



Saturday, July 30, 2022

Randy Evans
Randy Evans
328 South Overland Tr.
Fort Collins, CO 80521

Re: ALS Workorder: 2206585
Project Name: WPWT Facility
Project Number:

Dear Mr. Evans:

Two water samples were received from Randy Evans, on 6/24/2022. The samples were scheduled for the following analyses:

GC/MS Volatiles

Inorganics

Metals

Radium-226

Radium-228

PFAS - Subcontracted to ALS MI

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental.


Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

Margaret G. O'Brien

For

ALS Environmental
Katie M. OBrien
Project Manager

	<h1>Accreditations</h1>	Effective June 7, 2022
		ALS Environmental – Fort Collins

Accreditations: ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
Arizona	AZ0828
California (CA)	2926
Colorado (CO)	CO01099
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
Oklahoma	1301
Louisiana	197538
Maryland (MD)	285
PJLA (DoD ELAP/ISO 170250)	95377
PJLA (DOE-AP/ISO 17025)	95377
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO010992018-1
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	TN02976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280
Virginia	460305

40 CFR Part 136: All analyses for Clean Water Act samples are analyzed using the 40 CFR Part 136 specified method and include all the QC requirements.



2206585

GC/MS Volatiles:

The sample was analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C.

All acceptance criteria were met.

Metals:

The sample was analyzed following SW-846, 3rd Edition procedures. Analysis by Trace ICP followed method 6010D and the current revision of SOP 834.

All acceptance criteria were met.

Inorganics:

The sample was analyzed following EMSL and Standard Method procedures for the current revisions of the following SOPs and methods:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
TDS	SM2540C	1101
Chloride	300.0 Revision 2.1	1113
Fluoride	300.0 Revision 2.1	1113
Sulfate	300.0 Revision 2.1	1113

All acceptance criteria were met.

Radium-228:

The sample was analyzed for the presence of ²²⁸Ra by low background gas flow proportional counting of ²²⁸Ac, which is the ingrown progeny of ²²⁸Ra, according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:

The sample was prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2206585

Client Name: Randy Evans

Client Project Name: WPWT Facility

Client Project Number:

Client PO Number: WO 032

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Outfall 001A	2206585-1		WATER	23-Jun-22	14:30
Field Blank	2206585-2		WATER	23-Jun-22	14:30



ALS Environmental

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 2021e

PROJECT NAME		WPWT Facility		SAMPLER		Randy Evans		DATE		PAGE		2206585	
PROJECT NO.				SITE ID		EDD ID #: 281818		TURNAROUND		DISPOSAL		By Lab or Return to Client	
				EDD FORMAT		YES							
COMPANY NAME		Wellington Operating Company		PURCHASE ORDER		WO # 032 NOTE NEW NUMBER							
SEND REPORT TO		Randy Evans		BILL TO COMPANY		Wellington Operating Company							
ADDRESS		1590 East County Road 70		INVOICE ATTN TO		Eric Barslow							
CITY / STATE / ZIP		Wellington, CO 80549		ADDRESS		6142 Campbell Road							
PHONE		970-402-0418		CITY / STATE / ZIP		Dallas, TX 75248							
FAX		214-420-3001		PHONE		214-420-3000							
E-MAIL		lgrevans477@gmail.com		FAX		214-420-3001							
				E-MAIL		AP@Wellingtonoperating.com							
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	Sodium, Boron, Barium	TDS, Chloride, Fluoride, Sulfate	BTEX: Naphthalene, 1,3,5 trimethylbenzene	Radium 226	Radium 228	PFAS
1	Outfall 001A	W	6/23/2022	8:30; 10:30; 12:30; 14:30	2	2 & 8		X	X				
	Outfall 001A	W	6/23/2022	14:30	3	8				X			
	Outfall 001A	W	6/23/2022	14:30	2	2 & 8					X		
	Outfall 001A	W	6/23/2022	14:30	2	8						X	
2	Field Blank	W	6/23/2022	14:30	1	8						X	

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments: Outfall Facility ID #: 767700	QC PACKAGE (check below)			
	LEVEL II (Standard QC)			
	LEVEL III (Std QC + forms)			
	LEVEL IV (Std QC + forms + raw data)			
Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035				

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY	<i>Randy Evans</i>	Randy Evans	6/24/22	09:40
RELINQUISHED BY	<i>Christina</i>	Christina	6/24/22	09:40
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Randy Evans Workorder No: 2206585
 Project Manager: KMO Initials: CXT Date: 6-24-2022

		N/A	YES	NO
1.	Are airbills / shipping documents present and/or removable?	X		
Tracking number:				
2.	Are custody seals on shipping containers intact?	X		
3.	Are custody seals on sample containers intact?	X		
4.	Is there a COC (chain-of-custody) present?		X	
5.	Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		X	
6.	Are short-hold samples present?			X
7.	Are all samples within holding times for the requested analyses?		X	
8.	Were all sample containers received intact? (not broken or leaking)		X	
9.	Is there sufficient sample for the requested analyses?		X	
10.	Are samples in proper containers for requested analyses? (form 250, <i>Sample Handling Guidelines</i>)		X	
11.	Are all aqueous samples preserved correctly, if required? (excluding volatiles)		X	
12.	Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)	X		
13.	Were the samples shipped on ice?		X	
14.	Were cooler temperatures measured at 0.1-6.0°C?	IR gun used*: #6	RAD ONLY	X
Cooler #: <u>1</u> Temperature (°C): <u>4.8</u> # of custody seals on cooler: <u>0</u> External µR/hr reading: <u>NA</u> Background µR/hr reading: <u>11</u> Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <u>NA</u> (If no, see Form 008.)				

* Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

Were unpreserved bottles pH checked? NA All client bottle ID's vs ALS lab ID's double-checked by: CT

If applicable, was the client contacted? YES / NO / NA Contact: Margaret G. O'Brien Date/Time: 6/27/22

Project Manager Signature / Date: Margaret G. O'Brien

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SAMPLE SUMMARY REPORT

Client: Randy Evans
Project: WPWT Facility
Sample ID: Outfall 001A
Legal Location:
Collection Date: 6/23/2022 14:30

Date: 30-Jul-22
Work Order: 2206585
Lab ID: 2206585-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GC/MS Volatiles						
			SW8260_25		Prep Date: 6/30/2022	PrepBy: TWK
BENZENE	ND		1	UG/L	1	6/30/2022 16:45
TOLUENE	ND		1	UG/L	1	6/30/2022 16:45
ETHYLBENZENE	ND		1	UG/L	1	6/30/2022 16:45
M+P-XYLENE	ND		1	UG/L	1	6/30/2022 16:45
O-XYLENE	ND		1	UG/L	1	6/30/2022 16:45
1,3,5-TRIMETHYLBENZENE	ND		1	UG/L	1	6/30/2022 16:45
1,2,4-TRIMETHYLBENZENE	ND		1	UG/L	1	6/30/2022 16:45
NAPHTHALENE	ND		1	UG/L	1	6/30/2022 16:45
Surr: DIBROMOFLUOROMETHANE	91		80-120	%REC	1	6/30/2022 16:45
Surr: TOLUENE-D8	106		80-120	%REC	1	6/30/2022 16:45
Surr: 4-BROMOFLUOROBENZENE	113		80-120	%REC	1	6/30/2022 16:45
Total Recoverable ICP Metals						
			SW6010		Prep Date: 7/11/2022	PrepBy: ETC
BORON	2		0.1	MG/L	1	7/14/2022 16:08
BARIUM	ND		0.1	MG/L	1	7/14/2022 16:08
SODIUM	45		1	MG/L	1	7/14/2022 16:08
Ion Chromatography						
			EPA300.0		Prep Date: 6/28/2022	PrepBy: AOW
CHLORIDE	23		1	MG/L	5	6/28/2022 14:48
FLUORIDE	ND		1.3	MG/L	5	6/28/2022 14:48
SULFATE	ND		5	MG/L	5	6/28/2022 14:48
Radium-226 by Radon Emanation - Method 903.1						
			SOP 783		Prep Date: 7/13/2022	PrepBy: EJE
Ra-226	ND (+/- 0.14)	Y1,U	0.24	pCi/l	NA	7/28/2022 13:07
Carr: BARIUM	101	Y1	40-110	%REC	DL = NA	7/28/2022 13:07
Radium-228 Analysis by GFPC						
			SOP 724		Prep Date: 7/18/2022	PrepBy: MMS
Ra-228	ND (+/- 0.43)	U	0.95	pCi/l	NA	7/21/2022 08:45
Carr: BARIUM	83.5		40-110	%REC	DL = NA	7/21/2022 08:45
Total Dissolved Solids						
			SM2540C		Prep Date: 6/29/2022	PrepBy: KRL
TOTAL DISSOLVED SOLIDS	110		20	MG/L	1	6/30/2022

Client: Randy Evans
Project: WPWT Facility
Sample ID: Field Blank
Legal Location:
Collection Date: 6/23/2022 14:30

Date: 30-Jul-22
Work Order: 2206585
Lab ID: 2206585-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

- "Report Limit" is the MDC
 U or ND - Result is less than the sample specific MDC.
 Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
 Y2 - Chemical Yield outside default limits.
 W - DER is greater than Warning Limit of 1.42
 * - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
 # - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
 G - Sample density differs by more than 15% of LCS density.
 D - DER is greater than Control Limit
 M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
 L - LCS Recovery below lower control limit.
 H - LCS Recovery above upper control limit.
 P - LCS, Matrix Spike Recovery within control limits.
 N - Matrix Spike Recovery outside control limits
 NC - Not Calculated for duplicate results less than 5 times MDC
 B - Analyte concentration greater than MDC.
 B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
 U or ND - Indicates that the compound was analyzed for but not detected.
 E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 M - Duplicate injection precision was not met.
 N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 * - Duplicate analysis (relative percent difference) not within control limits.
 S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.
 B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
 E - Analyte concentration exceeds the upper level of the calibration range.
 J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
 A - A tentatively identified compound is a suspected aldol-condensation product.
 X - The analyte was diluted below an accurate quantitation level.
 * - The spike recovery is equal to or outside the control criteria used.
 + - The relative percent difference (RPD) equals or exceeds the control criteria.
 G - A pattern resembling gasoline was detected in this sample.
 D - A pattern resembling diesel was detected in this sample.
 M - A pattern resembling motor oil was detected in this sample.
 C - A pattern resembling crude oil was detected in this sample.
 4 - A pattern resembling JP-4 was detected in this sample.
 5 - A pattern resembling JP-5 was detected in this sample.
 H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
 L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.
 Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
 - gasoline
 - JP-8
 - diesel
 - mineral spirits
 - motor oil
 - Stoddard solvent
 - bunker C

ALS -- Fort Collins

Client: Randy Evans
 Work Order: 2206585
 Project: WPWT Facility

Date: 7/30/2022 9:39:

QC BATCH REPORT

Batch ID: **RE220713-1-2** Instrument ID: **Alpha Scin** Method: **Radium-226 by Radon Emanation**

LCS	Sample ID: RE220713-1			Units: pCi/l			Analysis Date: 7/29/2022 11:00					
Client ID:	Run ID: RE220713-1A				Prep Date: 7/13/2022		DF: NA					
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual	
Ra-226	36 (+/- 9)	0.4	46.41		77.5	67-120					P,Y1	
Carr: BARIUM	15990		15870		101	40-110					Y1	

LCSD	Sample ID: RE220713-1			Units: pCi/l			Analysis Date: 7/29/2022 11:00					
Client ID:	Run ID: RE220713-1A				Prep Date: 7/13/2022		DF: NA					
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual	
Ra-226	38.9 (+/- 9.7)	0.4	46.41		83.8	67-120		36	0.2	2.1	P,Y1	
Carr: BARIUM	16460		15860		104	40-110		15990			Y1	

MB	Sample ID: RE220713-1			Units: pCi/l			Analysis Date: 7/29/2022 11:00					
Client ID:	Run ID: RE220713-1A				Prep Date: 7/13/2022		DF: NA					
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual	
Ra-226	ND	0.39									Y1,U	
Carr: BARIUM	15870		15860		100	40-110					Y1	

The following samples were analyzed in this batch:

2206585-1

Client: Randy Evans
Work Order: 2206585
Project: WPWT Facility

QC BATCH REPORT

Batch ID: **RA220718-1-3** Instrument ID **LB4100-C** Method: **Radium-228 Analysis by GFPC**

LCS	Sample ID: RA220718-1				Units: pCi/l		Analysis Date: 7/21/2022 08:45				
Client ID:		Run ID: RA220718-1A				Prep Date: 7/18/2022			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
Ra-228	22.4 (+/- 5.2)	0.9	21.2		106	70-130					P
Carr: BARIUM	26870		31040		86.6	40-110					

LCSD	Sample ID: RA220718-1				Units: pCi/l		Analysis Date: 7/21/2022 08:45				
Client ID:		Run ID: RA220718-1A				Prep Date: 7/18/2022			DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
Ra-228	22.4 (+/- 5.2)	0.8	21.2		106	70-130		22.4	0.006	2.1	P
Carr: BARIUM	27830		31040		89.6	40-110		26870			

MB		Sample ID: RA220718-1				Units: pCi/l		Analysis Date: 7/21/2022 08:45			
Client ID:		Run ID: RA220718-1A				Prep Date: 7/18/2022		DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
Ra-228	ND	0.92									U
Carr: BARIUM	24420		31040		78.7	40-110					

The following samples were analyzed in this batch:

2206585-1

Client: Randy Evans
Work Order: 2206585
Project: WPWT Facility

QC BATCH REPORT

Batch ID: **IP220711-4-3** Instrument ID **ICP5900** Method: **SW6010**

LCS	Sample ID: IP220711-4				Units: MG/L		Analysis Date: 7/14/2022 15:56				
Client ID:	Run ID: IT220714-1A11				Prep Date: 7/11/2022			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BARIUM	0.988	0.1	1		99	80-120				20	
BORON	1.03	0.1	1		103	80-120				20	
SODIUM	40.1	1	40		100	80-120				20	

LCSD	Sample ID: IP220711-4				Units: MG/L		Analysis Date: 7/14/2022 15:59				
Client ID:	Run ID: IT220714-1A11				Prep Date: 7/11/2022			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BARIUM	0.996	0.1	1		100	80-120		0.988	1	20	
BORON	1.03	0.1	1		103	80-120		1.03	1	20	
SODIUM	40.2	1	40		100	80-120		40.1	0	20	

MB		Sample ID: IP220711-4		Units: MG/L		Analysis Date: 7/14/2022 15:55	
Client ID:		Run ID: IT220714-1A11		Prep Date: 7/11/2022		DF: 1	
Analyte	Result	ReportLimit					Qual
BARIUM	ND	0.1					
BORON	ND	0.1					
SODIUM	ND	1					

The following samples were analyzed in this batch:

2206585-1

Client: Randy Evans
 Work Order: 2206585
 Project: WPWT Facility

QC BATCH REPORT

Batch ID: VL220630-444-1 Instrument ID HPV4 Method: SW8260_25

LCS	Sample ID: VL220630-4			Units: UG/L		Analysis Date: 6/30/2022 11:50					
Client ID:		Run ID: VL220630-444A				Prep Date: 6/30/2022			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	9.83	1	10		98	80-120				20	
TOLUENE	10.8	1	10		108	80-120				20	
Surr: DIBROMOFLUOROMETHANE	23.1		25		92	80-120					
Surr: TOLUENE-D8	26.6		25		105	80-120					
Surr: 4-BROMOFLUOROBENZENE	26.3		25		105	80-120					

LCSD	Sample ID: VL220630-4			Units: UG/L			Analysis Date: 6/30/2022 12:09				
Client ID:	Run ID: VL220630-444A			Prep Date: 6/30/2022			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	10.3	1	10		103	80-120		9.83	5	20	
TOLUENE	11.4	1	10		114	80-120		10.8	6	20	
Surr: DIBROMOFLUOROMETHANE	23		25		92	80-120			1		
Surr: TOLUENE-D8	26.6		25		106	80-120			0		
Surr: 4-BROMOFLUOROBENZENE	25.9		25		104	80-120			1		

MB		Sample ID: VL220630-4		Units: UG/L		Analysis Date: 6/30/2022 13:27	
Client ID:		Run ID: VL220630-444A		Prep Date: 6/30/2022		DF: 1	
Analyte	Result	ReportLimit					Qual
BENZENE	ND	1					
TOLUENE	ND	1					
ETHYLBENZENE	ND	1					
M+P-XYLENE	ND	1					
O-XYLENE	ND	1					
1,3,5-TRIMETHYLBENZENE	ND	1					
1,2,4-TRIMETHYLBENZENE	ND	1					
NAPHTHALENE	ND	1					
Surr: DIBROMOFLUOROMETHANE	22.1			88	80-120		
Surr: TOLUENE-D8	27.5			110	80-120		
Surr: 4-BROMOFLUOROBENZENE	28			112	80-120		

The following samples were analyzed in this batch:

2206585-1

Client: Randy Evans
Work Order: 2206585
Project: WPWT Facility

QC BATCH REPORT

Batch ID: **IC220628-1-1** Instrument ID **IC3** Method: **EPA300.0**

LCS	Sample ID: IC220628-1				Units: MG/L		Analysis Date: 6/28/2022 13:05				
Client ID:	Run ID: IC220628-1A1				Prep Date: 6/28/2022			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
FLUORIDE	5	0.258	5		100	90-110				15	
CHLORIDE	9.94	0.2	10		99	90-110				15	
SULFATE	49.6	1	50		99	90-110				15	

LCSD	Sample ID: IC220628-1				Units: MG/L		Analysis Date: 6/28/2022 14:18				
Client ID:		Run ID: IC220628-1A1				Prep Date: 6/28/2022			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
FLUORIDE	4.98	0.258	5		100	90-110		5	0	15	
CHLORIDE	9.93	0.2	10		99	90-110		9.94	0	15	
SULFATE	49.8	1	50		100	90-110		49.6	0	15	

MB		Sample ID: IC220628-1			Units: MG/L		Analysis Date: 6/28/2022 13:11		
Client ID:		Run ID: IC220628-1A1			Prep Date: 6/28/2022			DF: 1	
Analyte		Result	ReportLimit		Qual				
FLUORIDE		ND	0.26						
CHLORIDE		ND	0.2						
SULFATE		ND	1						

MS		Sample ID: 2206585-1				Units: MG/L		Analysis Date: 6/28/2022 14:54			
Client ID: Outfall 001A			Run ID: IC220628-1A1			Prep Date: 6/28/2022			DF: 5		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
FLUORIDE	10.9	1.29	10	1.3	109	85-115				15	
CHLORIDE	49.2	1	25	23	104	85-115				15	
SULFATE	100	5	100	5	100	85-115				15	

The following samples were analyzed in this batch:

2206585-1

Client: Randy Evans
Work Order: 2206585
Project: WPWT Facility

QC BATCH REPORT

Batch ID: **TD220629-1-1** Instrument ID **Balance** Method: **SM2540C**

LCS		Sample ID: TD220629-1			Units: MG/L		Analysis Date: 6/30/2022				
Client ID:		Run ID: TD220630-1A1			Prep Date: 6/29/2022			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	398	20	400		99	85-115				14	

LCSD	Sample ID: TD220629-1			Units: MG/L			Analysis Date: 6/30/2022				
Client ID:	Run ID: TD220630-1A1			Prep Date: 6/29/2022			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	405	20	400		101	85-115		398	2	14	

MB		Sample ID: TD220629-1		Units: MG/L		Analysis Date: 6/30/2022	
Client ID:		Run ID: TD220630-1A1		Prep Date: 6/29/2022		DF: 1	
Analyte		Result	ReportLimit				
TOTAL DISSOLVED SOLIDS		ND	20				

The following samples were analyzed in this batch:

2206585-1



08-Jul-2022

Katie O'Brien
ALS Environmental
225 Commerce Dr
Ft. Collins, CO 80524

Re: **2206585**

Work Order: **22062772**

Dear Katie,

ALS Environmental received 2 samples on 27-Jun-2022 04:00 PM 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 19.

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,

A handwritten signature in black ink that reads "Jodi Blouw".

Electronically approved by: Jodi Blouw

Jodi Blouw

Report of Laboratory Analysis

Certificate No: MN 026-999-449

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: ALS Environmental
Project: 2206585
Work Order: 22062772

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
22062772-01	Outfall 001A	Water		6/23/2022 14:30	6/27/2022 16:00	<input type="checkbox"/>
22062772-02	Field Blank	Water		6/23/2022 14:30	6/27/2022 16:00	<input type="checkbox"/>

Client: ALS Environmental
Project: 2206585
WorkOrder: 22062772

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	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
n	Analyte accreditation is not offered
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.

<u>Acronym</u>	<u>Description</u>
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

<u>Units Reported</u>	<u>Description</u>
ng/L	Nanograms per Liter

Client: ALS Environmental
Project: 2206585
Work Order: 22062772

Case Narrative

Samples for the above noted Work Order were received on 06/27/2022. 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:

Batch 199021, Method E537 Mod, Sample MBLK-199021: CCV01: The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: d7-N-MeFOSE, d3-NMeFOSA, 13C-PFHpA

Batch 199021, Method E537 Mod, Sample LCS-199021: CCV01: The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: d7-N-MeFOSE, d3-NMeFOSA, 13C-PFHpA

Batch 199021, Method E537 Mod, Sample Outfall 001A (22062772-01A): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. 13C-FOSA_IS, d5-NEtFOSA_IS, d9-EtFOSE_IS, d3-NMeFOSA_IS, d7-N-MeFOSE_IS

Batch 199021, Method E537 Mod, Sample Outfall 001A (22062772-01A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. See attached QC report

Batch 199021, Method E537 Mod, Sample Field Blank (22062772-02A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. d3-N-MeFOSA, d7-N-MeFOSE

Client: ALS Environmental
Project: 2206585
Work Order: 22062772

Case Narrative

No other deviations or anomalies were noted.

ALS Group USA, Corp

Date: 08-Jul-22

CLIENT: ALS Environmental
Project: 2206585

Work Order: 22062772

Lab ID: 22062772-01A

Collection Date: 6/23/2022 2:30:00 PM

Client Sample ID: Outfall 001A

Matrix: WATER

Analyses	Result	Report Limit	MDL	Qual	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		E537 MOD		Analyst: ENS			
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U	4.4	0.83		ng/L	1	7/1/2022 11:14 PM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	U	4.4	1.7		ng/L	1	7/1/2022 11:14 PM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U	4.4	1.0		ng/L	1	7/1/2022 11:14 PM
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	U	4.4	2.1		ng/L	1	7/1/2022 11:14 PM
Perfluorobutanesulfonic Acid (PFBS)	U	4.4	0.31		ng/L	1	7/1/2022 11:14 PM
Perfluorobutanoic Acid (PFBA)	U	4.4	2.3		ng/L	1	7/1/2022 11:14 PM
Perfluorodecanesulfonic Acid (PFDS)	U	4.4	1.2		ng/L	1	7/1/2022 11:14 PM
Perfluorodecanoic Acid (PFDA)	U	4.4	1.1		ng/L	1	7/1/2022 11:14 PM
Perfluorododecanesulfonic Acid (PFDoS)	U	4.4	0.55		ng/L	1	7/1/2022 11:14 PM
Perfluorododecanoic Acid (PFDoA)	U	4.4	0.61		ng/L	1	7/1/2022 11:14 PM
Perfluoroheptanesulfonic Acid (PFHpS)	U	4.4	0.50		ng/L	1	7/1/2022 11:14 PM
Perfluoroheptanoic Acid (PFHpA)	U	4.4	1.5		ng/L	1	7/1/2022 11:14 PM
Perfluorohexadecanoic Acid (PFHxDA)	U	4.4	1.6		ng/L	1	7/1/2022 11:14 PM
Perfluorohexanesulfonic Acid (PFHxS)	U	4.4	0.80		ng/L	1	7/1/2022 11:14 PM
Perfluorohexanoic Acid (PFHxA)	U	4.4	1.1		ng/L	1	7/1/2022 11:14 PM
Perfluorononanesulfonic Acid (PFNS)	0.88	4.4	0.44	J	ng/L	1	7/1/2022 11:14 PM
Perfluorononanoic Acid (PFNA)	U	4.4	0.77		ng/L	1	7/1/2022 11:14 PM
Perfluorooctadecanoic Acid (PFODA)	U	4.4	0.57		ng/L	1	7/1/2022 11:14 PM
Perfluorooctanesulfonamide (PFOS/	U	4.4	0.63		ng/L	1	7/1/2022 11:14 PM
Perfluorooctanesulfonic Acid (PFOS)	1.2	1.8	0.79	J	ng/L	1	7/1/2022 11:14 PM
Perfluorooctanoic Acid (PFOA)	U	1.8	0.56		ng/L	1	7/1/2022 11:14 PM
Perfluoropentanesulfonic Acid (PFPeS)	U	4.4	0.49		ng/L	1	7/1/2022 11:14 PM
Perfluoropentanoic Acid (PFPeA)	U	4.4	1.1		ng/L	1	7/1/2022 11:14 PM
Perfluorotetradecanoic Acid (PFTeA)	U	4.4	2.3		ng/L	1	7/1/2022 11:14 PM
Perfluorotridecanoic Acid (PFTriA)	U	4.4	1.7		ng/L	1	7/1/2022 11:14 PM
Perfluoroundecanoic Acid (PFUnA)	U	4.4	0.86		ng/L	1	7/1/2022 11:14 PM
N-ethylperfluoro-1-octanesulfonamid	U	4.4	1.0		ng/L	1	7/1/2022 11:14 PM
N-Ethylperfluorooctanesulfonamidoacetic Acid	1.5	4.4	1.4	J	ng/L	1	7/1/2022 11:14 PM

Qualifiers:
U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results RPD > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

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ALS Group USA, Corp

Date: 08-Jul-22

CLIENT: ALS Environmental
Project: 2206585

Work Order: 22062772

N-Ethylperfluorooctanesulfonamidoethanol	1.2	4.4	0.93	J	ng/L	1	7/1/2022 11:14 PM
N-methylperfluoro-1-octanesulfonamide	U	4.4	0.70		ng/L	1	7/1/2022 11:14 PM
N-Methylperfluorooctanesulfonamidoacetic Acid	U	4.4	0.57		ng/L	1	7/1/2022 11:14 PM
N-Methylperfluorooctanesulfonamidoethanol	U	4.4	1.3		ng/L	1	7/1/2022 11:14 PM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	2.6	4.4	1.0	J	ng/L	1	7/1/2022 11:14 PM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U	4.4	0.50		ng/L	1	7/1/2022 11:14 PM
11Cl-Pf3OUdS	0.85	4.4	0.41	J	ng/L	1	7/1/2022 11:14 PM
9Cl-PF3ONS	U	4.4	0.40		ng/L	1	7/1/2022 11:14 PM
Surr: 13C2-FtS 4:2	75.7	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C2-FtS 6:2	73.1	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C2-FtS 8:2	49.2	50-150	0	S	%REC	1	7/1/2022 11:14 PM
Surr: 13C2-PFDA	55.1	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C2-PFDoA	49.9	50-150	0	S	%REC	1	7/1/2022 11:14 PM
Surr: 13C2-PFHxA	72.6	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C2-PFHxDA	52.3	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C2-PFTeA	50.8	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C2-PFUnA	67.1	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C3-HFPO-DA	50.7	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C3-PFBS	58.8	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C4-PFBA	66.4	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C4-PFHpA	50.6	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C4-PFOA	53.5	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C4-PFOS	61.7	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C5-PFNA	78.7	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C5-PFPeA	57.3	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: 13C8-FOSA	37.0	50-150	0	S	%REC	1	7/1/2022 11:14 PM
Surr: 18O2-PFHxS	69.4	50-150	0		%REC	1	7/1/2022 11:14 PM
Surr: d5-N-EtFOSA	35.2	50-150	0	S	%REC	1	7/1/2022 11:14 PM
Surr: d5-N-EtFOSAA	49.4	50-150	0	S	%REC	1	7/1/2022 11:14 PM
Surr: d9-N-EtFOSE	33.2	50-150	0	S	%REC	1	7/1/2022 11:14 PM
Surr: d3-N-MeFOSA	28.3	50-150	0	S	%REC	1	7/1/2022 11:14 PM
Surr: d3-N-MeFOSAA	45.1	50-150	0	S	%REC	1	7/1/2022 11:14 PM
Surr: d7-N-MeFOSE	31.2	50-150	0	S	%REC	1	7/1/2022 11:14 PM

Qualifiers: U - Analyzed for but Not Detected S - Spike Recovery outside accepted recovery limits
J - Analyte detected below quantitation limits P - Dual Column results RPD > 40%
B - Analyte detected in the associated Method Blank E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level H - Analyzed outside of Hold Time

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ALS Group USA, Corp

Date: 08-Jul-22

CLIENT: ALS Environmental
Project: 2206585

Work Order: 22062772

Lab ID: 22062772-02A

Collection Date: 6/23/2022 2:30:00 PM

Client Sample ID: Field Blank

Matrix: WATER

Analyses	Result	Report Limit	MDL	Qual	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		E537 MOD		Analyst: ENS			
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U	4.8	0.89		ng/L	1	7/1/2022 11:23 PM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	U	4.8	1.8		ng/L	1	7/1/2022 11:23 PM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U	4.8	1.1		ng/L	1	7/1/2022 11:23 PM
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	U	4.8	2.2		ng/L	1	7/1/2022 11:23 PM
Perfluorobutanesulfonic Acid (PFBS)	U	4.8	0.33		ng/L	1	7/1/2022 11:23 PM
Perfluorobutanoic Acid (PFBA)	U	4.8	2.5		ng/L	1	7/1/2022 11:23 PM
Perfluorodecanesulfonic Acid (PFDS)	U	4.8	1.3		ng/L	1	7/1/2022 11:23 PM
Perfluorodecanoic Acid (PFDA)	U	4.8	1.2		ng/L	1	7/1/2022 11:23 PM
Perfluorododecanesulfonic Acid (PFDoS)	U	4.8	0.59		ng/L	1	7/1/2022 11:23 PM
Perfluorododecanoic Acid (PFDoA)	U	4.8	0.66		ng/L	1	7/1/2022 11:23 PM
Perfluoroheptanesulfonic Acid (PFHpS)	U	4.8	0.54		ng/L	1	7/1/2022 11:23 PM
Perfluoroheptanoic Acid (PFHpA)	U	4.8	1.6		ng/L	1	7/1/2022 11:23 PM
Perfluorohexadecanoic Acid (PFHxDA)	U	4.8	1.7		ng/L	1	7/1/2022 11:23 PM
Perfluorohexanesulfonic Acid (PFHxS)	U	4.8	0.86		ng/L	1	7/1/2022 11:23 PM
Perfluorohexanoic Acid (PFHxA)	U	4.8	1.1		ng/L	1	7/1/2022 11:23 PM
Perfluorononanesulfonic Acid (PFNS)	0.94	4.8	0.47	J	ng/L	1	7/1/2022 11:23 PM
Perfluorononanoic Acid (PFNA)	U	4.8	0.83		ng/L	1	7/1/2022 11:23 PM
Perfluorooctadecanoic Acid (PFODA)	U	4.8	0.62		ng/L	1	7/1/2022 11:23 PM
Perfluorooctanesulfonamide (PFOS/	U	4.8	0.68		ng/L	1	7/1/2022 11:23 PM
Perfluorooctanesulfonic Acid (PFOS)	1.3	1.9	0.85	J	ng/L	1	7/1/2022 11:23 PM
Perfluorooctanoic Acid (PFOA)	U	1.9	0.60		ng/L	1	7/1/2022 11:23 PM
Perfluoropentanesulfonic Acid (PFPeS)	U	4.8	0.53		ng/L	1	7/1/2022 11:23 PM
Perfluoropentanoic Acid (PFPeA)	U	4.8	1.2		ng/L	1	7/1/2022 11:23 PM
Perfluorotetradecanoic Acid (PFTeA)	U	4.8	2.5		ng/L	1	7/1/2022 11:23 PM
Perfluorotridecanoic Acid (PFTriA)	U	4.8	1.8		ng/L	1	7/1/2022 11:23 PM
Perfluoroundecanoic Acid (PFUnA)	U	4.8	0.93		ng/L	1	7/1/2022 11:23 PM
N-ethylperfluoro-1-octanesulfonamid	U	4.8	1.1		ng/L	1	7/1/2022 11:23 PM
N-Ethylperfluorooctanesulfonamidoaceti c Acid	U	4.8	1.5		ng/L	1	7/1/2022 11:23 PM

Qualifiers: U - Analyzed for but Not Detected

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

P - Dual Column results RPD > 40%

E - Value above quantitation range

H - Analyzed outside of Hold Time

AR Page 3 of 4

ALS Group USA, Corp

Date: 08-Jul-22

CLIENT: ALS Environmental
Project: 2206585

Work Order: 22062772

N-Ethylperfluorooctanesulfonamidoethanol	1.1	4.8	1.0	J	ng/L	1	7/1/2022 11:23 PM
N-methylperfluoro-1-octanesulfonamide	U	4.8	0.76		ng/L	1	7/1/2022 11:23 PM
N-Methylperfluorooctanesulfonamidoacetic Acid	U	4.8	0.61		ng/L	1	7/1/2022 11:23 PM
N-Methylperfluorooctanesulfonamidoethanol	2.2	4.8	1.4	J	ng/L	1	7/1/2022 11:23 PM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.9	4.8	1.1	J	ng/L	1	7/1/2022 11:23 PM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U	4.8	0.54		ng/L	1	7/1/2022 11:23 PM
11Cl-Pf3OUdS	U	4.8	0.44		ng/L	1	7/1/2022 11:23 PM
9Cl-PF3ONS	U	4.8	0.43		ng/L	1	7/1/2022 11:23 PM
Surr: 13C2-FtS 4:2	75.3	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C2-FtS 6:2	61.0	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C2-FtS 8:2	74.9	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C2-PFDA	80.0	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C2-PFDoA	82.9	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C2-PFHxA	80.4	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C2-PFHxDA	65.6	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C2-PFTeA	71.3	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C2-PFUnA	83.9	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C3-HFPO-DA	63.3	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C3-PFBS	69.2	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C4-PFBA	72.6	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C4-PFHpA	66.8	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C4-PFOA	72.3	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C4-PFOS	85.5	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C5-PFNA	77.1	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C5-PFPeA	66.0	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 13C8-FOSA	63.3	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: 18O2-PFHxS	88.7	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: d5-N-EtFOSA	53.5	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: d5-N-EtFOSAA	56.8	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: d9-N-EtFOSE	59.1	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: d3-N-MeFOSA	43.1	50-150	0	S	%REC	1	7/1/2022 11:23 PM
Surr: d3-N-MeFOSAA	54.5	50-150	0		%REC	1	7/1/2022 11:23 PM
Surr: d7-N-MeFOSE	44.5	50-150	0	S	%REC	1	7/1/2022 11:23 PM

Qualifiers: U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results RPD > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

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Client: ALS Environmental
Work Order: 22062772
Project: 2206585

QC BATCH REPORT

Batch ID: **199021** Instrument ID **LCMS2** Method: **E537 Mod**

MBLK		Sample ID: MBLK-199021-199021				Units: ng/L		Analysis Date: 7/6/2022 06:42 AM			
Client ID:		Run ID: LCMS2_220705B				SeqNo: 8592144		Prep Date: 7/1/2022		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	1.9	5.0								
Fluorotelomer Sulphonic Acid	U	1.1	5.0								
Fluorotelomer Sulphonic Acid	U	2.4	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 Acid	U	0.62	5.0								
Perfluorododecanoic Acid (PFDA)	U	0.69	5.0								
Perfluoroheptanesulfonic Acid	U	0.57	5.0								
Perfluoroheptanoic Acid (PFHx)	U	1.7	5.0								
Perfluorohexadecanoic Acid (PFHx)	U	1.8	5.0								
Perfluorohexanesulfonic Acid	U	0.9	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 (PFDA)	U	0.65	5.0								
Perfluorooctanesulfonamide (PFOS)	U	0.71	5.0								
Perfluorooctanesulfonic Acid (PFOS)	1.158	0.89	2.0								J
Perfluorooctanoic Acid (PFOA)	U	0.63	2.0								
Perfluoropentanesulfonic Acid	U	0.56	5.0								
Perfluoropentanoic Acid (PFPeA)	U	1.3	5.0								
Perfluorotetradecanoic Acid (PFDA)	U	2.6	5.0								
Perfluorotridecanoic Acid (PFTeA)	U	1.9	5.0								
Perfluoroundecanoic Acid (PFUdA)	U	0.97	5.0								
N-ethylperfluoro-1-octanesulfo	U	1.2	5.0								
N-Ethylperfluorooctanesulfona	U	1.5	5.0								
N-Ethylperfluorooctanesulfona	U	1	5.0								
N-methylperfluoro-1-octanesul	U	0.79	5.0								
N-Methylperfluorooctanesulfor	U	0.64	5.0								
N-Methylperfluorooctanesulfor	U	1.5	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	138.3	0	0	149.4	0	92.6	50-150	0			
Surr: 13C2-FtS 6:2	137.1	0	0	152	0	90.2	50-150	0			
Surr: 13C2-FtS 8:2	127.9	0	0	153.3	0	83.4	50-150	0			
Surr: 13C2-PFDA	123.1	0	0	160	0	76.9	50-150	0			
Surr: 13C2-PFDoA	113.4	0	0	160	0	70.9	50-150	0			

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

Client: ALS Environmental
Work Order: 22062772
Project: 2206585

QC BATCH REPORT

Batch ID: 199021		Instrument ID LCMS2		Method: E537 Mod					
<i>Surr: 13C2-PFHxA</i>	<i>130.6</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>81.6</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C2-PFHxDA</i>	<i>115.1</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>71.9</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C2-PFTeA</i>	<i>102.5</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>64.1</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C2-PFUnA</i>	<i>126.1</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>78.8</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C3-HFPO-DA</i>	<i>111.6</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>69.7</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C3-PFBS</i>	<i>105.7</i>	<i>0</i>	<i>0</i>	<i>148.8</i>	<i>0</i>	<i>71.1</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C4-PFBA</i>	<i>119.3</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>74.5</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C4-PFHpA</i>	<i>120.7</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>75.4</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C4-PFOA</i>	<i>106.7</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>66.7</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C4-PFOS</i>	<i>117.5</i>	<i>0</i>	<i>0</i>	<i>152.8</i>	<i>0</i>	<i>76.9</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C5-PFNA</i>	<i>140.1</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>87.6</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C5-PFPeA</i>	<i>112.8</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>70.5</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C8-FOSA</i>	<i>112.2</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>70.1</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 18O2-PFHxS</i>	<i>90.4</i>	<i>0</i>	<i>0</i>	<i>151.2</i>	<i>0</i>	<i>59.8</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: d5-N-EtFOSA</i>	<i>88.22</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>55.1</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: d5-N-EtFOSAA</i>	<i>113.7</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>71.1</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: d9-N-EtFOSE</i>	<i>105.1</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>65.7</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: d3-N-MeFOSA</i>	<i>85.27</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>53.3</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: d3-N-MeFOSAA</i>	<i>124.4</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>77.8</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: d7-N-MeFOSE</i>	<i>83.3</i>	<i>0</i>	<i>0</i>	<i>160</i>	<i>0</i>	<i>52.1</i>	<i>50-150</i>	<i>0</i>	

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

Client: ALS Environmental

Work Order: 22062772

Project: 2206585

QC BATCH REPORT

Batch ID: 199021

Instrument ID LCMS2

Method: E537 Mod

LCS		Sample ID: LCS-199021-199021				Units: ng/L			Analysis Date: 7/1/2022 07:23 PM		
Client ID:		Run ID: LCMS2_220701B				SeqNo: 8591229			Prep Date: 7/1/2022		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid (FSA)	41.77	1.9	5.0	30.3	0	138	63-162	0			
Fluorotelomer Sulphonic Acid (FSA)	40.16	1.1	5.0	30.7	0	131	61-165	0			
Perfluorobutanoic Acid (PFBA)	37.11	2.6	5.0	32	0	116	73-129	0			
Perfluorodecanesulfonic Acid (PFDA)	27.79	1.4	5.0	30.8	0	90.2	53-142	0			
Perfluorodecanoic Acid (PFDA)	37.4	1.2	5.0	32	0	117	71-129	0			
Perfluorododecanesulfonic Acid (PFDA)	22.76	0.62	5.0	31	0	73.4	69-134	0			
Perfluorododecanoic Acid (PFDA)	39.25	0.69	5.0	32	0	123	72-134	0			
Perfluorohexanoic Acid (PFHx)	37.29	1.2	5.0	32	0	117	72-129	0			
Perfluorononanesulfonic Acid (PFNA)	30.78	0.5	5.0	30.7	0	100	69-127	0			
Perfluorononanoic Acid (PFNA)	33.07	0.87	5.0	32	0	103	69-130	0			
Perfluorooctanesulfonic Acid (PFOS)	30.28	0.89	2.0	29.7	0	102	65-140	0			
Perfluorooctanoic Acid (PFOA)	35.99	0.63	2.0	32	0	112	71-133	0			
Perfluorotetradecanoic Acid (PFTEA)	40.45	2.6	5.0	32	0	126	71-132	0			
Perfluorotridecanoic Acid (PFTeA)	37.96	1.9	5.0	32	0	119	65-144	0			
Perfluoroundecanoic Acid (PFUdA)	39.43	0.97	5.0	32	0	123	69-133	0			
N-ethylperfluoro-1-octanesulfonate (N-EtPFOS)	29.89	1.2	5.0	32	0	93.4	70-130	0			
N-Ethylperfluorooctanesulfonate (N-EtPFOS)	36.27	1.5	5.0	32	0	113	61-135	0			
N-Ethylperfluorooctanesulfonate (N-EtPFOS)	35.96	1	5.0	32	0	112	70-130	0			
4,8-Dioxo-3H-perfluorononanoic Acid (PFNA)	37.43	0.56	5.0	30.1	0	124	70-130	0			
11Cl-Pf3OUdS	23.07	0.47	5.0	30.1	0	76.6	70-130	0			
9Cl-PF3ONS	26.16	0.45	5.0	29.8	0	87.8	70-130	0			
Surr: 13C2-FtS 4:2	94.42	0	0	149.4	0	63.2	50-150	0			
Surr: 13C2-FtS 6:2	95.84	0	0	152	0	63.1	50-150	0			
Surr: 13C2-FtS 8:2	87.03	0	0	153.3	0	56.8	50-150	0			
Surr: 13C2-PFDA	98.33	0	0	160	0	61.5	50-150	0			
Surr: 13C2-PFDoA	87.52	0	0	160	0	54.7	50-150	0			
Surr: 13C2-PFHxA	107.3	0	0	160	0	67.1	50-150	0			
Surr: 13C2-PFTEA	85.53	0	0	160	0	53.5	50-150	0			
Surr: 13C2-PFUnA	124.2	0	0	160	0	77.7	50-150	0			
Surr: 13C3-HFPO-DA	84.07	0	0	160	0	52.5	50-150	0			
Surr: 13C3-PFBS	84.79	0	0	148.8	0	57	50-150	0			
Surr: 13C4-PFBA	104.2	0	0	160	0	65.1	50-150	0			
Surr: 13C4-PFOS	117.5	0	0	152.8	0	76.9	50-150	0			
Surr: 13C5-PFNA	117	0	0	160	0	73.1	50-150	0			
Surr: 13C5-PFPeA	88.83	0	0	160	0	55.5	50-150	0			
Surr: 13C8-FOSA	83.88	0	0	160	0	52.4	50-150	0			
Surr: d5-N-EtFOSAA	97.4	0	0	160	0	60.9	50-150	0			
Surr: d9-N-EtFOSE	86.42	0	0	160	0	54	50-150	0			
Surr: d3-N-MeFOSAA	83.96	0	0	160	0	52.5	50-150	0			

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

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Client: ALS Environmental
Work Order: 22062772
Project: 2206585

QC BATCH REPORT

Batch ID: **199021** Instrument ID **LCMS2** Method: **E537 Mod**

LCS		Sample ID: LCS-199021-199021				Units: ng/L		Analysis Date: 7/6/2022 06:50 AM			
Client ID:		Run ID: LCMS2_220705B				SeqNo: 8592145		Prep Date: 7/1/2022		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluorohexanesulfonic Acid (36.65	0.9	5.0	29.1	0	126	68-131	0			
N-methylperfluoro-1-octanesul	36.12	0.79	5.0	32	0	113	70-130	0			
N-Methylperfluorooctanesulfor	34.89	1.5	5.0	32	0	109	68-141	0			
Surr: 13C2-PFHxDA	86.9	0	0	160	0	54.3	50-150	0			
Surr: 13C4-PFHpA	93.57	0	0	160	0	58.5	50-150	0			
Surr: 13C4-PFOA	89.14	0	0	160	0	55.7	50-150	0			
Surr: 18O2-PFHxS	79.77	0	0	151.2	0	52.8	50-150	0			
Surr: d3-N-MeFOSA	84.04	0	0	160	0	52.5	50-150	0			

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

Client: ALS Environmental
 Work Order: 22062772
 Project: 2206585

QC BATCH REPORT

Batch ID: 199021 Instrument ID LCMS2 Method: E537 Mod

MS Sample ID: 22061651-02A MS					Units: ng/L			Analysis Date: 7/1/2022 09:19 PM			
Client ID:		Run ID: LCMS2_220701B			SeqNo: 8591241		Prep Date: 7/1/2022		DF: 1		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid (F)	37.22	0.95	5.1	30.48	0	122	63-143	0			
Fluorotelomer Sulphonic Acid (F)	31.49	2	5.1	30.89	0	102	63-162	0			
Fluorotelomer Sulphonic Acid (F)	35.67	1.2	5.1	31.3	0	114	61-165	0			
Fluorotelomer Sulphonic Acid (F)	46.55	2.4	5.1	31.4	0	148	40-160	0			
Perfluorobutanesulfonic Acid (PFBS)	31.96	0.36	5.1	28.85	0.4848	109	72-130	0			
Perfluorobutanoic Acid (PFBA)	34.75	2.7	5.1	32.62	0	107	73-129	0			
Perfluorodecanesulfonic Acid (PFDS)	24.11	1.4	5.1	31.4	0	76.8	53-142	0			
Perfluorodecanoic Acid (PFDA)	35.64	1.3	5.1	32.62	0	109	71-129	0			
Perfluorododecanoic Acid (PFDA)	35.07	0.7	5.1	32.62	0	108	72-134	0			
Perfluoroheptanesulfonic Acid (PFHxS)	24.95	0.58	5.1	31.1	0.61	78.3	69-134	0			
Perfluoroheptanoic Acid (PFHxS)	38.84	1.8	5.1	32.62	0	119	72-130	0			
Perfluorohexadecanoic Acid (PFHxS)	39.36	1.8	5.1	32.62	0	121	70-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	32.89	0.92	5.1	29.67	0	111	68-131	0			
Perfluorohexanoic Acid (PFHxS)	35.42	1.2	5.1	32.62	0	109	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	31.48	0.51	5.1	31.3	0	101	69-127	0			
Perfluorononanoic Acid (PFNA)	31.34	0.89	5.1	32.62	0	96.1	69-130	0			
Perfluorooctadecanoic Acid (PFOS)	26.54	0.66	5.1	32.62	0	81.4	70-130	0			
Perfluorooctanesulfonamide (PFOS)	41.35	0.72	5.1	32.62	0	127	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	30.72	0.91	2.0	30.28	1.294	97.2	65-140	0			
Perfluorooctanoic Acid (PFOA)	31.79	0.64	2.0	32.62	0	97.5	71-133	0			
Perfluoropentanesulfonic Acid (PFPS)	28.23	0.57	5.1	30.59	0	92.3	71-127	0			
Perfluoropentanoic Acid (PFPS)	40.85	1.3	5.1	32.62	0	125	72-129	0			
Perfluorotetradecanoic Acid (PFTrA)	34.96	2.7	5.1	32.62	0	107	71-132	0			
Perfluorotridecanoic Acid (PFTrA)	32.78	2	5.1	32.62	0	100	65-144	0			
Perfluoroundecanoic Acid (PFUdA)	36.68	0.99	5.1	32.62	0	112	69-133	0			
N-ethylperfluoro-1-octanesulfonate (PFOS)	24.22	1.2	5.1	32.62	0	74.2	70-130	0			
N-Ethylperfluorooctanesulfonate (PFOS)	41.22	1.6	5.1	32.62	0	126	61-135	0			
N-Ethylperfluorooctanesulfonate (PFOS)	26.64	1.1	5.1	32.62	0	81.7	70-130	0			
N-methylperfluoro-1-octanesulfonate (PFOS)	33.2	0.81	5.1	32.62	0	102	70-130	0			
N-Methylperfluorooctanesulfonate (PFOS)	40.34	0.66	5.1	32.62	0	124	65-136	0			
N-Methylperfluorooctanesulfonate (PFOS)	32.69	1.5	5.1	32.62	1.782	94.7	68-141	0			
Hexafluoropropylene oxide dimer sulfonate (PFOS)	37.67	1.2	5.1	32.62	0	115	70-130	0			
4,8-Dioxo-3H-perfluorononanoic acid (PFNS)	35.81	0.57	5.1	30.69	0	117	70-130	0			
11Cl-Pf3OUdS	21.63	0.48	5.1	30.69	0	70.5	70-130	0			
9Cl-PF3ONS	26.42	0.46	5.1	30.38	0	87	70-130	0			
Surr: 13C2-FtS 4:2	123.1	0	0	152.4	0	80.8	50-150	0			
Surr: 13C2-FtS 6:2	105.5	0	0	155	0	68.1	50-150	0			
Surr: 13C2-FtS 8:2	113.6	0	0	156.3	0	72.7	50-150	0			
Surr: 13C2-PFDA	116.7	0	0	163.1	0	71.5	50-150	0			
Surr: 13C2-PFDoA	108.3	0	0	163.1	0	66.4	50-150	0			
Surr: 13C2-PFHxA	118.8	0	0	163.1	0	72.8	50-150	0			
Surr: 13C2-PFHxDA	56.75	0	0	163.1	0	34.8	50-150	0			S
Surr: 13C2-PFTEA	83.49	0	0	163.1	0	51.2	50-150	0			

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

Client: ALS Environmental
Work Order: 22062772
Project: 2206585

QC BATCH REPORT

Batch ID: 199021		Instrument ID LCMS2		Method: E537 Mod					
<i>Surr: 13C2-PFUnA</i>	<i>109.6</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>67.2</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C3-HFPO-DA</i>	<i>109.7</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>67.2</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C3-PFBS</i>	<i>104.6</i>	<i>0</i>	<i>0</i>	<i>151.7</i>	<i>0</i>	<i>69</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C4-PFBA</i>	<i>110.4</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>67.7</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C4-PFHpA</i>	<i>124.3</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>76.2</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C4-PFOA</i>	<i>108.9</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>66.8</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C4-PFOS</i>	<i>107.4</i>	<i>0</i>	<i>0</i>	<i>155.8</i>	<i>0</i>	<i>68.9</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C5-PFNA</i>	<i>107</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>65.6</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C5-PFPeA</i>	<i>108.8</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>66.7</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C8-FOSA</i>	<i>96.72</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>59.3</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 18O2-PFHxS</i>	<i>114</i>	<i>0</i>	<i>0</i>	<i>154.2</i>	<i>0</i>	<i>74</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: d5-N-EtFOSA</i>	<i>88.05</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>54</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: d5-N-EtFOSAA</i>	<i>93.25</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>57.2</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: d9-N-EtFOSE</i>	<i>97.42</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>59.7</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: d3-N-MeFOSA</i>	<i>71.78</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>44</i>	<i>50-150</i>	<i>0</i>	S
<i>Surr: d3-N-MeFOSAA</i>	<i>88.22</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>54.1</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: d7-N-MeFOSE</i>	<i>56.59</i>	<i>0</i>	<i>0</i>	<i>163.1</i>	<i>0</i>	<i>34.7</i>	<i>50-150</i>	<i>0</i>	S

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

Client: ALS Environmental
 Work Order: 22062772
 Project: 2206585

QC BATCH REPORT

Batch ID: 199021 Instrument ID LCMS2 Method: E537 Mod

DUP Sample ID: 22062797-01A DUP					Units: ng/L			Analysis Date: 7/1/2022 09:27 PM			
Client ID:		Run ID: LCMS2_220701B			SeqNo: 8591242		Prep Date: 7/1/2022		DF: 1		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid (F)	U	0.86	4.6	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid (F)	U	1.8	4.6	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid (F)	U	1	4.6	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid (F)	U	2.2	4.6	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (PFBS)	U	0.32	4.6	0	0	0	0-0	0	0	30	
Perfluorobutanoic Acid (PFBA)	U	2.4	4.6	0	0	0	0-0	0	0	30	
Perfluorodecanesulfonic Acid (PFDS)	U	1.3	4.6	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA)	U	1.1	4.6	0	0	0	0-0	0.08309	0	30	
Perfluorododecanesulfonic Acid (PFDS)	1.668	0.57	4.6	0	0	0	0-0	1.692	0	30	J
Perfluorododecanoic Acid (PFDA)	U	0.64	4.6	0	0	0	0-0	0.2593	0	30	
Perfluoroheptanesulfonic Acid (PFHS)	U	0.52	4.6	0	0	0	0-0	0	0	30	
Perfluoroheptanoic Acid (PFHx)	U	1.6	4.6	0	0	0	0-0	0	0	30	
Perfluorohexadecanoic Acid (PFHx)	U	1.7	4.6	0	0	0	0-0	1.107	0	30	
Perfluorohexanesulfonic Acid (PFHS)	U	0.83	4.6	0	0	0	0-0	0.1762	0	30	
Perfluorohexanoic Acid (PFHx)	U	1.1	4.6	0	0	0	0-0	0	0	30	
Perfluorononanesulfonic Acid (PFNS)	U	0.46	4.6	0	0	0	0-0	1.087	0	30	
Perfluorononanoic Acid (PFNA)	U	0.8	4.6	0	0	0	0-0	0	0	30	
Perfluorooctadecanoic Acid (PFDA)	U	0.6	4.6	0	0	0	0-0	0.2958	0	30	
Perfluorooctanesulfonamide (PFOS)	U	0.65	4.6	0	0	0	0-0	0.359	0	30	
Perfluorooctanesulfonic Acid (PFOS)	1.571	0.82	1.8	0	0	0	0-0	1.383	0	30	J
Perfluorooctanoic Acid (PFOA)	U	0.58	1.8	0	0	0	0-0	0	0	30	
Perfluoropentanesulfonic Acid (PFPS)	U	0.51	4.6	0	0	0	0-0	0	0	30	
Perfluoropentanoic Acid (PFPeA)	U	1.2	4.6	0	0	0	0-0	0.4221	0	30	
Perfluorotetradecanoic Acid (PFTrA)	U	2.4	4.6	0	0	0	0-0	0.4121	0	30	
Perfluorotridecanoic Acid (PFTrA)	U	1.8	4.6	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFUnA)	U	0.9	4.6	0	0	0	0-0	0	0	30	
N-ethylperfluoro-1-octanesulfonate	U	1.1	4.6	0	0	0	0-0	1.087	0	30	
N-Ethylperfluorooctanesulfonate	3.634	1.4	4.6	0	0	0	0-0	3.291	0	30	J
N-Ethylperfluorooctanesulfonate	1.674	0.96	4.6	0	0	0	0-0	1.639	0	30	J
N-methylperfluoro-1-octanesulfonate	U	0.73	4.6	0	0	0	0-0	0.6947	0	30	
N-Methylperfluorooctanesulfonate	U	0.59	4.6	0	0	0	0-0	0.05318	0	30	
N-Methylperfluorooctanesulfonate	2.036	1.4	4.6	0	0	0	0-0	2.699	0	30	J
Hexafluoropropylene oxide dimer	2.2891	1.1	4.6	0	0	0	0-0	2.556	0	30	J
4,8-Dioxa-3H-perfluorononanoic Acid	U	0.52	4.6	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	0.865	0.43	4.6	0	0	0	0-0	0	0	30	J
9Cl-Pf3ONS	0.9709	0.41	4.6	0	0	0	0-0	1.074	0	30	J
Surr: 13C2-FtS 4:2	97.39	0	0	137.4	0	70.9	50-150	126.8	26.2	30	
Surr: 13C2-FtS 6:2	80.28	0	0	139.8	0	57.4	50-150	117.3	37.5	30	R
Surr: 13C2-FtS 8:2	78.28	0	0	140.9	0	55.5	50-150	127.4	47.7	30	R
Surr: 13C2-PFDA	98.5	0	0	147.1	0	67	50-150	144.7	38	30	R
Surr: 13C2-PFDoA	75.03	0	0	147.1	0	51	50-150	126.8	51.3	30	R
Surr: 13C2-PFHxA	130.1	0	0	147.1	0	88.4	50-150	161	21.2	30	
Surr: 13C2-PFHxDA	35.9	0	0	147.1	0	24.4	50-150	82.48	78.7	30	SR

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

Client: ALS Environmental
 Work Order: 22062772
 Project: 2206585

QC BATCH REPORT

Batch ID: 199021		Instrument ID LCMS2		Method: E537 Mod								
Surr: 13C2-PFTeA	43.25	0	0	147.1	0	29.4	50-150	79.01	58.5	30	SR	
Surr: 13C2-PFUnA	78.27	0	0	147.1	0	53.2	50-150	132.7	51.6	30	R	
Surr: 13C3-HFPO-DA	97.7	0	0	147.1	0	66.4	50-150	127.5	26.4	30		
Surr: 13C3-PFBS	90.22	0	0	136.8	0	65.9	50-150	116.8	25.7	30		
Surr: 13C4-PFBA	110.1	0	0	147.1	0	74.8	50-150	144.9	27.3	30		
Surr: 13C4-PFHpA	110.3	0	0	147.1	0	75	50-150	142.3	25.3	30		
Surr: 13C4-PFOA	117.5	0	0	147.1	0	79.8	50-150	128.3	8.79	30		
Surr: 13C4-PFOS	94.16	0	0	140.5	0	67	50-150	129.3	31.4	30	R	
Surr: 13C5-PFNA	101.5	0	0	147.1	0	69	50-150	143.9	34.6	30	R	
Surr: 13C5-PFPeA	93.38	0	0	147.1	0	63.5	50-150	118.9	24	30		
Surr: 13C8-FOSA	71.64	0	0	147.1	0	48.7	50-150	120.7	51	30	SR	
Surr: 18O2-PFHxS	110.2	0	0	139	0	79.3	50-150	119.9	8.41	30		
Surr: d5-N-EtFOSA	61.02	0	0	147.1	0	41.5	50-150	102.5	50.7	30	SR	
Surr: d5-N-EtFOSAA	59.76	0	0	147.1	0	40.6	50-150	104.1	54.1	30	SR	
Surr: d9-N-EtFOSE	69.28	0	0	147.1	0	47.1	50-150	112.6	47.7	30	SR	
Surr: d3-N-MeFOSA	60.86	0	0	147.1	0	41.4	50-150	109.2	56.9	30	SR	
Surr: d3-N-MeFOSAA	58.85	0	0	147.1	0	40	50-150	111	61.4	30	SR	
Surr: d7-N-MeFOSE	54.56	0	0	147.1	0	37.1	50-150	102.5	61.1	30	SR	

The following samples were analyzed in this batch:

22062772-01A 22062772-02A

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

ALS Environmental

225 Commerce Drive, Fort Collins, Colorado 80524

TF: (800) 443-1511 w PH: (970) 490-1511 w FX: (970) 490-1522

Chain-of-Custody

[illegible]

Sample Receipt Checklist

Client Name: ALS - FORT COLLINS

Date/Time Received: 27-Jun-22 16:00

Work Order: 22062772

Received by: JD

Checklist completed by Jason Delinger
eSignature

30-Jun-22
Date

Reviewed by: Jodi Blum
eSignature

01-Jul-22
Date

Matrices: water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Sample(s) received on ice?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>20.2/21.2 C</u>		<u>IR3</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>6/30/2022 8:36:04 AM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes: Melted Ice

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction: