulfonic Acid	U	0.48	4.8	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA	U	0.84	4.8	0	0	0	0-0	0	0	30	
Perfluorooctadecanoic Acid (P	U	0.62	4.8	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (F	U	0.68	4.8	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (	2.111	0.86	1.9	0	0	0	0-0	1.939	8.49	30	
Perfluorooctanoic Acid (PFOA	U	0.61	1.9	0	0	0	0-0	0	0	30	
Perfluoropentanesulfonic Acid	U	0.53	4.8	0	0	0	0-0	0	0	30	
Perfluoropentanoic Acid (PFPe	U	1.2	4.8	0	0	0	0-0	0	0	30	
Perfluorotetradecanoic Acid (F	U	2.5	4.8	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFT	U	0.74	4.8	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFI	U	0.94	4.8	0	0	0	0-0	0	0	30	
N-ethylperfluoro-1-octanesulfo	U	1.1	4.8	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfona	U	0.6	4.8	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfona	U	0.5	4.8	0	0	0	0-0	0	0	30	
N-methylperfluoro-1-octanesul	U	0.76	4.8	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfor	U	0.62	4.8	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfor	U	0.47	4.8	0	0	0	0-0	0	0	30	
Hexafluoropropylene oxide din	U	1.1	4.8	0	0	0	0-0	0	0	30	
4,8-Dioxa-3H-perfluorononano	U	0.54	4.8	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	U	0.45	4.8	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	U	0.43	4.8	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	*145*	0	0	*143.7*	0	*101*	*50-150*	331.6	*78.3*	*30*	*R*
Surr: 13C2-FtS 6:2	*203.1*	0	0	*146.2*	0	*139*	*50-150*	274.8	*30*	*30*	*R*
Surr: 13C2-FtS 8:2	*226.7*	0	0	*147.4*	0	*154*	*50-150*	160.5	*34.2*	*30*	*SR*
Surr: 13C2-PFDA	*173.3*	0	0	*153.8*	0	*113*	*50-150*	142	*19.9*	*30*	
Surr: 13C2-PFDoA	*177.1*	0	0	*153.8*	0	*115*	*50-150*	132.8	*28.6*	*30*	
Surr: 13C2-PFHxA	*159.9*	0	0	*153.8*	0	*104*	*50-150*	160	*0.0525*	*30*	
Surr: 13C2-PFHxDA	*189.1*	0	0	*153.8*	0	*123*	*50-150*	125.4	*40.5*	*30*	*R*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090340
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229**	Instrument ID **LCMS1**			Method: **E537 Mod**						
Surr: 13C2-PFTeA	*179.8*	0	0	*153.8*	0	*117*	*50-150*	136.1	*27.7*	*30*
Surr: 13C2-PFUnA	*156.6*	0	0	*153.8*	0	*102*	*50-150*	135.1	*14.7*	*30*
Surr: 13C3-HFPO-DA	*161.3*	0	0	*153.8*	0	*105*	*50-150*	136	*17*	*30*
Surr: 13C3-PFBS	*149.2*	0	0	*143.1*	0	*104*	*50-150*	133.3	*11.3*	*30*
Surr: 13C4-PFBA	*168.6*	0	0	*153.8*	0	*110*	*50-150*	145.6	*14.7*	*30*
Surr: 13C4-PFHpA	*178.8*	0	0	*153.8*	0	*116*	*50-150*	165.6	*7.63*	*30*
Surr: 13C4-PFOA	*182.2*	0	0	*153.8*	0	*118*	*50-150*	171.3	*6.16*	*30*
Surr: 13C4-PFOS	*157.4*	0	0	*146.9*	0	*107*	*50-150*	124.9	*23*	*30*
Surr: 13C5-PFNA	*202.5*	0	0	*153.8*	0	*132*	*50-150*	153.8	*27.3*	*30*
Surr: 13C5-PFPeA	*179.2*	0	0	*153.8*	0	*116*	*50-150*	156	*13.8*	*30*
Surr: 13C8-FOSA	*165.2*	0	0	*153.8*	0	*107*	*50-150*	154.7	*6.57*	*30*
Surr: 18O2-PFHxS	*120.3*	0	0	*145.4*	0	*82.8*	*50-150*	109	*9.86*	*30*
Surr: d5-N-EtFOSA	*153.3*	0	0	*153.8*	0	*99.6*	*50-150*	124.9	*20.4*	*30*
Surr: d5-N-EtFOSAA	*159.8*	0	0	*153.8*	0	*104*	*50-150*	148.3	*7.45*	*30*
Surr: d9-N-EtFOSE	*159*	0	0	*153.8*	0	*103*	*50-150*	143.8	*10*	*30*
Surr: d3-N-MeFOSA	*159.6*	0	0	*153.8*	0	*104*	*50-150*	156.3	*2.13*	*30*
Surr: d3-N-MeFOSAA	*139.9*	0	0	*153.8*	0	*90.9*	*50-150*	138.4	*1.11*	*30*
Surr: d7-N-MeFOSE	*172.8*	0	0	*153.8*	0	*112*	*50-150*	138.3	*22.2*	*30*

The following samples were analyzed in this batch: 21090340-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Spring City, PA +1 610 948 4903
South Charleston, WV +1 304 356 3168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

Page 1 of 1

COC ID: 229898

ALS Project Manager: JM

ALS Work Order #: 21090340

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	ALS 2021	Project Name	WRR	A	PFAS 537 M
Work Order		Project Number	55929.057	B	
Company Name	Cannett Fleming, Inc.	Bill To Company	Cannett Fleming, Inc	C	
Send Report To	Tony Miller	Invoice Attn	Accounts Payable	D	
Address	2040 Excelsior Drive Suite 302	Address	2040 Excelsior Drive Suite 302	E	
				F	
City/State/Zip	Madison, WI 53717-1936	City/State/Zip	Madison, WI 53717-1936	G	
Phone	(608) 836-1500	Phone	(608) 836-1500	H	
Fax		Fax		I	
e-Mail Address	awmiller@cfnet.com	e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	PW-12	9/1/21	15:15	DW	—	2	X										
2																	
3																	
4																	
5																	
6																	
7																JM	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Marcus Mussey

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Std 10 WK Days ☐ 5 WK Days ☐ Other ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by:	Date: 9/2/21	Time: 12:30	Received by: FedEx
Relinquished by: FedEx	Date: 9/3/21	Time: 0930	Received by (Laboratory):
Logged by (Laboratory):	Date: 9/3/21	Time: 1258	Checked by (Laboratory):

Notes:

Cooler ID	Cooler Temp.
IR3	2.1

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Group, USA
3352 128th Ave
Holland, Michigan 49424
TEL: *(616) 399-6070*
FAX: *(616) 399-6185*

BOTTLE ORDER

36618

30-Aug-21

SHIPPED TO:

Company: Gannett Fleming, Inc.
Contact: Anthony Miller
Address: 8025 Excelsior Dr
Madison, WI 53717-1900
Phone: (608) 836-1500 **eMail:**

Ship By: 8/30/2021
VIA: FedEx Std Overnight
Due to Client: 8/31/2021
Quote ID:
Project: WRR (55929.005) - GW

Bottle Code	Bottle Type	Bottle Lot	Preserve Lot	TEST(s)	QTY
(2) 250PNEAT	(2) 250 mL plastic, Neat *2 bottles per sample*	20U-06		PFAS by EPA 537 Modified	3

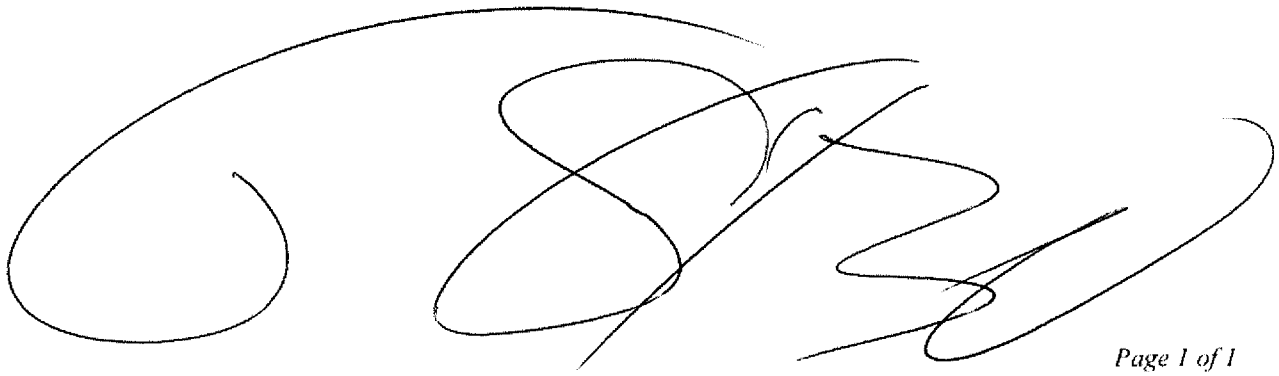
Cooler ID **Description** **Trip Blank**

Notes:

need 6 bottles total, in small cooler

Please ship to:

Marcus Massey
c/o Mark Gasser
WRR Environmental Services
5200 Ryder Road
Eau Claire, WI 54701
(715) 853-1654



Relinquished:

Received:

Custody Seal

ht ›://www.alsglobal.c· m

ALS E. viror nental
3352 ·28th . venue
Holland, Mi higan 49424-9263
Phone 616-399-6070
Attn: Sample Receiving

Company: Gannett
Name: Marcus Mossey
Date: 9/2/21

0.00

ORIGIN ID:MSNA (608) 347-7213
GANNETT FLEMING

8040 EXCELSIOR DRIVE
SUITE 303
MADISON, WI 53717
UNITED STATES US

SHIP DATE: 02SEP21
ACTWGT: 20.00 LB
CAD: 6991615/SSF02202
DIMS: 15x12x11 IN

BILL THIRD PARTY

TO **SAMPLE RECEIVING**
ALS
3352 128TH AVE

HOLLAND MI 49424

(616) 399 - 6070 REF:
INV:
PO: DEPT:

FedEx
Express

E

REL#
3765346

FRI - 03 SEP 4:30P

TRK# 0201 **2832 5876 5580** **STANDARD OVERNIGHT**

AHS

UD HLMA

49424
MI-US **GRR**

ALS Group, USA

Sample Receipt Checklist

Client Name: **GANNETTFLEMING - WI** Date/Time Received: **03-Sep-21 09:30**

Work Order: **21090340** Received by: **LYS**

Checklist completed by Lydia Sweet (eSignature) 03-Sep-21 (Date) Reviewed by: Jodi Blouw (eSignature) 03-Sep-21 (Date)

Matrices: Water
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.1/3.1c	IR3	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	9/3/2021 12:59:27 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

13-Sep-2021

Anthony Miller
Gannett Fleming, Inc.
8040 Excelsior Drive
Suite 303
Madison, WI 53717-1338

Re: **WRR (55929.007)** Work Order: **21090342**

Dear Anthony,

ALS Environmental received 1 sample on 03-Sep-2021 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 16.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Jodi Blouw

Electronically approved by: Bill Carey

Jodi Blouw

Report of Laboratory Analysis

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: **21090342**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
21090342-01	Field Blank	Water		9/1/2021 16:15	9/3/2021 09:30	☐

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
WorkOrder: **21090342**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
ng/L	Nanograms per Liter

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: 21090342

Case Narrative

The attached "Sample Receipt Checklist" documents the date of receipt, status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. A copy of the laboratory's scope of accreditation is available upon request.

Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

Any flags on MS/MSD samples not addressed in this narrative are unrelated to samples in this report.

With the following exceptions, all sample analyses achieved analytical criteria.

Batch 183229, Method E537 Mod, Sample Field Blank (21090342-01A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. 13C8-FOSA, d3-N-MeFOSA, d3-N-MeFOSAA, d5-N-EtFOSA

Batch 183229, Method E537 Mod, Sample LCS-183229: The LCS recovery was above the upper control limit. All the sample results in the batch were non-detect. No qualification is necessary for this analyte: PFTriA, PFPeS, 10:2 FTS

ALS Group, USA

Date: *13-Sep-21*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: Field Blank
Collection Date: 9/1/2021 04:15 PM

Work Order: 21090342
Lab ID: 21090342-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 9/7/21		Analyst: **SK**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U		0.98	5.3	ng/L	1	9/13/2021 15:27
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	U		0.70	5.3	ng/L	1	9/13/2021 15:27
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1.2	5.3	ng/L	1	9/13/2021 15:27
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	U		0.95	5.3	ng/L	1	9/13/2021 15:27
Perfluorobutanesulfonic Acid (PFBS)	U		0.37	5.3	ng/L	1	9/13/2021 15:27
Perfluorobutanoic Acid (PFBA)	U		2.7	5.3	ng/L	1	9/13/2021 15:27
Perfluorodecanesulfonic Acid (PFDS)	U		1.4	5.3	ng/L	1	9/13/2021 15:27
Perfluorodecanoic Acid (PFDA)	U		1.3	5.3	ng/L	1	9/13/2021 15:27
Perfluorododecanesulfonic Acid (PFDoS)	U		1.5	5.3	ng/L	1	9/13/2021 15:27
Perfluorododecanoic Acid (PFDoA)	U		1.5	5.3	ng/L	1	9/13/2021 15:27
Perfluoroheptanesulfonic Acid (PFHpS)	U		0.59	5.3	ng/L	1	9/13/2021 15:27
Perfluoroheptanoic Acid (PFHpA)	U		0.46	5.3	ng/L	1	9/13/2021 15:27
Perfluorohexadecanoic Acid (PFHxDA)	U		0.40	5.3	ng/L	1	9/13/2021 15:27
Perfluorohexanesulfonic Acid (PFHxS)	U		0.39	5.3	ng/L	1	9/13/2021 15:27
Perfluorohexanoic Acid (PFHxA)	U		1.3	5.3	ng/L	1	9/13/2021 15:27
Perfluorononanesulfonic Acid (PFNS)	U		0.52	5.3	ng/L	1	9/13/2021 15:27
Perfluorononanoic Acid (PFNA)	U		0.91	5.3	ng/L	1	9/13/2021 15:27
Perfluorooctadecanoic Acid (PFODA)	U		0.68	5.3	ng/L	1	9/13/2021 15:27
Perfluorooctanesulfonamide (PFOSA)	U		0.75	5.3	ng/L	1	9/13/2021 15:27
Perfluorooctanesulfonic Acid (PFOS)	U		0.94	2.1	ng/L	1	9/13/2021 15:27
Perfluorooctanoic Acid (PFOA)	U		0.66	2.1	ng/L	1	9/13/2021 15:27
Perfluoropentanesulfonic Acid (PFPeS)	U		0.58	5.3	ng/L	1	9/13/2021 15:27
Perfluoropentanoic Acid (PFPeA)	U		1.3	5.3	ng/L	1	9/13/2021 15:27
Perfluorotetradecanoic Acid (PFTeA)	U		2.8	5.3	ng/L	1	9/13/2021 15:27
Perfluorotridecanoic Acid (PFTriA)	U		0.81	5.3	ng/L	1	9/13/2021 15:27
Perfluoroundecanoic Acid (PFUnA)	U		1.0	5.3	ng/L	1	9/13/2021 15:27
N-ethylperfluoro-1-octanesulfonamide	U		1.2	5.3	ng/L	1	9/13/2021 15:27
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		0.66	5.3	ng/L	1	9/13/2021 15:27
N-Ethylperfluorooctanesulfonamidoethanol	U		0.54	5.3	ng/L	1	9/13/2021 15:27
N-methylperfluoro-1-octanesulfonamide	U		0.83	5.3	ng/L	1	9/13/2021 15:27

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *13-Sep-21*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: Field Blank
Collection Date: 9/1/2021 04:15 PM

Work Order: 21090342
Lab ID: 21090342-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoacetic Acid	U		0.68	5.3	ng/L	1	9/13/2021 15:27
N-Methylperfluorooctanesulfonamidoethanol	U		0.51	5.3	ng/L	1	9/13/2021 15:27
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		1.2	5.3	ng/L	1	9/13/2021 15:27
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		0.59	5.3	ng/L	1	9/13/2021 15:27
11Cl-Pf3OUdS	U		0.49	5.3	ng/L	1	9/13/2021 15:27
9Cl-PF3ONS	U		0.47	5.3	ng/L	1	9/13/2021 15:27
Surr: 13C2-FtS 4:2	*75.9*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-FtS 6:2	*75.5*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-FtS 8:2	*91.6*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFDA	*82.0*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFDoA	*65.6*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFHxA	*72.6*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFHxDA	*64.2*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFTeA	*64.2*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFUnA	*79.0*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C3-HFPO-DA	*57.4*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C3-PFBS	*59.5*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C4-PFBA	*71.1*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C4-PFHpA	*69.3*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C4-PFOA	*70.8*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C4-PFOS	*63.5*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C5-PFNA	*75.1*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C5-PFPeA	*64.3*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C8-FOSA	*48.5*	S		*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 18O2-PFHxS	*57.5*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d5-N-EtFOSA	*46.8*	S		*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d5-N-EtFOSAA	*58.7*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d9-N-EtFOSE	*61.8*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d3-N-MeFOSA	*45.8*	S		*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d3-N-MeFOSAA	*49.6*	S		*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d7-N-MeFOSE	*65.6*			*50-150*	*%REC*	1	9/13/2021 15:27

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

MBLK Sample ID: **MBLK-183229-183229** Units: **ng/L** Analysis Date: **9/9/2021 12:38 PM**

Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732976** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	U	5.0								
Fluorotelomer Sulphonic Acid 6:2 (FtS	U	5.0								
Fluorotelomer Sulphonic Acid 8:2 (FtS	U	5.0								
Fluorotelomer Sulphonic Acid 10:2 (Ft	U	5.0								
Perfluorobutanesulfonic Acid (PFBS)	U	5.0								
Perfluorobutanoic Acid (PFBA)	U	5.0								
Perfluorodecanesulfonic Acid (PFDS)	U	5.0								
Perfluorodecanoic Acid (PFDA)	U	5.0								
Perfluorododecanesulfonic Acid (PFDo	U	5.0								
Perfluorododecanoic Acid (PFDoA)	U	5.0								
Perfluoroheptanesulfonic Acid (PFHpS	U	5.0								
Perfluoroheptanoic Acid (PFHpA)	U	5.0								
Perfluorohexadecanoic Acid (PFHxDA	U	5.0								
Perfluorohexanesulfonic Acid (PFHxS)	U	5.0								
Perfluorohexanoic Acid (PFHxA)	U	5.0								
Perfluorononanesulfonic Acid (PFNS)	U	5.0								
Perfluorononanoic Acid (PFNA)	U	5.0								
Perfluorooctadecanoic Acid (PFODA)	U	5.0								
Perfluorooctanesulfonamide (PFOSA)	U	5.0								
Perfluorooctanesulfonic Acid (PFOS)	U	2.0								
Perfluorooctanoic Acid (PFOA)	U	2.0								
Perfluoropentanesulfonic Acid (PFPeS	U	5.0								
Perfluoropentanoic Acid (PFPeA)	U	5.0								
Perfluorotetradecanoic Acid (PFTeA)	U	5.0								
Perfluorotridecanoic Acid (PFTriA)	U	5.0								
Perfluoroundecanoic Acid (PFUnA)	U	5.0								
N-ethylperfluoro-1-octanesulfonamide	U	5.0								
N-Ethylperfluorooctanesulfonamidoace	U	5.0								
N-Ethylperfluorooctanesulfonamidoeth	U	5.0								
N-methylperfluoro-1-octanesulfonamid	U	5.0								
N-Methylperfluorooctanesulfonamidoa	U	5.0								
N-Methylperfluorooctanesulfonamidoe	U	5.0								
Hexafluoropropylene oxide dimer acid	U	5.0								
4,8-Dioxa-3H-perfluorononanoic Acid (	U	5.0								
11Cl-Pf3OUdS	U	5.0								
9Cl-PF3ONS	U	5.0								
Surr: 13C2-FtS 4:2	*118*	0	*149.4*	0	*78.9*	*50-150*	0			
Surr: 13C2-FtS 6:2	*122.4*	0	*152*	0	*80.5*	*50-150*	0			
Surr: 13C2-FtS 8:2	*142.1*	0	*153.3*	0	*92.7*	*50-150*	0			
Surr: 13C2-PFDA	*132.4*	0	*160*	0	*82.8*	*50-150*	0			
Surr: 13C2-PFDoA	*133.8*	0	*160*	0	*83.6*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxA	*130*	0	*160*	0	*81.2*	*50-150*	0
Surr: 13C2-PFHxDA	*117.7*	0	*160*	0	*73.5*	*50-150*	0
Surr: 13C2-PFTeA	*112.4*	0	*160*	0	*70.2*	*50-150*	0
Surr: 13C2-PFUnA	*124.3*	0	*160*	0	*77.7*	*50-150*	0
Surr: 13C3-HFPO-DA	*107.2*	0	*160*	0	*67*	*50-150*	0
Surr: 13C3-PFBS	*94.74*	0	*148.8*	0	*63.7*	*50-150*	0
Surr: 13C4-PFBA	*127.6*	0	*160*	0	*79.8*	*50-150*	0
Surr: 13C4-PFHpA	*115.4*	0	*160*	0	*72.2*	*50-150*	0
Surr: 13C4-PFOA	*142*	0	*160*	0	*88.8*	*50-150*	0
Surr: 13C4-PFOS	*119.4*	0	*152.8*	0	*78.2*	*50-150*	0
Surr: 13C5-PFNA	*151*	0	*160*	0	*94.4*	*50-150*	0
Surr: 13C5-PFPeA	*112.6*	0	*160*	0	*70.4*	*50-150*	0
Surr: 13C8-FOSA	*104.1*	0	*160*	0	*65*	*50-150*	0
Surr: 18O2-PFHxS	*95.91*	0	*151.2*	0	*63.4*	*50-150*	0
Surr: d5-N-EtFOSA	*86.01*	0	*160*	0	*53.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*98.53*	0	*160*	0	*61.6*	*50-150*	0
Surr: d9-N-EtFOSE	*91.37*	0	*160*	0	*57.1*	*50-150*	0
Surr: d3-N-MeFOSA	*90.8*	0	*160*	0	*56.8*	*50-150*	0
Surr: d3-N-MeFOSAA	*87.38*	0	*160*	0	*54.6*	*50-150*	0
Surr: d7-N-MeFOSE	*99.92*	0	*160*	0	*62.4*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090342
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

LCS Sample ID: **LCS-183229-183229** Units: **ng/L** Analysis Date: **9/10/2021 05:42 PM**
Client ID: Run ID: **LCMS1_210910C** SeqNo: **7740426** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	33.69	5.0	29.9	0	113	63-143	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS	34.84	5.0	30.3	0	115	64-140	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	33.58	5.0	30.7	0	109	67-138	0			
Fluorotelomer Sulphonic Acid 10:2 (Ft	51.05	5.0	30.8	0	166	40-160	0			S
Perfluorobutanesulfonic Acid (PFBS)	33.82	5.0	28.3	0	120	72-130	0			
Perfluorobutanoic Acid (PFBA)	31.54	5.0	32	0	98.6	73-129	0			
Perfluorodecanesulfonic Acid (PFDS)	25.88	5.0	30.8	0	84	53-142	0			
Perfluorodecanoic Acid (PFDA)	29.95	5.0	32	0	93.6	71-129	0			
Perfluorododecanesulfonic Acid (PFDo	24.91	5.0	31	0	80.4	69-134	0			
Perfluorododecanoic Acid (PFDoA)	29.28	5.0	32	0	91.5	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS	32.12	5.0	30.5	0	105	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	37.87	5.0	32	0	118	72-130	0			
Perfluorohexadecanoic Acid (PFHxDA	34.75	5.0	32	0	109	70-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	27.08	5.0	29.1	0	93.1	68-131	0			
Perfluorohexanoic Acid (PFHxA)	28.46	5.0	32	0	88.9	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	28.71	5.0	30.7	0	93.5	69-127	0			
Perfluorononanoic Acid (PFNA)	31.5	5.0	32	0	98.4	69-130	0			
Perfluorooctadecanoic Acid (PFODA)	29.75	5.0	32	0	93	70-130	0			
Perfluorooctanesulfonamide (PFOSA)	35.43	5.0	32	0	111	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	29.15	2.0	29.7	0	98.1	65-140	0			
Perfluorooctanoic Acid (PFOA)	33.88	2.0	32	0	106	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	38.27	5.0	30	0	128	71-127	0			S
Perfluoropentanoic Acid (PFPeA)	35.21	5.0	32	0	110	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	32.84	5.0	32	0	103	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	49.51	5.0	32	0	155	65-144	0			S
Perfluoroundecanoic Acid (PFUnA)	32.25	5.0	32	0	101	69-133	0			
N-ethylperfluoro-1-octanesulfonamide	26.98	5.0	32	0	84.3	70-130	0			
N-Ethylperfluorooctanesulfonamidoace	35.2	5.0	32	0	110	61-135	0			
N-Ethylperfluorooctanesulfonamidoeth	37.05	5.0	32	0	116	70-130	0			
N-methylperfluoro-1-octanesulfonamid	28.92	5.0	32	0	90.4	70-130	0			
N-Methylperfluorooctanesulfonamidoa	41.38	5.0	32	0	129	65-136	0			
N-Methylperfluorooctanesulfonamidoe	38.37	5.0	32	0	120	68-141	0			
Hexafluoropropylene oxide dimer acid	32.5	5.0	32	0	102	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	29.47	5.0	30.1	0	97.9	70-130	0			
11Cl-Pf3OUdS	23.89	5.0	30.1	0	79.4	70-130	0			
9Cl-PF3ONS	28.64	5.0	29.8	0	96.1	70-130	0			
Surr: 13C2-FtS 4:2	*117*	0	*149.4*	0	*78.3*	*50-150*	0			
Surr: 13C2-FtS 6:2	*130.3*	0	*152*	0	*85.7*	*50-150*	0			
Surr: 13C2-FtS 8:2	*148.1*	0	*153.3*	0	*96.6*	*50-150*	0			
Surr: 13C2-PFDA	*153.7*	0	*160*	0	*96.1*	*50-150*	0			
Surr: 13C2-PFDoA	*153.4*	0	*160*	0	*95.9*	*50-150*	0			
Surr: 13C2-PFHxA	*169*	0	*160*	0	*106*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxDA	*130.3*	0	*160*	0	*81.4*	*50-150*	0
Surr: 13C2-PFTeA	*113.9*	0	*160*	0	*71.2*	*50-150*	0
Surr: 13C2-PFUnA	*131.7*	0	*160*	0	*82.3*	*50-150*	0
Surr: 13C3-HFPO-DA	*151.4*	0	*160*	0	*94.6*	*50-150*	0
Surr: 13C3-PFBS	*105.2*	0	*148.8*	0	*70.7*	*50-150*	0
Surr: 13C4-PFBA	*148.5*	0	*160*	0	*92.8*	*50-150*	0
Surr: 13C4-PFHpA	*147.5*	0	*160*	0	*92.2*	*50-150*	0
Surr: 13C4-PFOA	*138.2*	0	*160*	0	*86.4*	*50-150*	0
Surr: 13C4-PFOS	*132.9*	0	*152.8*	0	*87*	*50-150*	0
Surr: 13C5-PFNA	*143.6*	0	*160*	0	*89.8*	*50-150*	0
Surr: 13C5-PFPeA	*129.4*	0	*160*	0	*80.9*	*50-150*	0
Surr: 13C8-FOSA	*101.4*	0	*160*	0	*63.4*	*50-150*	0
Surr: 18O2-PFHxS	*117.3*	0	*151.2*	0	*77.6*	*50-150*	0
Surr: d5-N-EtFOSA	*112.6*	0	*160*	0	*70.4*	*50-150*	0
Surr: d5-N-EtFOSAA	*113.3*	0	*160*	0	*70.8*	*50-150*	0
Surr: d9-N-EtFOSE	*107.6*	0	*160*	0	*67.2*	*50-150*	0
Surr: d3-N-MeFOSA	*117.8*	0	*160*	0	*73.6*	*50-150*	0
Surr: d3-N-MeFOSAA	*110.5*	0	*160*	0	*69.1*	*50-150*	0
Surr: d7-N-MeFOSE	*121.6*	0	*160*	0	*76*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090342
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

MS Sample ID: **21082518-06A MS** Units: **ng/L** Analysis Date: **9/9/2021 01:10 PM**

Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732979** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	32.13	4.9	29.2	0	110	63-143	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	52.94	4.9	29.98	17.26	119	67-138	0			
Fluorotelomer Sulphonic Acid 10:2 (Ft	35.69	4.9	30.08	0	119	40-160	0			
Perfluorobutanesulfonic Acid (PFBS)	29.3	4.9	27.64	0.9496	103	72-130	0			
Perfluorobutanoic Acid (PFBA)	184.2	4.9	31.25	153.4	98.4	73-129	0			O
Perfluorodecanesulfonic Acid (PFDS)	23.55	4.9	30.08	0	78.3	53-142	0			
Perfluorodecanoic Acid (PFDA)	42.47	4.9	31.25	7.515	112	71-129	0			
Perfluorododecanesulfonic Acid (PFDo	24.02	4.9	30.27	0	79.4	69-134	0			
Perfluorododecanoic Acid (PFDoA)	28.28	4.9	31.25	0	90.5	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS	33.81	4.9	29.79	0	114	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	165.1	4.9	31.25	127.3	121	72-130	0			O
Perfluorohexadecanoic Acid (PFHxDA	30.77	4.9	31.25	0	98.4	70-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	28.66	4.9	28.42	0.7053	98.4	68-131	0			
Perfluorohexanoic Acid (PFHxA)	322	4.9	31.25	321.4	1.93	72-129	0			SO
Perfluorononanesulfonic Acid (PFNS)	29.19	4.9	29.98	0	97.4	69-127	0			
Perfluorononanoic Acid (PFNA)	36.78	4.9	31.25	10	85.7	69-130	0			
Perfluorooctadecanoic Acid (PFODA)	30.77	4.9	31.25	0	98.4	70-130	0			
Perfluorooctanesulfonamide (PFOSA)	27.27	4.9	31.25	0	87.3	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	30.5	2.0	29	5.276	87	65-140	0			
Perfluorooctanoic Acid (PFOA)	53.23	2.0	31.25	21.85	100	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	38.94	4.9	29.3	0	133	71-127	0			S
Perfluorotetradecanoic Acid (PFTeA)	24.86	4.9	31.25	0	79.6	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	31.24	4.9	31.25	0	100	65-144	0			
Perfluoroundecanoic Acid (PFUnA)	30.62	4.9	31.25	0	98	69-133	0			
N-ethylperfluoro-1-octanesulfonamide	30.12	4.9	31.25	0	96.4	70-130	0			
N-Ethylperfluorooctanesulfonamidoace	28.27	4.9	31.25	0	90.4	61-135	0			
N-Ethylperfluorooctanesulfonamidoeth	34.42	4.9	31.25	0	110	70-130	0			
N-methylperfluoro-1-octanesulfonamid	29	4.9	31.25	0	92.8	70-130	0			
N-Methylperfluorooctanesulfonamidoa	38.55	4.9	31.25	0	123	65-136	0			
N-Methylperfluorooctanesulfonamidoe	32.7	4.9	31.25	0	105	68-141	0			
Hexafluoropropylene oxide dimer acid	33.46	4.9	31.25	0	107	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	21.89	4.9	29.39	0	74.5	70-130	0			
11Cl-Pf3OUdS	22.49	4.9	29.39	0	76.5	70-130	0			
9Cl-PF3ONS	27.7	4.9	29.1	0	95.2	70-130	0			
Surr: 13C2-FtS 4:2	*118*	0	*145.9*	0	*80.8*	*50-150*	0			
Surr: 13C2-FtS 6:2	*179.6*	0	*148.4*	0	*121*	*50-150*	0			
Surr: 13C2-FtS 8:2	*173.4*	0	*149.7*	0	*116*	*50-150*	0			
Surr: 13C2-PFDA	*136.3*	0	*156.2*	0	*87.2*	*50-150*	0			
Surr: 13C2-PFDoA	*129.8*	0	*156.2*	0	*83.1*	*50-150*	0			
Surr: 13C2-PFHxA	*128.4*	0	*156.2*	0	*82.2*	*50-150*	0			
Surr: 13C2-PFHxDA	*146*	0	*156.2*	0	*93.5*	*50-150*	0			
Surr: 13C2-PFTeA	*135.7*	0	*156.2*	0	*86.8*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFUnA	*120.3*	0	*156.2*	0	*77*	*50-150*	0
Surr: 13C3-HFPO-DA	*129.3*	0	*156.2*	0	*82.8*	*50-150*	0
Surr: 13C3-PFBS	*119.1*	0	*145.3*	0	*82*	*50-150*	0
Surr: 13C4-PFBA	*133.4*	0	*156.2*	0	*85.4*	*50-150*	0
Surr: 13C4-PFHpA	*146.6*	0	*156.2*	0	*93.8*	*50-150*	0
Surr: 13C4-PFOA	*142*	0	*156.2*	0	*90.9*	*50-150*	0
Surr: 13C4-PFOS	*128.1*	0	*149.2*	0	*85.9*	*50-150*	0
Surr: 13C5-PFNA	*164.2*	0	*156.2*	0	*105*	*50-150*	0
Surr: 13C5-PFPeA	*125.4*	0	*156.2*	0	*80.3*	*50-150*	0
Surr: 13C8-FOSA	*128.3*	0	*156.2*	0	*82.1*	*50-150*	0
Surr: 18O2-PFHxS	*99.02*	0	*147.7*	0	*67.1*	*50-150*	0
Surr: d5-N-EtFOSA	*107.5*	0	*156.2*	0	*68.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*107.7*	0	*156.2*	0	*68.9*	*50-150*	0
Surr: d9-N-EtFOSE	*108.5*	0	*156.2*	0	*69.4*	*50-150*	0
Surr: d3-N-MeFOSA	*131.7*	0	*156.2*	0	*84.3*	*50-150*	0
Surr: d3-N-MeFOSAA	*99.18*	0	*156.2*	0	*63.5*	*50-150*	0
Surr: d7-N-MeFOSE	*114.9*	0	*156.2*	0	*73.5*	*50-150*	0

MS Sample ID: **21082518-06A MS** Units: **ng/L** Analysis Date: **9/10/2021 05:53 PM**

Client ID: Run ID: **LCMS1_210910C** SeqNo: **7740427** Prep Date: **9/7/2021** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 6:2 (FtS	1053	49	29.59	1032	71.4	64-140	0			O
Perfluoropentanoic Acid (PFPeA)	677.2	49	31.25	663	45.3	72-129	0			SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090342
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

DUP Sample ID: **21082518-04A DUP** Units: **ng/L** Analysis Date: **9/9/2021 12:59 PM**

Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732978** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	U	4.8	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 6:2 (FtS	1.046	4.8	0	0	0	0-0	2.07	0	30	J
Fluorotelomer Sulphonic Acid 8:2 (FtS	U	4.8	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 10:2 (Ft	U	4.8	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (PFBS)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorobutanoic Acid (PFBA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorodecanesulfonic Acid (PFDS)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorododecanesulfonic Acid (PFDo	U	4.8	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PFDoA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid (PFHpS	0.6308	4.8	0	0	0	0-0	0	0	30	J
Perfluoroheptanoic Acid (PFHpA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorohexadecanoic Acid (PFHxDA	U	4.8	0	0	0	0-0	0	0	30	
Perfluorohexanesulfonic Acid (PFHxS)	U	4.8	0	0	0	0-0	1.643	0	30	
Perfluorohexanoic Acid (PFHxA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorononanesulfonic Acid (PFNS)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorooctadecanoic Acid (PFODA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (PFOSA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (PFOS)	2.111	1.9	0	0	0	0-0	1.939	8.49	30	
Perfluorooctanoic Acid (PFOA)	U	1.9	0	0	0	0-0	0	0	30	
Perfluoropentanesulfonic Acid (PFPeS	U	4.8	0	0	0	0-0	0	0	30	
Perfluoropentanoic Acid (PFPeA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorotetradecanoic Acid (PFTeA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFTriA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFUnA)	U	4.8	0	0	0	0-0	0	0	30	
N-ethylperfluoro-1-octanesulfonamide	U	4.8	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfonamidoace	U	4.8	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfonamidoeth	U	4.8	0	0	0	0-0	0	0	30	
N-methylperfluoro-1-octanesulfonamid	U	4.8	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfonamidoa	U	4.8	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfonamidoe	U	4.8	0	0	0	0-0	0	0	30	
Hexafluoropropylene oxide dimer acid	U	4.8	0	0	0	0-0	0	0	30	
4,8-Dioxa-3H-perfluorononanoic Acid (	U	4.8	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	U	4.8	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	U	4.8	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	*145*	0	*143.7*	0	*101*	*50-150*	331.6	*78.3*	*30*	*R*
Surr: 13C2-FtS 6:2	*203.1*	0	*146.2*	0	*139*	*50-150*	274.8	*30*	*30*	*R*
Surr: 13C2-FtS 8:2	*226.7*	0	*147.4*	0	*154*	*50-150*	160.5	*34.2*	*30*	*SR*
Surr: 13C2-PFDA	*173.3*	0	*153.8*	0	*113*	*50-150*	142	*19.9*	*30*	
Surr: 13C2-PFDoA	*177.1*	0	*153.8*	0	*115*	*50-150*	132.8	*28.6*	*30*	
Surr: 13C2-PFHxA	*159.9*	0	*153.8*	0	*104*	*50-150*	160	*0.0525*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090342
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxDA	*189.1*	0	*153.8*	0	*123*	*50-150*	125.4	*40.5*	*30*	*R*
Surr: 13C2-PFTeA	*179.8*	0	*153.8*	0	*117*	*50-150*	136.1	*27.7*	*30*	
Surr: 13C2-PFUnA	*156.6*	0	*153.8*	0	*102*	*50-150*	135.1	*14.7*	*30*	
Surr: 13C3-HFPO-DA	*161.3*	0	*153.8*	0	*105*	*50-150*	136	*17*	*30*	
Surr: 13C3-PFBS	*149.2*	0	*143.1*	0	*104*	*50-150*	133.3	*11.3*	*30*	
Surr: 13C4-PFBA	*168.6*	0	*153.8*	0	*110*	*50-150*	145.6	*14.7*	*30*	
Surr: 13C4-PFHpA	*178.8*	0	*153.8*	0	*116*	*50-150*	165.6	*7.63*	*30*	
Surr: 13C4-PFOA	*182.2*	0	*153.8*	0	*118*	*50-150*	171.3	*6.16*	*30*	
Surr: 13C4-PFOS	*157.4*	0	*146.9*	0	*107*	*50-150*	124.9	*23*	*30*	
Surr: 13C5-PFNA	*202.5*	0	*153.8*	0	*132*	*50-150*	153.8	*27.3*	*30*	
Surr: 13C5-PFPeA	*179.2*	0	*153.8*	0	*116*	*50-150*	156	*13.8*	*30*	
Surr: 13C8-FOSA	*165.2*	0	*153.8*	0	*107*	*50-150*	154.7	*6.57*	*30*	
Surr: 18O2-PFHxS	*120.3*	0	*145.4*	0	*82.8*	*50-150*	109	*9.86*	*30*	
Surr: d5-N-EtFOSA	*153.3*	0	*153.8*	0	*99.6*	*50-150*	124.9	*20.4*	*30*	
Surr: d5-N-EtFOSAA	*159.8*	0	*153.8*	0	*104*	*50-150*	148.3	*7.45*	*30*	
Surr: d9-N-EtFOSE	*159*	0	*153.8*	0	*103*	*50-150*	143.8	*10*	*30*	
Surr: d3-N-MeFOSA	*159.6*	0	*153.8*	0	*104*	*50-150*	156.3	*2.13*	*30*	
Surr: d3-N-MeFOSAA	*139.9*	0	*153.8*	0	*90.9*	*50-150*	138.4	*1.11*	*30*	
Surr: d7-N-MeFOSE	*172.8*	0	*153.8*	0	*112*	*50-150*	138.3	*22.2*	*30*	

The following samples were analyzed in this batch: 21090342-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Spring City, PA +1 610 948 4903
South Charleston, WV +1 304 356 3168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

Page 1 of 1

COC ID: 229896

ALS Project Manager: JW | ALS Work Order #: 21090342

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	ALS 2021	Project Name	WRR	A	PFAS 537 M
Work Order		Project Number	55929.007	B	
Company Name	Gannett Fleming, Inc	Bill To Company	Gannett Fleming, Inc	C	
Send Report To	Tony Miller	Invoice Attn	Accounts Payable	D	
Address	8040 Excelsior Drive Suite 303	Address	8040 Excelsior Drive Suite 303	E F	
City/State/Zip	Madison, WI 53717-1338	City/State/Zip	Madison, WI 53717-1338	G	
Phone	(608) 836-1500	Phone	(608) 836-1500	H	
Fax		Fax		I	
e-Mail Address	awmiller@gfnet.com	e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Field Blank	9/1	16:15	W	—	2	X										
2																	
3																	
4																	
5																	
6																	JP
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Megan Mussey

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Std 10 WK Days ☐ 5 WK Days ☐ Other 3 WK Days ☐ 24 Hour

Results Due Date:

	Date:	Time:		
Relinquished by:	9/2/21	12:30	Received by: FedEx	
Relinquished by: FedEx	9/3/21	0930	Received by (Laboratory):	
Logged by (Laboratory):	9/3/21	1301	Checked by (Laboratory):	

Notes:

Cooler ID	Cooler Temp.
1R3	2.1°C

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Group, USA

Sample Receipt Checklist

Client Name: **GANNETTFLEMING - WI** Date/Time Received: **03-Sep-21 09:30**

Work Order: **21090342** Received by: **LYS**

Checklist completed by Lydia Sweet (eSignature) 03-Sep-21 (Date) Reviewed by: Jodi Blouw (eSignature) 03-Sep-21 (Date)

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.1/3.1c	IR3	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	9/3/2021 1:03:16 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

WRR Environmental Services Co., Inc.

VIA Federal Express

September 15, 2021
File #55929.007

[redacted]
5545 Wild Rose Lane
Eau Claire, WI 54701.9300

Dear Neighbor of WRR Environmental Services:
On September 1, 2021, WRR Environmental Services Co., Inc.'s (WRR) environmental consultant, Gannett Fleming, Inc. (GF), collected a water sample from your home at 5545 Wild Rose Lane. The sample was collected as part of an investigation to determine the extent of groundwater impacted by per- and poly-fluoroalkyl substances (PFAS) that may be associated with a type of firefighting foam (AFFF) used to suppress fires at the WRR facility on Ryder Road in 2007 and 2010. The investigation activities at the WRR site are being conducted under the oversight of the Wisconsin Department of Natural Resources (WDNR).

Our designation for your water sample is PW-17. The water sample collected from your home in September was sent to ALS Environmental Laboratory in Holland, Michigan, for analysis of 33 individual PFAS compounds. One PFAS compound, PFBA was detected in the water sample collected from your well but at a concentration of 2.8 nanograms per liter (ng/L). This concentration is far below the Wisconsin Department of Health Services' (WDHS) and WDNR's proposed recommended NR 140 preventive action limit and enforcement standard of 2,000 and 10,000 ng/L, respectively. Copies of the lab reports for the sample collected from your well and the field blank that accompanied your sample when it was shipped to the laboratory are included with this letter.

Copies of this letter and the September 2021 lab reports are being sent to the WDNR and WDHS for their records. We thank you for your cooperation in our investigation. At this time, we do not anticipate the need to collect additional samples from your well.

If you have any questions regarding the on-going PFAS investigation, please contact Ms. Candace Sykora with the WDNR at (715) 928-0452 or candace.sykora@wisconsin.gov. If you have any questions regarding the potential health impacts from PFAS, please contact Mr. Nathan Kloczko with the WDHS at (608) 267-3227 or Nathan.kloczko@dhs.wisconsin.gov. If you have any

questions about this letter or the results of the sample collected from your well, please contact Anthony Miller with GF at (608) 400-6815 or awmiller@gfnet.com.

Sincerely,

Jim Hager
President – WRR Environmental Services Co., Inc.

Enc.
cc: Candace Sykora (WDNR)
Nathan Kloczko (WDHS)

13-Sep-2021

Anthony Miller
Gannett Fleming, Inc.
8040 Excelsior Drive
Suite 303
Madison, WI 53717-1338

Re: **WRR (55929.007)** Work Order: **21090335**

Dear Anthony,

ALS Environmental received 1 sample on 03-Sep-2021 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 16.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Jodi Blouw

Electronically approved by: Bill Carey

Jodi Blouw

Report of Laboratory Analysis

Certificate No: WI: 399084510

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: **21090335**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
21090335-01	PW-17	Drinking Wat		9/1/2021 16:00	9/3/2021 09:30	☐

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
WorkOrder: **21090335**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
ng/L	Nanograms per Liter

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: 21090335

Case Narrative

The attached "Sample Receipt Checklist" documents the date of receipt, status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. A copy of the laboratory's scope of accreditation is available upon request.

Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

Any flags on MS/MSD samples not addressed in this narrative are unrelated to samples in this report.

With the following exceptions, all sample analyses achieved analytical criteria.

Batch 183229, Method E537 Mod, Sample LCS-183229: The LCS recovery was above the upper control limit. All the sample results in the batch were non-detect. No qualification is necessary for this analyte: PFTriA, PFPeS, 10:2 FTS

ALS Group, USA

Date: *13-Sep-21*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: PW-17
Collection Date: 9/1/2021 04:00 PM

Work Order: 21090335
Lab ID: 21090335-01
Matrix: DRINKING WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 9/7/21		Analyst: **SK**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U		0.98	5.2	ng/L	1	9/13/2021 15:06
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	U		0.69	5.2	ng/L	1	9/13/2021 15:06
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1.2	5.2	ng/L	1	9/13/2021 15:06
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	U		0.94	5.2	ng/L	1	9/13/2021 15:06
Perfluorobutanesulfonic Acid (PFBS)	U		0.37	5.2	ng/L	1	9/13/2021 15:06
Perfluorobutanoic Acid (PFBA)	**2.8**	J	**2.7**	**5.2**	**ng/L**	1	9/13/2021 15:06
Perfluorodecanesulfonic Acid (PFDS)	U		1.4	5.2	ng/L	1	9/13/2021 15:06
Perfluorodecanoic Acid (PFDA)	U		1.3	5.2	ng/L	1	9/13/2021 15:06
Perfluorododecanesulfonic Acid (PFDoS)	U		1.5	5.2	ng/L	1	9/13/2021 15:06
Perfluorododecanoic Acid (PFDoA)	U		1.5	5.2	ng/L	1	9/13/2021 15:06
Perfluoroheptanesulfonic Acid (PFHpS)	U		0.59	5.2	ng/L	1	9/13/2021 15:06
Perfluoroheptanoic Acid (PFHpA)	U		0.46	5.2	ng/L	1	9/13/2021 15:06
Perfluorohexadecanoic Acid (PFHxDA)	U		0.40	5.2	ng/L	1	9/13/2021 15:06
Perfluorohexanesulfonic Acid (PFHxS)	U		0.38	5.2	ng/L	1	9/13/2021 15:06
Perfluorohexanoic Acid (PFHxA)	U		1.2	5.2	ng/L	1	9/13/2021 15:06
Perfluorononanesulfonic Acid (PFNS)	U		0.52	5.2	ng/L	1	9/13/2021 15:06
Perfluorononanoic Acid (PFNA)	U		0.91	5.2	ng/L	1	9/13/2021 15:06
Perfluorooctadecanoic Acid (PFODA)	U		0.68	5.2	ng/L	1	9/13/2021 15:06
Perfluorooctanesulfonamide (PFOSA)	U		0.74	5.2	ng/L	1	9/13/2021 15:06
Perfluorooctanesulfonic Acid (PFOS)	U		0.93	2.1	ng/L	1	9/13/2021 15:06
Perfluorooctanoic Acid (PFOA)	U		0.66	2.1	ng/L	1	9/13/2021 15:06
Perfluoropentanesulfonic Acid (PFPeS)	U		0.58	5.2	ng/L	1	9/13/2021 15:06
Perfluoropentanoic Acid (PFPeA)	U		1.3	5.2	ng/L	1	9/13/2021 15:06
Perfluorotetradecanoic Acid (PFTeA)	U		2.7	5.2	ng/L	1	9/13/2021 15:06
Perfluorotridecanoic Acid (PFTriA)	U		0.80	5.2	ng/L	1	9/13/2021 15:06
Perfluoroundecanoic Acid (PFUnA)	U		1.0	5.2	ng/L	1	9/13/2021 15:06
N-ethylperfluoro-1-octanesulfonamide	U		1.2	5.2	ng/L	1	9/13/2021 15:06
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		0.65	5.2	ng/L	1	9/13/2021 15:06
N-Ethylperfluorooctanesulfonamidoethanol	U		0.54	5.2	ng/L	1	9/13/2021 15:06
N-methylperfluoro-1-octanesulfonamide	U		0.83	5.2	ng/L	1	9/13/2021 15:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *13-Sep-21*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: PW-17
Collection Date: 9/1/2021 04:00 PM

Work Order: 21090335
Lab ID: 21090335-01
Matrix: DRINKING WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoacetic Acid	U		0.67	5.2	ng/L	1	9/13/2021 15:06
N-Methylperfluorooctanesulfonamidoethanol	U		0.50	5.2	ng/L	1	9/13/2021 15:06
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		1.2	5.2	ng/L	1	9/13/2021 15:06
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		0.59	5.2	ng/L	1	9/13/2021 15:06
11Cl-Pf3OUdS	U		0.49	5.2	ng/L	1	9/13/2021 15:06
9Cl-PF3ONS	U		0.47	5.2	ng/L	1	9/13/2021 15:06
Surr: 13C2-FtS 4:2	*93.5*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C2-FtS 6:2	*101*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C2-FtS 8:2	*105*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C2-PFDA	*89.7*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C2-PFDoA	*94.3*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C2-PFHxA	*88.9*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C2-PFHxDA	*77.4*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C2-PFTeA	*96.1*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C2-PFUnA	*79.0*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C3-HFPO-DA	*66.9*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C3-PFBS	*70.3*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C4-PFBA	*88.8*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C4-PFHpA	*65.6*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C4-PFOA	*107*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C4-PFOS	*85.1*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C5-PFNA	*82.9*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C5-PFPeA	*76.4*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 13C8-FOSA	*66.1*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: 18O2-PFHxS	*81.7*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: d5-N-EtFOSA	*62.1*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: d5-N-EtFOSAA	*66.4*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: d9-N-EtFOSE	*72.0*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: d3-N-MeFOSA	*69.0*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: d3-N-MeFOSAA	*56.5*			*50-150*	*%REC*	1	9/13/2021 15:06
Surr: d7-N-MeFOSE	*79.9*			*50-150*	*%REC*	1	9/13/2021 15:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

MBLK Sample ID: **MBLK-183229-183229** Units: **ng/L** Analysis Date: **9/9/2021 12:38 PM**

Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732976** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	U	5.0								
Fluorotelomer Sulphonic Acid 6:2 (FtS	U	5.0								
Fluorotelomer Sulphonic Acid 8:2 (FtS	U	5.0								
Fluorotelomer Sulphonic Acid 10:2 (Ft	U	5.0								
Perfluorobutanesulfonic Acid (PFBS)	U	5.0								
Perfluorobutanoic Acid (PFBA)	U	5.0								
Perfluorodecanesulfonic Acid (PFDS)	U	5.0								
Perfluorodecanoic Acid (PFDA)	U	5.0								
Perfluorododecanesulfonic Acid (PFDo	U	5.0								
Perfluorododecanoic Acid (PFDoA)	U	5.0								
Perfluoroheptanesulfonic Acid (PFHpS	U	5.0								
Perfluoroheptanoic Acid (PFHpA)	U	5.0								
Perfluorohexadecanoic Acid (PFHxDA	U	5.0								
Perfluorohexanesulfonic Acid (PFHxS)	U	5.0								
Perfluorohexanoic Acid (PFHxA)	U	5.0								
Perfluorononanesulfonic Acid (PFNS)	U	5.0								
Perfluorononanoic Acid (PFNA)	U	5.0								
Perfluorooctadecanoic Acid (PFODA)	U	5.0								
Perfluorooctanesulfonamide (PFOSA)	U	5.0								
Perfluorooctanesulfonic Acid (PFOS)	U	2.0								
Perfluorooctanoic Acid (PFOA)	U	2.0								
Perfluoropentanesulfonic Acid (PFPeS	U	5.0								
Perfluoropentanoic Acid (PFPeA)	U	5.0								
Perfluorotetradecanoic Acid (PFTeA)	U	5.0								
Perfluorotridecanoic Acid (PFTriA)	U	5.0								
Perfluoroundecanoic Acid (PFUnA)	U	5.0								
N-ethylperfluoro-1-octanesulfonamide	U	5.0								
N-Ethylperfluorooctanesulfonamidoace	U	5.0								
N-Ethylperfluorooctanesulfonamidoeth	U	5.0								
N-methylperfluoro-1-octanesulfonamid	U	5.0								
N-Methylperfluorooctanesulfonamidoa	U	5.0								
N-Methylperfluorooctanesulfonamidoe	U	5.0								
Hexafluoropropylene oxide dimer acid	U	5.0								
4,8-Dioxa-3H-perfluorononanoic Acid (	U	5.0								
11Cl-Pf3OUdS	U	5.0								
9Cl-PF3ONS	U	5.0								
Surr: 13C2-FtS 4:2	*118*	0	*149.4*	0	*78.9*	*50-150*	0			
Surr: 13C2-FtS 6:2	*122.4*	0	*152*	0	*80.5*	*50-150*	0			
Surr: 13C2-FtS 8:2	*142.1*	0	*153.3*	0	*92.7*	*50-150*	0			
Surr: 13C2-PFDA	*132.4*	0	*160*	0	*82.8*	*50-150*	0			
Surr: 13C2-PFDoA	*133.8*	0	*160*	0	*83.6*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxA	*130*	0	*160*	0	*81.2*	*50-150*	0
Surr: 13C2-PFHxDA	*117.7*	0	*160*	0	*73.5*	*50-150*	0
Surr: 13C2-PFTeA	*112.4*	0	*160*	0	*70.2*	*50-150*	0
Surr: 13C2-PFUnA	*124.3*	0	*160*	0	*77.7*	*50-150*	0
Surr: 13C3-HFPO-DA	*107.2*	0	*160*	0	*67*	*50-150*	0
Surr: 13C3-PFBS	*94.74*	0	*148.8*	0	*63.7*	*50-150*	0
Surr: 13C4-PFBA	*127.6*	0	*160*	0	*79.8*	*50-150*	0
Surr: 13C4-PFHpA	*115.4*	0	*160*	0	*72.2*	*50-150*	0
Surr: 13C4-PFOA	*142*	0	*160*	0	*88.8*	*50-150*	0
Surr: 13C4-PFOS	*119.4*	0	*152.8*	0	*78.2*	*50-150*	0
Surr: 13C5-PFNA	*151*	0	*160*	0	*94.4*	*50-150*	0
Surr: 13C5-PFPeA	*112.6*	0	*160*	0	*70.4*	*50-150*	0
Surr: 13C8-FOSA	*104.1*	0	*160*	0	*65*	*50-150*	0
Surr: 18O2-PFHxS	*95.91*	0	*151.2*	0	*63.4*	*50-150*	0
Surr: d5-N-EtFOSA	*86.01*	0	*160*	0	*53.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*98.53*	0	*160*	0	*61.6*	*50-150*	0
Surr: d9-N-EtFOSE	*91.37*	0	*160*	0	*57.1*	*50-150*	0
Surr: d3-N-MeFOSA	*90.8*	0	*160*	0	*56.8*	*50-150*	0
Surr: d3-N-MeFOSAA	*87.38*	0	*160*	0	*54.6*	*50-150*	0
Surr: d7-N-MeFOSE	*99.92*	0	*160*	0	*62.4*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090335
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

LCS Sample ID: **LCS-183229-183229** Units: **ng/L** Analysis Date: **9/10/2021 05:42 PM**
Client ID: Run ID: **LCMS1_210910C** SeqNo: **7740426** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	33.69	5.0	29.9	0	113	63-143	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS	34.84	5.0	30.3	0	115	64-140	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	33.58	5.0	30.7	0	109	67-138	0			
Fluorotelomer Sulphonic Acid 10:2 (Ft	51.05	5.0	30.8	0	166	40-160	0			S
Perfluorobutanesulfonic Acid (PFBS)	33.82	5.0	28.3	0	120	72-130	0			
Perfluorobutanoic Acid (PFBA)	31.54	5.0	32	0	98.6	73-129	0			
Perfluorodecanesulfonic Acid (PFDS)	25.88	5.0	30.8	0	84	53-142	0			
Perfluorodecanoic Acid (PFDA)	29.95	5.0	32	0	93.6	71-129	0			
Perfluorododecanesulfonic Acid (PFDo	24.91	5.0	31	0	80.4	69-134	0			
Perfluorododecanoic Acid (PFDoA)	29.28	5.0	32	0	91.5	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS	32.12	5.0	30.5	0	105	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	37.87	5.0	32	0	118	72-130	0			
Perfluorohexadecanoic Acid (PFHxDA	34.75	5.0	32	0	109	70-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	27.08	5.0	29.1	0	93.1	68-131	0			
Perfluorohexanoic Acid (PFHxA)	28.46	5.0	32	0	88.9	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	28.71	5.0	30.7	0	93.5	69-127	0			
Perfluorononanoic Acid (PFNA)	31.5	5.0	32	0	98.4	69-130	0			
Perfluorooctadecanoic Acid (PFODA)	29.75	5.0	32	0	93	70-130	0			
Perfluorooctanesulfonamide (PFOSA)	35.43	5.0	32	0	111	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	29.15	2.0	29.7	0	98.1	65-140	0			
Perfluorooctanoic Acid (PFOA)	33.88	2.0	32	0	106	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	38.27	5.0	30	0	128	71-127	0			S
Perfluoropentanoic Acid (PFPeA)	35.21	5.0	32	0	110	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	32.84	5.0	32	0	103	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	49.51	5.0	32	0	155	65-144	0			S
Perfluoroundecanoic Acid (PFUnA)	32.25	5.0	32	0	101	69-133	0			
N-ethylperfluoro-1-octanesulfonamide	26.98	5.0	32	0	84.3	70-130	0			
N-Ethylperfluorooctanesulfonamidoace	35.2	5.0	32	0	110	61-135	0			
N-Ethylperfluorooctanesulfonamidoeth	37.05	5.0	32	0	116	70-130	0			
N-methylperfluoro-1-octanesulfonamid	28.92	5.0	32	0	90.4	70-130	0			
N-Methylperfluorooctanesulfonamidoa	41.38	5.0	32	0	129	65-136	0			
N-Methylperfluorooctanesulfonamidoe	38.37	5.0	32	0	120	68-141	0			
Hexafluoropropylene oxide dimer acid	32.5	5.0	32	0	102	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	29.47	5.0	30.1	0	97.9	70-130	0			
11Cl-Pf3OUdS	23.89	5.0	30.1	0	79.4	70-130	0			
9Cl-PF3ONS	28.64	5.0	29.8	0	96.1	70-130	0			
Surr: 13C2-FtS 4:2	*117*	0	*149.4*	0	*78.3*	*50-150*	0			
Surr: 13C2-FtS 6:2	*130.3*	0	*152*	0	*85.7*	*50-150*	0			
Surr: 13C2-FtS 8:2	*148.1*	0	*153.3*	0	*96.6*	*50-150*	0			
Surr: 13C2-PFDA	*153.7*	0	*160*	0	*96.1*	*50-150*	0			
Surr: 13C2-PFDoA	*153.4*	0	*160*	0	*95.9*	*50-150*	0			
Surr: 13C2-PFHxA	*169*	0	*160*	0	*106*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxDA	*130.3*	0	*160*	0	*81.4*	*50-150*	0
Surr: 13C2-PFTeA	*113.9*	0	*160*	0	*71.2*	*50-150*	0
Surr: 13C2-PFUnA	*131.7*	0	*160*	0	*82.3*	*50-150*	0
Surr: 13C3-HFPO-DA	*151.4*	0	*160*	0	*94.6*	*50-150*	0
Surr: 13C3-PFBS	*105.2*	0	*148.8*	0	*70.7*	*50-150*	0
Surr: 13C4-PFBA	*148.5*	0	*160*	0	*92.8*	*50-150*	0
Surr: 13C4-PFHpA	*147.5*	0	*160*	0	*92.2*	*50-150*	0
Surr: 13C4-PFOA	*138.2*	0	*160*	0	*86.4*	*50-150*	0
Surr: 13C4-PFOS	*132.9*	0	*152.8*	0	*87*	*50-150*	0
Surr: 13C5-PFNA	*143.6*	0	*160*	0	*89.8*	*50-150*	0
Surr: 13C5-PFPeA	*129.4*	0	*160*	0	*80.9*	*50-150*	0
Surr: 13C8-FOSA	*101.4*	0	*160*	0	*63.4*	*50-150*	0
Surr: 18O2-PFHxS	*117.3*	0	*151.2*	0	*77.6*	*50-150*	0
Surr: d5-N-EtFOSA	*112.6*	0	*160*	0	*70.4*	*50-150*	0
Surr: d5-N-EtFOSAA	*113.3*	0	*160*	0	*70.8*	*50-150*	0
Surr: d9-N-EtFOSE	*107.6*	0	*160*	0	*67.2*	*50-150*	0
Surr: d3-N-MeFOSA	*117.8*	0	*160*	0	*73.6*	*50-150*	0
Surr: d3-N-MeFOSAA	*110.5*	0	*160*	0	*69.1*	*50-150*	0
Surr: d7-N-MeFOSE	*121.6*	0	*160*	0	*76*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090335
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

MS Sample ID: **21082518-06A MS** Units: **ng/L** Analysis Date: **9/9/2021 01:10 PM**

Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732979** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	32.13	4.9	29.2	0	110	63-143	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	52.94	4.9	29.98	17.26	119	67-138	0			
Fluorotelomer Sulphonic Acid 10:2 (Ft	35.69	4.9	30.08	0	119	40-160	0			
Perfluorobutanesulfonic Acid (PFBS)	29.3	4.9	27.64	0.9496	103	72-130	0			
Perfluorobutanoic Acid (PFBA)	184.2	4.9	31.25	153.4	98.4	73-129	0			O
Perfluorodecanesulfonic Acid (PFDS)	23.55	4.9	30.08	0	78.3	53-142	0			
Perfluorodecanoic Acid (PFDA)	42.47	4.9	31.25	7.515	112	71-129	0			
Perfluorododecanesulfonic Acid (PFDo	24.02	4.9	30.27	0	79.4	69-134	0			
Perfluorododecanoic Acid (PFDoA)	28.28	4.9	31.25	0	90.5	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS	33.81	4.9	29.79	0	114	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	165.1	4.9	31.25	127.3	121	72-130	0			O
Perfluorohexadecanoic Acid (PFHxDA	30.77	4.9	31.25	0	98.4	70-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	28.66	4.9	28.42	0.7053	98.4	68-131	0			
Perfluorohexanoic Acid (PFHxA)	322	4.9	31.25	321.4	1.93	72-129	0			SO
Perfluorononanesulfonic Acid (PFNS)	29.19	4.9	29.98	0	97.4	69-127	0			
Perfluorononanoic Acid (PFNA)	36.78	4.9	31.25	10	85.7	69-130	0			
Perfluorooctadecanoic Acid (PFODA)	30.77	4.9	31.25	0	98.4	70-130	0			
Perfluorooctanesulfonamide (PFOSA)	27.27	4.9	31.25	0	87.3	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	30.5	2.0	29	5.276	87	65-140	0			
Perfluorooctanoic Acid (PFOA)	53.23	2.0	31.25	21.85	100	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	38.94	4.9	29.3	0	133	71-127	0			S
Perfluorotetradecanoic Acid (PFTeA)	24.86	4.9	31.25	0	79.6	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	31.24	4.9	31.25	0	100	65-144	0			
Perfluoroundecanoic Acid (PFUnA)	30.62	4.9	31.25	0	98	69-133	0			
N-ethylperfluoro-1-octanesulfonamide	30.12	4.9	31.25	0	96.4	70-130	0			
N-Ethylperfluorooctanesulfonamidoace	28.27	4.9	31.25	0	90.4	61-135	0			
N-Ethylperfluorooctanesulfonamidoeth	34.42	4.9	31.25	0	110	70-130	0			
N-methylperfluoro-1-octanesulfonamid	29	4.9	31.25	0	92.8	70-130	0			
N-Methylperfluorooctanesulfonamidoa	38.55	4.9	31.25	0	123	65-136	0			
N-Methylperfluorooctanesulfonamidoe	32.7	4.9	31.25	0	105	68-141	0			
Hexafluoropropylene oxide dimer acid	33.46	4.9	31.25	0	107	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	21.89	4.9	29.39	0	74.5	70-130	0			
11Cl-Pf3OUdS	22.49	4.9	29.39	0	76.5	70-130	0			
9Cl-PF3ONS	27.7	4.9	29.1	0	95.2	70-130	0			
Surr: 13C2-FtS 4:2	*118*	0	*145.9*	0	*80.8*	*50-150*	0			
Surr: 13C2-FtS 6:2	*179.6*	0	*148.4*	0	*121*	*50-150*	0			
Surr: 13C2-FtS 8:2	*173.4*	0	*149.7*	0	*116*	*50-150*	0			
Surr: 13C2-PFDA	*136.3*	0	*156.2*	0	*87.2*	*50-150*	0			
Surr: 13C2-PFDoA	*129.8*	0	*156.2*	0	*83.1*	*50-150*	0			
Surr: 13C2-PFHxA	*128.4*	0	*156.2*	0	*82.2*	*50-150*	0			
Surr: 13C2-PFHxDA	*146*	0	*156.2*	0	*93.5*	*50-150*	0			
Surr: 13C2-PFTeA	*135.7*	0	*156.2*	0	*86.8*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFUnA	*120.3*	0	*156.2*	0	*77*	*50-150*	0
Surr: 13C3-HFPO-DA	*129.3*	0	*156.2*	0	*82.8*	*50-150*	0
Surr: 13C3-PFBS	*119.1*	0	*145.3*	0	*82*	*50-150*	0
Surr: 13C4-PFBA	*133.4*	0	*156.2*	0	*85.4*	*50-150*	0
Surr: 13C4-PFHpA	*146.6*	0	*156.2*	0	*93.8*	*50-150*	0
Surr: 13C4-PFOA	*142*	0	*156.2*	0	*90.9*	*50-150*	0
Surr: 13C4-PFOS	*128.1*	0	*149.2*	0	*85.9*	*50-150*	0
Surr: 13C5-PFNA	*164.2*	0	*156.2*	0	*105*	*50-150*	0
Surr: 13C5-PFPeA	*125.4*	0	*156.2*	0	*80.3*	*50-150*	0
Surr: 13C8-FOSA	*128.3*	0	*156.2*	0	*82.1*	*50-150*	0
Surr: 18O2-PFHxS	*99.02*	0	*147.7*	0	*67.1*	*50-150*	0
Surr: d5-N-EtFOSA	*107.5*	0	*156.2*	0	*68.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*107.7*	0	*156.2*	0	*68.9*	*50-150*	0
Surr: d9-N-EtFOSE	*108.5*	0	*156.2*	0	*69.4*	*50-150*	0
Surr: d3-N-MeFOSA	*131.7*	0	*156.2*	0	*84.3*	*50-150*	0
Surr: d3-N-MeFOSAA	*99.18*	0	*156.2*	0	*63.5*	*50-150*	0
Surr: d7-N-MeFOSE	*114.9*	0	*156.2*	0	*73.5*	*50-150*	0

MS Sample ID: **21082518-06A MS** Units: **ng/L** Analysis Date: **9/10/2021 05:53 PM**

Client ID: Run ID: **LCMS1_210910C** SeqNo: **7740427** Prep Date: **9/7/2021** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 6:2 (FtS	1053	49	29.59	1032	71.4	64-140	0			O
Perfluoropentanoic Acid (PFPeA)	677.2	49	31.25	663	45.3	72-129	0			SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090335
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

DUP Sample ID: **21082518-04A DUP** Units: **ng/L** Analysis Date: **9/9/2021 12:59 PM**

Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732978** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	U	4.8	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 6:2 (FtS	1.046	4.8	0	0	0	0-0	2.07	0	30	J
Fluorotelomer Sulphonic Acid 8:2 (FtS	U	4.8	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 10:2 (Ft	U	4.8	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (PFBS)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorobutanoic Acid (PFBA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorodecanesulfonic Acid (PFDS)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorododecanesulfonic Acid (PFDo	U	4.8	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PFDoA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid (PFHpS	0.6308	4.8	0	0	0	0-0	0	0	30	J
Perfluoroheptanoic Acid (PFHpA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorohexadecanoic Acid (PFHxDA	U	4.8	0	0	0	0-0	0	0	30	
Perfluorohexanesulfonic Acid (PFHxS)	U	4.8	0	0	0	0-0	1.643	0	30	
Perfluorohexanoic Acid (PFHxA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorononanesulfonic Acid (PFNS)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorooctadecanoic Acid (PFODA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (PFOSA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (PFOS)	2.111	1.9	0	0	0	0-0	1.939	8.49	30	
Perfluorooctanoic Acid (PFOA)	U	1.9	0	0	0	0-0	0	0	30	
Perfluoropentanesulfonic Acid (PFPeS	U	4.8	0	0	0	0-0	0	0	30	
Perfluoropentanoic Acid (PFPeA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorotetradecanoic Acid (PFTeA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFTriA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFUnA)	U	4.8	0	0	0	0-0	0	0	30	
N-ethylperfluoro-1-octanesulfonamide	U	4.8	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfonamidoace	U	4.8	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfonamidoeth	U	4.8	0	0	0	0-0	0	0	30	
N-methylperfluoro-1-octanesulfonamid	U	4.8	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfonamidoa	U	4.8	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfonamidoe	U	4.8	0	0	0	0-0	0	0	30	
Hexafluoropropylene oxide dimer acid	U	4.8	0	0	0	0-0	0	0	30	
4,8-Dioxa-3H-perfluorononanoic Acid (	U	4.8	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	U	4.8	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	U	4.8	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	*145*	0	*143.7*	0	*101*	*50-150*	331.6	*78.3*	*30*	*R*
Surr: 13C2-FtS 6:2	*203.1*	0	*146.2*	0	*139*	*50-150*	274.8	*30*	*30*	*R*
Surr: 13C2-FtS 8:2	*226.7*	0	*147.4*	0	*154*	*50-150*	160.5	*34.2*	*30*	*SR*
Surr: 13C2-PFDA	*173.3*	0	*153.8*	0	*113*	*50-150*	142	*19.9*	*30*	
Surr: 13C2-PFDoA	*177.1*	0	*153.8*	0	*115*	*50-150*	132.8	*28.6*	*30*	
Surr: 13C2-PFHxA	*159.9*	0	*153.8*	0	*104*	*50-150*	160	*0.0525*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090335
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxDA	*189.1*	0	*153.8*	0	*123*	*50-150*	125.4	*40.5*	*30*	*R*
Surr: 13C2-PFTeA	*179.8*	0	*153.8*	0	*117*	*50-150*	136.1	*27.7*	*30*	
Surr: 13C2-PFUnA	*156.6*	0	*153.8*	0	*102*	*50-150*	135.1	*14.7*	*30*	
Surr: 13C3-HFPO-DA	*161.3*	0	*153.8*	0	*105*	*50-150*	136	*17*	*30*	
Surr: 13C3-PFBS	*149.2*	0	*143.1*	0	*104*	*50-150*	133.3	*11.3*	*30*	
Surr: 13C4-PFBA	*168.6*	0	*153.8*	0	*110*	*50-150*	145.6	*14.7*	*30*	
Surr: 13C4-PFHpA	*178.8*	0	*153.8*	0	*116*	*50-150*	165.6	*7.63*	*30*	
Surr: 13C4-PFOA	*182.2*	0	*153.8*	0	*118*	*50-150*	171.3	*6.16*	*30*	
Surr: 13C4-PFOS	*157.4*	0	*146.9*	0	*107*	*50-150*	124.9	*23*	*30*	
Surr: 13C5-PFNA	*202.5*	0	*153.8*	0	*132*	*50-150*	153.8	*27.3*	*30*	
Surr: 13C5-PFPeA	*179.2*	0	*153.8*	0	*116*	*50-150*	156	*13.8*	*30*	
Surr: 13C8-FOSA	*165.2*	0	*153.8*	0	*107*	*50-150*	154.7	*6.57*	*30*	
Surr: 18O2-PFHxS	*120.3*	0	*145.4*	0	*82.8*	*50-150*	109	*9.86*	*30*	
Surr: d5-N-EtFOSA	*153.3*	0	*153.8*	0	*99.6*	*50-150*	124.9	*20.4*	*30*	
Surr: d5-N-EtFOSAA	*159.8*	0	*153.8*	0	*104*	*50-150*	148.3	*7.45*	*30*	
Surr: d9-N-EtFOSE	*159*	0	*153.8*	0	*103*	*50-150*	143.8	*10*	*30*	
Surr: d3-N-MeFOSA	*159.6*	0	*153.8*	0	*104*	*50-150*	156.3	*2.13*	*30*	
Surr: d3-N-MeFOSAA	*139.9*	0	*153.8*	0	*90.9*	*50-150*	138.4	*1.11*	*30*	
Surr: d7-N-MeFOSE	*172.8*	0	*153.8*	0	*112*	*50-150*	138.3	*22.2*	*30*	

The following samples were analyzed in this batch: 21090335-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Spring City, PA +1 610 948 4903
South Charleston, WV +1 304 356 3168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

Page ____ of ____

COC ID: 229897

ALS Project Manager: JM | ALS Work Order #: 2109335

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	ALS 2021	Project Name	WRR	A	PFAS 537 M
Work Order		Project Number	55929.007	B	
Company Name	Gannett Fleming, Inc	Bill To Company	Gannett Fleming, Inc	C	
Send Report To	Tony Miller	Invoice Attn	Accounts Payable	D	
Address	2040 Excelsior Drive Suite 302	Address	2040 Excelsior Drive Suite 303	E F	
City/State/Zip	Madison, WI 53717-1335	City/State/Zip	Madison, WI 53717-1335	G	
Phone	(608) 336-1500	Phone	(608) 836-1500	H	
Fax		Fax		I	
e-Mail Address	awmiller@gfnet.com	e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	PW-17	9/1/21	16:00	DW	—	2	X										
2																	
3																	
4																	JM
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Marcus Mussey

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Std 10 WK Days ☐ 5 WK Days ☐ Other ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

	Date:	Time:	
Relinquished by:	9/2/21	12:30	Received by: FedEx
Relinquished by: FedEx	9/3/21	0930	Received by (Laboratory):
Logged by (Laboratory):	9/3/21	1250	Checked by (Laboratory):

Notes:

Cooler ID	Cooler Temp.
1R3	2.1°C

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Group, USA

Sample Receipt Checklist

Client Name: **GANNETTFLEMING - WI** Date/Time Received: **03-Sep-21 09:30**

Work Order: **21090335** Received by: **LYS**

Checklist completed by Lydia Sweet (eSignature) 03-Sep-21 (Date) Reviewed by: Jodi Blouw (eSignature) 03-Sep-21 (Date)

Matrices: Water
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.1/3.1c	IR3	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	9/3/2021 12:56:25 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

13-Sep-2021

Anthony Miller
Gannett Fleming, Inc.
8040 Excelsior Drive
Suite 303
Madison, WI 53717-1338

Re: **WRR (55929.007)** Work Order: **21090342**

Dear Anthony,

ALS Environmental received 1 sample on 03-Sep-2021 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 16.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Jodi Blouw

Electronically approved by: Bill Carey

Jodi Blouw

Report of Laboratory Analysis

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: **21090342**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
21090342-01	Field Blank	Water		9/1/2021 16:15	9/3/2021 09:30	☐

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
WorkOrder: **21090342**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
ng/L	Nanograms per Liter

ALS Group, USA

Date: 13-Sep-21

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: 21090342

Case Narrative

The attached "Sample Receipt Checklist" documents the date of receipt, status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. A copy of the laboratory's scope of accreditation is available upon request.

Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

Any flags on MS/MSD samples not addressed in this narrative are unrelated to samples in this report.

With the following exceptions, all sample analyses achieved analytical criteria.

Batch 183229, Method E537 Mod, Sample Field Blank (21090342-01A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. 13C8-FOSA, d3-N-MeFOSA, d3-N-MeFOSAA, d5-N-EtFOSA

Batch 183229, Method E537 Mod, Sample LCS-183229: The LCS recovery was above the upper control limit. All the sample results in the batch were non-detect. No qualification is necessary for this analyte: PFTriA, PFPeS, 10:2 FTS

ALS Group, USA

Date: *13-Sep-21*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: Field Blank
Collection Date: 9/1/2021 04:15 PM

Work Order: 21090342
Lab ID: 21090342-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 9/7/21		Analyst: **SK**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U		0.98	5.3	ng/L	1	9/13/2021 15:27
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	U		0.70	5.3	ng/L	1	9/13/2021 15:27
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1.2	5.3	ng/L	1	9/13/2021 15:27
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	U		0.95	5.3	ng/L	1	9/13/2021 15:27
Perfluorobutanesulfonic Acid (PFBS)	U		0.37	5.3	ng/L	1	9/13/2021 15:27
Perfluorobutanoic Acid (PFBA)	U		2.7	5.3	ng/L	1	9/13/2021 15:27
Perfluorodecanesulfonic Acid (PFDS)	U		1.4	5.3	ng/L	1	9/13/2021 15:27
Perfluorodecanoic Acid (PFDA)	U		1.3	5.3	ng/L	1	9/13/2021 15:27
Perfluorododecanesulfonic Acid (PFDoS)	U		1.5	5.3	ng/L	1	9/13/2021 15:27
Perfluorododecanoic Acid (PFDoA)	U		1.5	5.3	ng/L	1	9/13/2021 15:27
Perfluoroheptanesulfonic Acid (PFHpS)	U		0.59	5.3	ng/L	1	9/13/2021 15:27
Perfluoroheptanoic Acid (PFHpA)	U		0.46	5.3	ng/L	1	9/13/2021 15:27
Perfluorohexadecanoic Acid (PFHxDA)	U		0.40	5.3	ng/L	1	9/13/2021 15:27
Perfluorohexanesulfonic Acid (PFHxS)	U		0.39	5.3	ng/L	1	9/13/2021 15:27
Perfluorohexanoic Acid (PFHxA)	U		1.3	5.3	ng/L	1	9/13/2021 15:27
Perfluorononanesulfonic Acid (PFNS)	U		0.52	5.3	ng/L	1	9/13/2021 15:27
Perfluorononanoic Acid (PFNA)	U		0.91	5.3	ng/L	1	9/13/2021 15:27
Perfluorooctadecanoic Acid (PFODA)	U		0.68	5.3	ng/L	1	9/13/2021 15:27
Perfluorooctanesulfonamide (PFOSA)	U		0.75	5.3	ng/L	1	9/13/2021 15:27
Perfluorooctanesulfonic Acid (PFOS)	U		0.94	2.1	ng/L	1	9/13/2021 15:27
Perfluorooctanoic Acid (PFOA)	U		0.66	2.1	ng/L	1	9/13/2021 15:27
Perfluoropentanesulfonic Acid (PFPeS)	U		0.58	5.3	ng/L	1	9/13/2021 15:27
Perfluoropentanoic Acid (PFPeA)	U		1.3	5.3	ng/L	1	9/13/2021 15:27
Perfluorotetradecanoic Acid (PFTeA)	U		2.8	5.3	ng/L	1	9/13/2021 15:27
Perfluorotridecanoic Acid (PFTriA)	U		0.81	5.3	ng/L	1	9/13/2021 15:27
Perfluoroundecanoic Acid (PFUnA)	U		1.0	5.3	ng/L	1	9/13/2021 15:27
N-ethylperfluoro-1-octanesulfonamide	U		1.2	5.3	ng/L	1	9/13/2021 15:27
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		0.66	5.3	ng/L	1	9/13/2021 15:27
N-Ethylperfluorooctanesulfonamidoethanol	U		0.54	5.3	ng/L	1	9/13/2021 15:27
N-methylperfluoro-1-octanesulfonamide	U		0.83	5.3	ng/L	1	9/13/2021 15:27

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *13-Sep-21*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: Field Blank
Collection Date: 9/1/2021 04:15 PM

Work Order: 21090342
Lab ID: 21090342-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoacetic Acid	U		0.68	5.3	ng/L	1	9/13/2021 15:27
N-Methylperfluorooctanesulfonamidoethanol	U		0.51	5.3	ng/L	1	9/13/2021 15:27
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		1.2	5.3	ng/L	1	9/13/2021 15:27
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		0.59	5.3	ng/L	1	9/13/2021 15:27
11Cl-Pf3OUdS	U		0.49	5.3	ng/L	1	9/13/2021 15:27
9Cl-PF3ONS	U		0.47	5.3	ng/L	1	9/13/2021 15:27
Surr: 13C2-FtS 4:2	*75.9*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-FtS 6:2	*75.5*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-FtS 8:2	*91.6*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFDA	*82.0*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFDoA	*65.6*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFHxA	*72.6*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFHxDA	*64.2*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFTeA	*64.2*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C2-PFUnA	*79.0*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C3-HFPO-DA	*57.4*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C3-PFBS	*59.5*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C4-PFBA	*71.1*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C4-PFHpA	*69.3*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C4-PFOA	*70.8*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C4-PFOS	*63.5*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C5-PFNA	*75.1*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C5-PFPeA	*64.3*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 13C8-FOSA	*48.5*	S		*50-150*	*%REC*	1	9/13/2021 15:27
Surr: 18O2-PFHxS	*57.5*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d5-N-EtFOSA	*46.8*	S		*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d5-N-EtFOSAA	*58.7*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d9-N-EtFOSE	*61.8*			*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d3-N-MeFOSA	*45.8*	S		*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d3-N-MeFOSAA	*49.6*	S		*50-150*	*%REC*	1	9/13/2021 15:27
Surr: d7-N-MeFOSE	*65.6*			*50-150*	*%REC*	1	9/13/2021 15:27

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

MBLK Sample ID: **MBLK-183229-183229** Units: **ng/L** Analysis Date: **9/9/2021 12:38 PM**

Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732976** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	U	5.0								
Fluorotelomer Sulphonic Acid 6:2 (FtS	U	5.0								
Fluorotelomer Sulphonic Acid 8:2 (FtS	U	5.0								
Fluorotelomer Sulphonic Acid 10:2 (Ft	U	5.0								
Perfluorobutanesulfonic Acid (PFBS)	U	5.0								
Perfluorobutanoic Acid (PFBA)	U	5.0								
Perfluorodecanesulfonic Acid (PFDS)	U	5.0								
Perfluorodecanoic Acid (PFDA)	U	5.0								
Perfluorododecanesulfonic Acid (PFDo	U	5.0								
Perfluorododecanoic Acid (PFDoA)	U	5.0								
Perfluoroheptanesulfonic Acid (PFHpS	U	5.0								
Perfluoroheptanoic Acid (PFHpA)	U	5.0								
Perfluorohexadecanoic Acid (PFHxDA	U	5.0								
Perfluorohexanesulfonic Acid (PFHxS)	U	5.0								
Perfluorohexanoic Acid (PFHxA)	U	5.0								
Perfluorononanesulfonic Acid (PFNS)	U	5.0								
Perfluorononanoic Acid (PFNA)	U	5.0								
Perfluorooctadecanoic Acid (PFODA)	U	5.0								
Perfluorooctanesulfonamide (PFOSA)	U	5.0								
Perfluorooctanesulfonic Acid (PFOS)	U	2.0								
Perfluorooctanoic Acid (PFOA)	U	2.0								
Perfluoropentanesulfonic Acid (PFPeS	U	5.0								
Perfluoropentanoic Acid (PFPeA)	U	5.0								
Perfluorotetradecanoic Acid (PFTeA)	U	5.0								
Perfluorotridecanoic Acid (PFTriA)	U	5.0								
Perfluoroundecanoic Acid (PFUnA)	U	5.0								
N-ethylperfluoro-1-octanesulfonamide	U	5.0								
N-Ethylperfluorooctanesulfonamidoace	U	5.0								
N-Ethylperfluorooctanesulfonamidoeth	U	5.0								
N-methylperfluoro-1-octanesulfonamid	U	5.0								
N-Methylperfluorooctanesulfonamidoa	U	5.0								
N-Methylperfluorooctanesulfonamidoe	U	5.0								
Hexafluoropropylene oxide dimer acid	U	5.0								
4,8-Dioxa-3H-perfluorononanoic Acid (	U	5.0								
11Cl-Pf3OUdS	U	5.0								
9Cl-PF3ONS	U	5.0								
Surr: 13C2-FtS 4:2	*118*	0	*149.4*	0	*78.9*	*50-150*	0			
Surr: 13C2-FtS 6:2	*122.4*	0	*152*	0	*80.5*	*50-150*	0			
Surr: 13C2-FtS 8:2	*142.1*	0	*153.3*	0	*92.7*	*50-150*	0			
Surr: 13C2-PFDA	*132.4*	0	*160*	0	*82.8*	*50-150*	0			
Surr: 13C2-PFDoA	*133.8*	0	*160*	0	*83.6*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxA	*130*	0	*160*	0	*81.2*	*50-150*	0
Surr: 13C2-PFHxDA	*117.7*	0	*160*	0	*73.5*	*50-150*	0
Surr: 13C2-PFTeA	*112.4*	0	*160*	0	*70.2*	*50-150*	0
Surr: 13C2-PFUnA	*124.3*	0	*160*	0	*77.7*	*50-150*	0
Surr: 13C3-HFPO-DA	*107.2*	0	*160*	0	*67*	*50-150*	0
Surr: 13C3-PFBS	*94.74*	0	*148.8*	0	*63.7*	*50-150*	0
Surr: 13C4-PFBA	*127.6*	0	*160*	0	*79.8*	*50-150*	0
Surr: 13C4-PFHpA	*115.4*	0	*160*	0	*72.2*	*50-150*	0
Surr: 13C4-PFOA	*142*	0	*160*	0	*88.8*	*50-150*	0
Surr: 13C4-PFOS	*119.4*	0	*152.8*	0	*78.2*	*50-150*	0
Surr: 13C5-PFNA	*151*	0	*160*	0	*94.4*	*50-150*	0
Surr: 13C5-PFPeA	*112.6*	0	*160*	0	*70.4*	*50-150*	0
Surr: 13C8-FOSA	*104.1*	0	*160*	0	*65*	*50-150*	0
Surr: 18O2-PFHxS	*95.91*	0	*151.2*	0	*63.4*	*50-150*	0
Surr: d5-N-EtFOSA	*86.01*	0	*160*	0	*53.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*98.53*	0	*160*	0	*61.6*	*50-150*	0
Surr: d9-N-EtFOSE	*91.37*	0	*160*	0	*57.1*	*50-150*	0
Surr: d3-N-MeFOSA	*90.8*	0	*160*	0	*56.8*	*50-150*	0
Surr: d3-N-MeFOSAA	*87.38*	0	*160*	0	*54.6*	*50-150*	0
Surr: d7-N-MeFOSE	*99.92*	0	*160*	0	*62.4*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090342
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

LCS Sample ID: **LCS-183229-183229** Units: **ng/L** Analysis Date: **9/10/2021 05:42 PM**
Client ID: Run ID: **LCMS1_210910C** SeqNo: **7740426** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	33.69	5.0	29.9	0	113	63-143	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS	34.84	5.0	30.3	0	115	64-140	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	33.58	5.0	30.7	0	109	67-138	0			
Fluorotelomer Sulphonic Acid 10:2 (Ft	51.05	5.0	30.8	0	166	40-160	0			S
Perfluorobutanesulfonic Acid (PFBS)	33.82	5.0	28.3	0	120	72-130	0			
Perfluorobutanoic Acid (PFBA)	31.54	5.0	32	0	98.6	73-129	0			
Perfluorodecanesulfonic Acid (PFDS)	25.88	5.0	30.8	0	84	53-142	0			
Perfluorodecanoic Acid (PFDA)	29.95	5.0	32	0	93.6	71-129	0			
Perfluorododecanesulfonic Acid (PFDo	24.91	5.0	31	0	80.4	69-134	0			
Perfluorododecanoic Acid (PFDoA)	29.28	5.0	32	0	91.5	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS	32.12	5.0	30.5	0	105	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	37.87	5.0	32	0	118	72-130	0			
Perfluorohexadecanoic Acid (PFHxDA	34.75	5.0	32	0	109	70-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	27.08	5.0	29.1	0	93.1	68-131	0			
Perfluorohexanoic Acid (PFHxA)	28.46	5.0	32	0	88.9	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	28.71	5.0	30.7	0	93.5	69-127	0			
Perfluorononanoic Acid (PFNA)	31.5	5.0	32	0	98.4	69-130	0			
Perfluorooctadecanoic Acid (PFODA)	29.75	5.0	32	0	93	70-130	0			
Perfluorooctanesulfonamide (PFOSA)	35.43	5.0	32	0	111	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	29.15	2.0	29.7	0	98.1	65-140	0			
Perfluorooctanoic Acid (PFOA)	33.88	2.0	32	0	106	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	38.27	5.0	30	0	128	71-127	0			S
Perfluoropentanoic Acid (PFPeA)	35.21	5.0	32	0	110	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	32.84	5.0	32	0	103	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	49.51	5.0	32	0	155	65-144	0			S
Perfluoroundecanoic Acid (PFUnA)	32.25	5.0	32	0	101	69-133	0			
N-ethylperfluoro-1-octanesulfonamide	26.98	5.0	32	0	84.3	70-130	0			
N-Ethylperfluorooctanesulfonamidoace	35.2	5.0	32	0	110	61-135	0			
N-Ethylperfluorooctanesulfonamidoeth	37.05	5.0	32	0	116	70-130	0			
N-methylperfluoro-1-octanesulfonamid	28.92	5.0	32	0	90.4	70-130	0			
N-Methylperfluorooctanesulfonamidoa	41.38	5.0	32	0	129	65-136	0			
N-Methylperfluorooctanesulfonamidoe	38.37	5.0	32	0	120	68-141	0			
Hexafluoropropylene oxide dimer acid	32.5	5.0	32	0	102	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	29.47	5.0	30.1	0	97.9	70-130	0			
11Cl-Pf3OUdS	23.89	5.0	30.1	0	79.4	70-130	0			
9Cl-PF3ONS	28.64	5.0	29.8	0	96.1	70-130	0			
Surr: 13C2-FtS 4:2	*117*	0	*149.4*	0	*78.3*	*50-150*	0			
Surr: 13C2-FtS 6:2	*130.3*	0	*152*	0	*85.7*	*50-150*	0			
Surr: 13C2-FtS 8:2	*148.1*	0	*153.3*	0	*96.6*	*50-150*	0			
Surr: 13C2-PFDA	*153.7*	0	*160*	0	*96.1*	*50-150*	0			
Surr: 13C2-PFDoA	*153.4*	0	*160*	0	*95.9*	*50-150*	0			
Surr: 13C2-PFHxA	*169*	0	*160*	0	*106*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxDA	*130.3*	0	*160*	0	*81.4*	*50-150*	0
Surr: 13C2-PFTeA	*113.9*	0	*160*	0	*71.2*	*50-150*	0
Surr: 13C2-PFUnA	*131.7*	0	*160*	0	*82.3*	*50-150*	0
Surr: 13C3-HFPO-DA	*151.4*	0	*160*	0	*94.6*	*50-150*	0
Surr: 13C3-PFBS	*105.2*	0	*148.8*	0	*70.7*	*50-150*	0
Surr: 13C4-PFBA	*148.5*	0	*160*	0	*92.8*	*50-150*	0
Surr: 13C4-PFHpA	*147.5*	0	*160*	0	*92.2*	*50-150*	0
Surr: 13C4-PFOA	*138.2*	0	*160*	0	*86.4*	*50-150*	0
Surr: 13C4-PFOS	*132.9*	0	*152.8*	0	*87*	*50-150*	0
Surr: 13C5-PFNA	*143.6*	0	*160*	0	*89.8*	*50-150*	0
Surr: 13C5-PFPeA	*129.4*	0	*160*	0	*80.9*	*50-150*	0
Surr: 13C8-FOSA	*101.4*	0	*160*	0	*63.4*	*50-150*	0
Surr: 18O2-PFHxS	*117.3*	0	*151.2*	0	*77.6*	*50-150*	0
Surr: d5-N-EtFOSA	*112.6*	0	*160*	0	*70.4*	*50-150*	0
Surr: d5-N-EtFOSAA	*113.3*	0	*160*	0	*70.8*	*50-150*	0
Surr: d9-N-EtFOSE	*107.6*	0	*160*	0	*67.2*	*50-150*	0
Surr: d3-N-MeFOSA	*117.8*	0	*160*	0	*73.6*	*50-150*	0
Surr: d3-N-MeFOSAA	*110.5*	0	*160*	0	*69.1*	*50-150*	0
Surr: d7-N-MeFOSE	*121.6*	0	*160*	0	*76*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090342
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

MS Sample ID: **21082518-06A MS** Units: **ng/L** Analysis Date: **9/9/2021 01:10 PM**

Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732979** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	32.13	4.9	29.2	0	110	63-143	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	52.94	4.9	29.98	17.26	119	67-138	0			
Fluorotelomer Sulphonic Acid 10:2 (Ft	35.69	4.9	30.08	0	119	40-160	0			
Perfluorobutanesulfonic Acid (PFBS)	29.3	4.9	27.64	0.9496	103	72-130	0			
Perfluorobutanoic Acid (PFBA)	184.2	4.9	31.25	153.4	98.4	73-129	0			O
Perfluorodecanesulfonic Acid (PFDS)	23.55	4.9	30.08	0	78.3	53-142	0			
Perfluorodecanoic Acid (PFDA)	42.47	4.9	31.25	7.515	112	71-129	0			
Perfluorododecanesulfonic Acid (PFDo	24.02	4.9	30.27	0	79.4	69-134	0			
Perfluorododecanoic Acid (PFDoA)	28.28	4.9	31.25	0	90.5	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS	33.81	4.9	29.79	0	114	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	165.1	4.9	31.25	127.3	121	72-130	0			O
Perfluorohexadecanoic Acid (PFHxDA	30.77	4.9	31.25	0	98.4	70-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	28.66	4.9	28.42	0.7053	98.4	68-131	0			
Perfluorohexanoic Acid (PFHxA)	322	4.9	31.25	321.4	1.93	72-129	0			SO
Perfluorononanesulfonic Acid (PFNS)	29.19	4.9	29.98	0	97.4	69-127	0			
Perfluorononanoic Acid (PFNA)	36.78	4.9	31.25	10	85.7	69-130	0			
Perfluorooctadecanoic Acid (PFODA)	30.77	4.9	31.25	0	98.4	70-130	0			
Perfluorooctanesulfonamide (PFOSA)	27.27	4.9	31.25	0	87.3	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	30.5	2.0	29	5.276	87	65-140	0			
Perfluorooctanoic Acid (PFOA)	53.23	2.0	31.25	21.85	100	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	38.94	4.9	29.3	0	133	71-127	0			S
Perfluorotetradecanoic Acid (PFTeA)	24.86	4.9	31.25	0	79.6	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	31.24	4.9	31.25	0	100	65-144	0			
Perfluoroundecanoic Acid (PFUnA)	30.62	4.9	31.25	0	98	69-133	0			
N-ethylperfluoro-1-octanesulfonamide	30.12	4.9	31.25	0	96.4	70-130	0			
N-Ethylperfluorooctanesulfonamidoace	28.27	4.9	31.25	0	90.4	61-135	0			
N-Ethylperfluorooctanesulfonamidoeth	34.42	4.9	31.25	0	110	70-130	0			
N-methylperfluoro-1-octanesulfonamid	29	4.9	31.25	0	92.8	70-130	0			
N-Methylperfluorooctanesulfonamidoa	38.55	4.9	31.25	0	123	65-136	0			
N-Methylperfluorooctanesulfonamidoe	32.7	4.9	31.25	0	105	68-141	0			
Hexafluoropropylene oxide dimer acid	33.46	4.9	31.25	0	107	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	21.89	4.9	29.39	0	74.5	70-130	0			
11Cl-Pf3OUdS	22.49	4.9	29.39	0	76.5	70-130	0			
9Cl-PF3ONS	27.7	4.9	29.1	0	95.2	70-130	0			
Surr: 13C2-FtS 4:2	*118*	0	*145.9*	0	*80.8*	*50-150*	0			
Surr: 13C2-FtS 6:2	*179.6*	0	*148.4*	0	*121*	*50-150*	0			
Surr: 13C2-FtS 8:2	*173.4*	0	*149.7*	0	*116*	*50-150*	0			
Surr: 13C2-PFDA	*136.3*	0	*156.2*	0	*87.2*	*50-150*	0			
Surr: 13C2-PFDoA	*129.8*	0	*156.2*	0	*83.1*	*50-150*	0			
Surr: 13C2-PFHxA	*128.4*	0	*156.2*	0	*82.2*	*50-150*	0			
Surr: 13C2-PFHxDA	*146*	0	*156.2*	0	*93.5*	*50-150*	0			
Surr: 13C2-PFTeA	*135.7*	0	*156.2*	0	*86.8*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFUnA	*120.3*	0	*156.2*	0	*77*	*50-150*	0
Surr: 13C3-HFPO-DA	*129.3*	0	*156.2*	0	*82.8*	*50-150*	0
Surr: 13C3-PFBS	*119.1*	0	*145.3*	0	*82*	*50-150*	0
Surr: 13C4-PFBA	*133.4*	0	*156.2*	0	*85.4*	*50-150*	0
Surr: 13C4-PFHpA	*146.6*	0	*156.2*	0	*93.8*	*50-150*	0
Surr: 13C4-PFOA	*142*	0	*156.2*	0	*90.9*	*50-150*	0
Surr: 13C4-PFOS	*128.1*	0	*149.2*	0	*85.9*	*50-150*	0
Surr: 13C5-PFNA	*164.2*	0	*156.2*	0	*105*	*50-150*	0
Surr: 13C5-PFPeA	*125.4*	0	*156.2*	0	*80.3*	*50-150*	0
Surr: 13C8-FOSA	*128.3*	0	*156.2*	0	*82.1*	*50-150*	0
Surr: 18O2-PFHxS	*99.02*	0	*147.7*	0	*67.1*	*50-150*	0
Surr: d5-N-EtFOSA	*107.5*	0	*156.2*	0	*68.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*107.7*	0	*156.2*	0	*68.9*	*50-150*	0
Surr: d9-N-EtFOSE	*108.5*	0	*156.2*	0	*69.4*	*50-150*	0
Surr: d3-N-MeFOSA	*131.7*	0	*156.2*	0	*84.3*	*50-150*	0
Surr: d3-N-MeFOSAA	*99.18*	0	*156.2*	0	*63.5*	*50-150*	0
Surr: d7-N-MeFOSE	*114.9*	0	*156.2*	0	*73.5*	*50-150*	0

MS Sample ID: **21082518-06A MS** Units: **ng/L** Analysis Date: **9/10/2021 05:53 PM**

Client ID: Run ID: **LCMS1_210910C** SeqNo: **7740427** Prep Date: **9/7/2021** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 6:2 (FtS	1053	49	29.59	1032	71.4	64-140	0			O
Perfluoropentanoic Acid (PFPeA)	677.2	49	31.25	663	45.3	72-129	0			SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090342
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

DUP Sample ID: **21082518-04A DUP** Units: **ng/L** Analysis Date: **9/9/2021 12:59 PM**

Client ID: Run ID: **LCMS1_210908D** SeqNo: **7732978** Prep Date: **9/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	U	4.8	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 6:2 (FtS	1.046	4.8	0	0	0	0-0	2.07	0	30	J
Fluorotelomer Sulphonic Acid 8:2 (FtS	U	4.8	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 10:2 (Ft	U	4.8	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (PFBS)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorobutanoic Acid (PFBA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorodecanesulfonic Acid (PFDS)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorododecanesulfonic Acid (PFDo	U	4.8	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PFDoA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid (PFHpS	0.6308	4.8	0	0	0	0-0	0	0	30	J
Perfluoroheptanoic Acid (PFHpA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorohexadecanoic Acid (PFHxDA	U	4.8	0	0	0	0-0	0	0	30	
Perfluorohexanesulfonic Acid (PFHxS)	U	4.8	0	0	0	0-0	1.643	0	30	
Perfluorohexanoic Acid (PFHxA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorononanesulfonic Acid (PFNS)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorooctadecanoic Acid (PFODA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (PFOSA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (PFOS)	2.111	1.9	0	0	0	0-0	1.939	8.49	30	
Perfluorooctanoic Acid (PFOA)	U	1.9	0	0	0	0-0	0	0	30	
Perfluoropentanesulfonic Acid (PFPeS	U	4.8	0	0	0	0-0	0	0	30	
Perfluoropentanoic Acid (PFPeA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorotetradecanoic Acid (PFTeA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFTriA)	U	4.8	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFUnA)	U	4.8	0	0	0	0-0	0	0	30	
N-ethylperfluoro-1-octanesulfonamide	U	4.8	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfonamidoace	U	4.8	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfonamidoeth	U	4.8	0	0	0	0-0	0	0	30	
N-methylperfluoro-1-octanesulfonamid	U	4.8	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfonamidoa	U	4.8	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfonamidoe	U	4.8	0	0	0	0-0	0	0	30	
Hexafluoropropylene oxide dimer acid	U	4.8	0	0	0	0-0	0	0	30	
4,8-Dioxa-3H-perfluorononanoic Acid (	U	4.8	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	U	4.8	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	U	4.8	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	*145*	0	*143.7*	0	*101*	*50-150*	331.6	*78.3*	*30*	*R*
Surr: 13C2-FtS 6:2	*203.1*	0	*146.2*	0	*139*	*50-150*	274.8	*30*	*30*	*R*
Surr: 13C2-FtS 8:2	*226.7*	0	*147.4*	0	*154*	*50-150*	160.5	*34.2*	*30*	*SR*
Surr: 13C2-PFDA	*173.3*	0	*153.8*	0	*113*	*50-150*	142	*19.9*	*30*	
Surr: 13C2-PFDoA	*177.1*	0	*153.8*	0	*115*	*50-150*	132.8	*28.6*	*30*	
Surr: 13C2-PFHxA	*159.9*	0	*153.8*	0	*104*	*50-150*	160	*0.0525*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 21090342
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **183229** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFHxDA	*189.1*	0	*153.8*	0	*123*	*50-150*	125.4	*40.5*	*30*	*R*
Surr: 13C2-PFTeA	*179.8*	0	*153.8*	0	*117*	*50-150*	136.1	*27.7*	*30*	
Surr: 13C2-PFUnA	*156.6*	0	*153.8*	0	*102*	*50-150*	135.1	*14.7*	*30*	
Surr: 13C3-HFPO-DA	*161.3*	0	*153.8*	0	*105*	*50-150*	136	*17*	*30*	
Surr: 13C3-PFBS	*149.2*	0	*143.1*	0	*104*	*50-150*	133.3	*11.3*	*30*	
Surr: 13C4-PFBA	*168.6*	0	*153.8*	0	*110*	*50-150*	145.6	*14.7*	*30*	
Surr: 13C4-PFHpA	*178.8*	0	*153.8*	0	*116*	*50-150*	165.6	*7.63*	*30*	
Surr: 13C4-PFOA	*182.2*	0	*153.8*	0	*118*	*50-150*	171.3	*6.16*	*30*	
Surr: 13C4-PFOS	*157.4*	0	*146.9*	0	*107*	*50-150*	124.9	*23*	*30*	
Surr: 13C5-PFNA	*202.5*	0	*153.8*	0	*132*	*50-150*	153.8	*27.3*	*30*	
Surr: 13C5-PFPeA	*179.2*	0	*153.8*	0	*116*	*50-150*	156	*13.8*	*30*	
Surr: 13C8-FOSA	*165.2*	0	*153.8*	0	*107*	*50-150*	154.7	*6.57*	*30*	
Surr: 18O2-PFHxS	*120.3*	0	*145.4*	0	*82.8*	*50-150*	109	*9.86*	*30*	
Surr: d5-N-EtFOSA	*153.3*	0	*153.8*	0	*99.6*	*50-150*	124.9	*20.4*	*30*	
Surr: d5-N-EtFOSAA	*159.8*	0	*153.8*	0	*104*	*50-150*	148.3	*7.45*	*30*	
Surr: d9-N-EtFOSE	*159*	0	*153.8*	0	*103*	*50-150*	143.8	*10*	*30*	
Surr: d3-N-MeFOSA	*159.6*	0	*153.8*	0	*104*	*50-150*	156.3	*2.13*	*30*	
Surr: d3-N-MeFOSAA	*139.9*	0	*153.8*	0	*90.9*	*50-150*	138.4	*1.11*	*30*	
Surr: d7-N-MeFOSE	*172.8*	0	*153.8*	0	*112*	*50-150*	138.3	*22.2*	*30*	

The following samples were analyzed in this batch: 21090342-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Chain of Custody Form

ALS

Cincinnati, OH +1 513 733 5336 | Fort Collins, CO +1 970 490 1511 | Houston, TX +1 281 530 5656 | Spring City, PA +1 610 948 4903 | South Charleston, WV +1 304 356 3168
Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070 | Middletown, PA +1 717 944 5541 | Salt Lake City, UT +1 801 266 7700 | York, PA +1 717 505 5280

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COC ID: 229896

ALS Project Manager: JNB | ALS Work Order #: 21090342

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	ALS 2021	Project Name	WRR	A	PFAS 537 M
Work Order		Project Number	55929.007	B	
Company Name	Gannett Fleming, Inc	Bill To Company	Gannett Fleming, Inc	C	
Send Report To	Tony Miller	Invoice Attn	Accounts Payable	D	
Address	8040 Excelsior Drive Suite 303	Address	8040 Excelsior Drive Suite 303	E	
				F	
City/State/Zip	Madison, WI 53717-1338	City/State/Zip	Madison, WI 53717-1338	G	
Phone	(608) 836-1500	Phone	(608) 836-1500	H	
Fax		Fax		I	
e-Mail Address	awmiller@gfnet.com	e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Field Blank	9/1	16:15	W	–	2	X										
2																	
3																	
4																	
5																	
6																	JNB
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Marcus Mussey [signature]

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Std 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☐ Other ____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:
[signature]	9/2/21	12:30	FedEx
Relinquished by: FedEx	Date: 9/3/21	Time: 0930	Received by (Laboratory): [signature]
Logged by (Laboratory): [signature]	Date: 9/3/21	Time: 1301	Checked by (Laboratory):

Notes:

Cooler ID	Cooler Temp.
IR3	2.1°C

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other ____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Group, USA

Sample Receipt Checklist

Client Name: **GANNETTFLEMING - WI** Date/Time Received: **03-Sep-21 09:30**

Work Order: **21090342** Received by: **LYS**

Checklist completed by Lydia Sweet (eSignature) 03-Sep-21 (Date) Reviewed by: Jodi Blouw (eSignature) 03-Sep-21 (Date)

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.1/3.1c	IR3	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	9/3/2021 1:03:16 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction: