07-Apr-2022

Thad Domick
Genesee County WWS
9290 Farrand Rd
Montrose, MI 48457

Re: **ARTP Biosolids** Work Order: **22030506**

Dear Thad,

ALS Environmental received 1 sample on 04-Mar-2022 11:00 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 24.

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: Chad Whelton

Jodi Blouw

Report of Laboratory Analysis

Certificate No: MN 026-999-449

ALS Group, USA

Date: 07-Apr-22

Client: Genesee County WWS
Project: ARTP Biosolids
Work Order: **22030506**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
22030506-01	ARTP Biosolids Tank 3	Sludge		3/3/2022 10:30	3/4/2022 23:00	☐

Client: Genesee County WWS
Project: ARTP Biosolids
Work Order: 22030506

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 193928, Method D7968-17a, Sample ARTP Biosolids Tank 3 (22030506-01A): The Continuing Calibration Verification did not meet acceptance criteria with high bias, however, the sample results were non-detect for the following analytes: 8:2-FTS

Batch 193928, Method D7968-17a, Sample ARTP Biosolids Tank 3 (22030506-01A): Surrogate high due to matrix interference. See attached QC report.

Batch 193928, Method D7968-17a, Sample ARTP Biosolids Tank 3 (22030506-01A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. See attached QC report.

Batch 193928, Method D7968-17a, Sample LCS1-193928: The LCS recovery was above the upper control limit. All sample results in the batch were non-detect. No qualification is necessary for this analyte: PFDS

Batch 193928, Method D7968-17a, Sample LCS1-193928: The LCS recovery was within acceptance criteria, but recovered below the MDL and does not show on the final report. No qualification necessary. Raw data available upon request: PFOS, PFPeS

Batch 193928, Method D7968-17a, Sample LCS3-193928: The LCS recovery was above the

upper control limit. All sample results in the batch were non-detect. No qualification is necessary for this analyte: PFDA

Batch 193928, Method D7968-17a, Sample LCS3-193928: The LCS recovery was within acceptance criteria, but recovered below the MDL and does not show on the final report. No qualification necessary. Raw data available upon request: HFPO-DA

Batch 193928, Method D7968-17a, Sample LCS3-193928: The LCS recovery was within acceptance criteria, but recovered below the MDL and does not show on the final report. No qualification necessary. Raw data available upon request: HFPODA

Batch 193928, Method D7968-17a, Sample LCSD2-193928: The RPD between the LCS2 and LCSD2 was outside of the control limit. The sample results should be considered estimated for this analyte: PFNS

ALS Group, USA

Date: 07-Apr-22

Client: Genesee County WWS
Project: ARTP Biosolids
WorkOrder: **22030506**

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
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.

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
% of sample	Percent of Sample

ALS Group, USA

Date: *07-Apr-22*

Client: Genesee County WWS
Project: ARTP Biosolids
Sample ID: ARTP Biosolids Tank 3
Collection Date: 3/3/2022 10:30 AM

Work Order: 22030506
Lab ID: 22030506-01
Matrix: SLUDGE

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY LC-MS-MS		Method: **D7968-17A**			Prep: D7968-17a / 3/31/22		Analyst: **AK**
Perfluorobutanoic Acid (PFBA)	U		1,300	3,800	ng/Kg-dry	1	4/7/2022 04:04
Perfluoropentanoic Acid (PFPeA)	**1,100**	J	**500**	**3,800**	**ng/Kg-dry**	1	4/7/2022 04:04
Perfluorohexanoic Acid (PFHxA)	**1,800**	J	**460**	**3,800**	**ng/Kg-dry**	1	4/7/2022 04:04
Perfluoroheptanoic Acid (PFHpA)	U		500	3,800	ng/Kg-dry	1	4/7/2022 04:04
Perfluorooctanoic Acid (PFOA)	**530**	J	**340**	**750**	**ng/Kg-dry**	1	4/7/2022 04:04
Perfluorononanoic Acid (PFNA)	U		380	750	ng/Kg-dry	1	4/7/2022 04:04
Perfluorodecanoic Acid (PFDA)	U		580	3,800	ng/Kg-dry	1	4/7/2022 04:04
Perfluoroundecanoic Acid (PFUnA)	U		640	3,800	ng/Kg-dry	1	4/7/2022 04:04
Perfluorododecanoic Acid (PFDoA)	U		790	3,800	ng/Kg-dry	1	4/7/2022 04:04
Perfluorotridecanoic Acid (PFTriA)	U		850	3,800	ng/Kg-dry	1	4/7/2022 04:04
Perfluorotetradecanoic Acid (PFTeA)	U		1,200	3,800	ng/Kg-dry	1	4/7/2022 04:04
Perfluorobutanesulfonic Acid (PFBS)	U		500	750	ng/Kg-dry	1	4/7/2022 04:04
Perfluoropentanesulfonic Acid (PFPeS)	U		410	750	ng/Kg-dry	1	4/7/2022 04:04
Perfluorohexanesulfonic Acid (PFHxS)	U		720	3,800	ng/Kg-dry	1	4/7/2022 04:04
Perfluoroheptanesulfonic Acid (PFHpS)	U		650	3,800	ng/Kg-dry	1	4/7/2022 04:04
Perfluorooctanesulfonic Acid (PFOS)	U		310	750	ng/Kg-dry	1	4/7/2022 04:04
Perfluorononanesulfonic Acid (PFNS)	U		650	3,800	ng/Kg-dry	1	4/7/2022 04:04
Perfluorodecanesulfonic Acid (PFDS)	U		390	750	ng/Kg-dry	1	4/7/2022 04:04
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U		850	3,800	ng/Kg-dry	1	4/7/2022 04:04
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	U		1,400	3,800	ng/Kg-dry	1	4/7/2022 04:04
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1,800	3,800	ng/Kg-dry	1	4/5/2022 15:45
Perfluorooctanesulfonamide (PFOSA)	U		250	750	ng/Kg-dry	1	4/7/2022 04:04
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		1,500	3,800	ng/Kg-dry	1	4/7/2022 04:04
N-Methylperfluorooctanesulfonamidoacetic Acid	U		920	3,800	ng/Kg-dry	1	4/7/2022 04:04
11Cl-Pf3OUdS	U		310	750	ng/Kg-dry	1	4/7/2022 04:04
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		180	750	ng/Kg-dry	1	4/7/2022 04:04
9Cl-PF3ONS	U		140	750	ng/Kg-dry	1	4/7/2022 04:04
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		3,000	3,800	ng/Kg-dry	1	4/7/2022 04:04
Surr: 13C4-PFBA	*64.7*			*50-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C5-PFPeA	*54.7*			*50-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C2-PFHxA	*61.6*			*50-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C4-PFHpA	*60.6*			*50-130*	*%REC*	1	4/7/2022 04:04

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

ALS Group, USA

Date: *07-Apr-22*

Client: Genesee County WWS
Project: ARTP Biosolids
Sample ID: ARTP Biosolids Tank 3
Collection Date: 3/3/2022 10:30 AM

Work Order: 22030506
Lab ID: 22030506-01
Matrix: SLUDGE

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C4-PFOA	*54.2*	S		*70-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C5-PFNA	*52.3*	S		*70-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C2-PFDA	*41.4*	S		*70-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C2-PFUnA	*40.4*	S		*70-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C2-PFDoA	*11.4*	S		*70-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C2-PFTeA	*0*	S		*50-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C3-PFBS	*48.8*	S		*50-130*	*%REC*	1	4/7/2022 04:04
Surr: 18O2-PFHxS	*49.5*	S		*70-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C4-PFOS	*35.7*	S		*70-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C2-FtS 4:2	*100*			*50-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C2-FtS 6:2	*91.1*			*50-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C2-FtS 8:2	*29.5*	S		*50-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C8-FOSA	*34.2*	S		*50-130*	*%REC*	1	4/7/2022 04:04
Surr: d3-N-MeFOSAA	*34.9*	S		*50-130*	*%REC*	1	4/7/2022 04:04
Surr: d5-N-EtFOSAA	*36.7*	S		*50-130*	*%REC*	1	4/7/2022 04:04
Surr: 13C3-HFPO-DA	*54.8*			*50-130*	*%REC*	1	4/7/2022 04:04
MOISTURE		Method: **SW3550C**					Analyst: **ALG**
Moisture	**97**		**0.10**	**0.10**	**% of sample**	1	3/8/2022 12:38

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

Batch ID: **192797** Instrument ID **LCMS1** Method: **E537 Mod**

MS Sample ID: **22030449-02A MS** Units: **µg/Kg** Analysis Date: **3/10/2022 04:07 AM**

Client ID: Run ID: **LCMS1_220309C** SeqNo: **8233543** Prep Date: **3/8/2022** 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	5.997	0.99	3.699	0	162	62-145	0			S
Fluorotelomer Sulphonic Acid 6:2 (FtS	37.11	0.99	3.754	32.07	134	64-140	0			O
Fluorotelomer Sulphonic Acid 8:2 (FtS	6.272	0.99	3.794	0	165	65-137	0			S
Fluorotelomer Sulphonic Acid 10:2 (Ft	6.756	0.99	3.818	0	177	40-160	0			S
Perfluorobutanesulfonic Acid (PFBS)	5.415	0.99	3.501	0.4104	143	72-128	0			S
Perfluorobutanoic Acid (PFBA)	13.97	0.99	3.96	6.46	190	71-135	0			S
Perfluorodecanesulfonic Acid (PFDS)	5.387	0.99	3.818	0	141	59-134	0			S
Perfluorodecanoic Acid (PFDA)	5.973	0.99	3.96	0	151	69-133	0			S
Perfluorododecanesulfonic Acid (PFDc	4.873	0.99	3.834	0	127	69-134	0			
Perfluorododecanoic Acid (PFDoA)	5.198	0.99	3.96	0	131	69-135	0			
Perfluoroheptanesulfonic Acid (PFHpS	3.33	0.99	3.77	0.1011	85.6	70-132	0			
Perfluoroheptanoic Acid (PFHpA)	17.98	0.99	3.96	10.05	200	71-131	0			S
Perfluorohexadecanoic Acid (PFHxDA	7.33	0.99	3.96	0.2305	179	70-130	0			S
Perfluorohexanesulfonic Acid (PFHxS)	5.585	0.99	3.604	0.8576	131	67-130	0			S
Perfluorohexanoic Acid (PFHxA)	38.87	0.99	3.96	24.7	358	70-132	0			SO
Perfluorononanesulfonic Acid (PFNS)	5.064	0.99	3.802	0	133	69-125	0			S
Perfluorononanoic Acid (PFNA)	5.875	0.99	3.96	0.3121	140	72-129	0			S
Perfluorooctadecanoic Acid (PFODA)	6.965	0.99	3.96	0.01699	175	70-130	0			S
Perfluorooctanesulfonamide (PFOSA)	4.855	0.99	3.96	0	123	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	5.138	0.99	3.675	0.1016	137	68-136	0			S
Perfluorooctanoic Acid (PFOA)	5.759	0.99	3.96	0.2964	138	69-133	0			S
Perfluoropentanesulfonic Acid (PFPeS	3.574	0.99	3.715	0.1621	91.8	73-123	0			
Perfluorotetradecanoic Acid (PFTeA)	5.378	0.99	3.96	0.03648	135	69-133	0			S
Perfluorotridecanoic Acid (PFTriA)	7.048	0.99	3.96	0	178	66-139	0			S
Perfluoroundecanoic Acid (PFUnA)	5.303	0.99	3.96	0.04767	133	64-136	0			
N-ethylperfluoro-1-octanesulfonamide	5.987	0.99	3.96	0.0199	151	70-130	0			S
N-Ethylperfluorooctanesulfonamidoace	7.191	0.99	3.96	0	182	61-139	0			S
N-Ethylperfluorooctanesulfonamidoeth	5.856	0.99	3.96	0	148	70-130	0			S
N-methylperfluoro-1-octanesulfonamid	4.227	0.99	3.96	0	107	70-130	0			
N-Methylperfluorooctanesulfonamidoa	4.981	0.99	3.96	0.05845	124	63-144	0			
N-Methylperfluorooctanesulfonamidoe	4.931	0.99	3.96	0	125	68-141	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	4.66	0.99	3.731	0.007461	125	70-130	0			
11Cl-Pf3OUdS	4.831	0.99	3.731	0	130	70-130	0			
9Cl-PF3ONS	4.757	0.99	3.691	0.003731	129	70-130	0			
Surr: 13C2-FtS 4:2	*12.63*	0	*18.5*	0	*68.3*	*50-150*	0			
Surr: 13C2-FtS 6:2	*14.52*	0	*18.81*	0	*77.2*	*50-150*	0			
Surr: 13C2-FtS 8:2	*13.33*	0	*18.97*	0	*70.3*	*50-150*	0			
Surr: 13C2-PFDA	*14.24*	0	*19.8*	0	*71.9*	*50-150*	0			
Surr: 13C2-PFDoA	*22.89*	0	*19.8*	0	*116*	*50-150*	0			
Surr: 13C2-PFHxA	*13.78*	0	*19.8*	0	*69.6*	*50-150*	0			
Surr: 13C2-PFHxDA	*14.87*	0	*19.8*	0	*75.1*	*50-150*	0			

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

Client: Genesee County WWS
Work Order: 22030506
Project: ARTP Biosolids

QC BATCH REPORT

Batch ID: **192797** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C2-PFTeA	*16.04*	0	*19.8*	0	*81*	*50-150*	0
Surr: 13C2-PFUnA	*13.14*	0	*19.8*	0	*66.3*	*50-150*	0
Surr: 13C3-HFPO-DA	*13.31*	0	*19.8*	0	*67.2*	*50-150*	0
Surr: 13C3-PFBS	*13.78*	0	*18.42*	0	*74.8*	*50-150*	0
Surr: 13C4-PFBA	*15.03*	0	*19.8*	0	*75.9*	*50-150*	0
Surr: 13C4-PFHpA	*17.71*	0	*19.8*	0	*89.4*	*50-150*	0
Surr: 13C4-PFOA	*18.13*	0	*19.8*	0	*91.6*	*50-150*	0
Surr: 13C4-PFOS	*15.28*	0	*18.91*	0	*80.8*	*50-150*	0
Surr: 13C5-PFNA	*15.42*	0	*19.8*	0	*77.9*	*50-150*	0
Surr: 13C5-PFPeA	*13.19*	0	*19.8*	0	*66.6*	*50-150*	0
Surr: 13C8-FOSA	*17.95*	0	*19.8*	0	*90.6*	*50-150*	0
Surr: 18O2-PFHxS	*19.48*	0	*18.71*	0	*104*	*50-150*	0
Surr: d5-N-EtFOSA	*14.68*	0	*19.8*	0	*74.1*	*50-150*	0
Surr: d5-N-EtFOSAA	*13.89*	0	*19.8*	0	*70.1*	*50-150*	0
Surr: d9-N-EtFOSE	*14.4*	0	*19.8*	0	*72.7*	*50-150*	0
Surr: d3-N-MeFOSA	*15.69*	0	*19.8*	0	*79.2*	*50-150*	0
Surr: d3-N-MeFOSAA	*16.16*	0	*19.8*	0	*81.6*	*50-150*	0
Surr: d7-N-MeFOSE	*16.64*	0	*19.8*	0	*84*	*50-150*	0

The following samples were analyzed in this batch: 22030506-01A

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

Client: Genesee County WWS
Work Order: 22030506
Project: ARTP Biosolids

QC BATCH REPORT

Batch ID: **193928** Instrument ID **LCMS1** Method: **D7968-17a**

MBLK1 Sample ID: **MBLK1-193928-193928** Units: **ng/Kg** Analysis Date: **4/5/2022 02:55 PM**
Client ID: Run ID: **LCMS1_220405A** SeqNo: **8302187** Prep Date: **3/31/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 8:2 (FtS	U	120	0	0	0		0			
Surr: 13C2-PFTeA	*272.9*	0	*400*	0	*68.2*	*50-130*	0			

MBLK2 Sample ID: **MBLK2-193928-193928** Units: **ng/Kg** Analysis Date: **4/5/2022 03:12 PM**
Client ID: Run ID: **LCMS1_220405A** SeqNo: **8302189** Prep Date: **3/31/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 8:2 (FtS	U	120	0	0	0		0			
Surr: 13C2-PFTeA	*241.4*	0	*400*	0	*60.3*	*50-130*	0			

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

Client: Genesee County WWS
Work Order: 22030506
Project: ARTP Biosolids

QC BATCH REPORT

Batch ID: **193928** Instrument ID **LCMS1** Method: **D7968-17a**

MBLK1	Sample ID: **MBLK1-193928-193928**				Units: **ng/Kg**			Analysis Date: **4/7/2022 03:14 AM**			
Client ID:		Run ID: **LCMS1_220406B**			SeqNo: **8303999**			Prep Date: **3/31/2022**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluorobutanoic Acid (PFBA)	U	120	0	0	0		0			
Perfluoropentanoic Acid (PFPeA)	U	120	0	0	0		0			
Perfluorohexanoic Acid (PFHxA)	U	120	0	0	0		0			
Perfluoroheptanoic Acid (PFHpA)	U	120	0	0	0		0			
Perfluorooctanoic Acid (PFOA)	U	25	0	0	0		0			
Perfluorononanoic Acid (PFNA)	U	25	0	0	0		0			
Perfluorodecanoic Acid (PFDA)	U	120	0	0	0		0			
Perfluoroundecanoic Acid (PFUnA)	U	120	0	0	0		0			
Perfluorododecanoic Acid (PFDoA)	U	120	0	0	0		0			
Perfluorotridecanoic Acid (PFTriA)	U	120	0	0	0		0			
Perfluorotetradecanoic Acid (PFTeA)	U	120	0	0	0		0			
Perfluorobutanesulfonic Acid (PFBS)	U	25	0	0	0		0			
Perfluoropentanesulfonic Acid (PFPeS	U	25	0	0	0		0			
Perfluorohexanesulfonic Acid (PFHxS)	U	120	0	0	0		0			
Perfluoroheptanesulfonic Acid (PFHpS	U	120	0	0	0		0			
Perfluorooctanesulfonic Acid (PFOS)	U	25	0	0	0		0			
Perfluorononanesulfonic Acid (PFNS)	U	120	0	0	0		0			
Perfluorodecanesulfonic Acid (PFDS)	U	25	0	0	0		0			
Fluorotelomer Sulphonic Acid 4:2 (FtS	U	120	0	0	0		0			
Fluorotelomer Sulphonic Acid 6:2 (FtS	U	120	0	0	0		0			
Perfluorooctanesulfonamide (PFOSA)	U	25	0	0	0		0			
N-Ethylperfluorooctanesulfonamidoace	U	120	0	0	0		0			
N-Methylperfluorooctanesulfonamidoa	U	120	0	0	0		0			
11Cl-Pf3OUdS	U	25	0	0	0		0			
4,8-Dioxa-3H-perfluorononanoic Acid (	U	25	0	0	0		0			
9Cl-PF3ONS	U	25	0	0	0		0			
Hexafluoropropylene oxide dimer acid	U	120	0	0	0		0			
Surr: 13C4-PFBA	*404.2*	0	*400*	0	*101*	*50-130*	0			
Surr: 13C5-PFPeA	*381.3*	0	*400*	0	*95.3*	*50-130*	0			
Surr: 13C2-PFHxA	*398.3*	0	*400*	0	*99.6*	*50-130*	0			
Surr: 13C4-PFHpA	*341.7*	0	*400*	0	*85.4*	*50-130*	0			
Surr: 13C4-PFOA	*381.6*	0	*400*	0	*95.4*	*70-130*	0			
Surr: 13C5-PFNA	*421.7*	0	*400*	0	*105*	*70-130*	0			
Surr: 13C2-PFDA	*365.1*	0	*400*	0	*91.3*	*70-130*	0			
Surr: 13C2-PFUnA	*452.4*	0	*400*	0	*113*	*70-130*	0			
Surr: 13C2-PFDoA	*407.2*	0	*400*	0	*102*	*70-130*	0			
Surr: 13C3-PFBS	*355.9*	0	*400*	0	*89*	*50-130*	0			
Surr: 18O2-PFHxS	*335.4*	0	*378*	0	*88.7*	*70-130*	0			
Surr: 13C4-PFOS	*360.4*	0	*383*	0	*94.1*	*70-130*	0			
Surr: 13C2-FtS 4:2	*282*	0	*373*	0	*75.6*	*50-130*	0			
Surr: 13C2-FtS 6:2	*309.5*	0	*380*	0	*81.5*	*50-130*	0			
Surr: 13C2-FtS 8:2	*380.1*	0	*383*	0	*99.2*	*50-130*	0			

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

Client: Genesee County WWS
Work Order: 22030506
Project: ARTP Biosolids

QC BATCH REPORT

Batch ID: **193928**	Instrument ID **LCMS1**		Method: **D7968-17a**				
Surr: 13C8-FOSA	*387*	0	*400*	0	*96.8*	*50-130*	0
Surr: d3-N-MeFOSAA	*455.2*	0	*400*	0	*114*	*50-130*	0
Surr: d5-N-EtFOSAA	*459.3*	0	*400*	0	*115*	*50-130*	0
Surr: 13C3-HFPO-DA	*321.2*	0	*400*	0	*80.3*	*50-130*	0

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

Client: Genesee County WWS
Work Order: 22030506
Project: ARTP Biosolids

QC BATCH REPORT

Batch ID: **193928** Instrument ID **LCMS1** Method: **D7968-17a**

MBLK2 Sample ID: **MBLK2-193928-193928** Units: **ng/Kg** Analysis Date: **4/7/2022 03:31 AM**
Client ID: Run ID: **LCMS1_220406B** SeqNo: **8304001** Prep Date: **3/31/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluorobutanoic Acid (PFBA)	U	120	0	0	0		0			
Perfluoropentanoic Acid (PFPeA)	U	120	0	0	0		0			
Perfluorohexanoic Acid (PFHxA)	U	120	0	0	0		0			
Perfluoroheptanoic Acid (PFHpA)	U	120	0	0	0		0			
Perfluorooctanoic Acid (PFOA)	U	25	0	0	0		0			
Perfluorononanoic Acid (PFNA)	U	25	0	0	0		0			
Perfluorodecanoic Acid (PFDA)	U	120	0	0	0		0			
Perfluoroundecanoic Acid (PFUnA)	U	120	0	0	0		0			
Perfluorododecanoic Acid (PFDoA)	U	120	0	0	0		0			
Perfluorotridecanoic Acid (PFTriA)	U	120	0	0	0		0			
Perfluorotetradecanoic Acid (PFTeA)	U	120	0	0	0		0			
Perfluorobutanesulfonic Acid (PFBS)	U	25	0	0	0		0			
Perfluoropentanesulfonic Acid (PFPeS	U	25	0	0	0		0			
Perfluorohexanesulfonic Acid (PFHxS)	U	120	0	0	0		0			
Perfluoroheptanesulfonic Acid (PFHpS	U	120	0	0	0		0			
Perfluorooctanesulfonic Acid (PFOS)	U	25	0	0	0		0			
Perfluorononanesulfonic Acid (PFNS)	U	120	0	0	0		0			
Perfluorodecanesulfonic Acid (PFDS)	U	25	0	0	0		0			
Fluorotelomer Sulphonic Acid 4:2 (FtS	U	120	0	0	0		0			
Fluorotelomer Sulphonic Acid 6:2 (FtS	U	120	0	0	0		0			
Perfluorooctanesulfonamide (PFOSA)	U	25	0	0	0		0			
N-Ethylperfluorooctanesulfonamidoace	U	120	0	0	0		0			
N-Methylperfluorooctanesulfonamidoa	U	120	0	0	0		0			
11Cl-Pf3OUdS	U	25	0	0	0		0			
4,8-Dioxa-3H-perfluorononanoic Acid (	U	25	0	0	0		0			
9Cl-PF3ONS	U	25	0	0	0		0			
Hexafluoropropylene oxide dimer acid	U	120	0	0	0		0			
Surr: 13C4-PFBA	*317.7*	0	*400*	0	*79.4*	*50-130*	0			
Surr: 13C5-PFPeA	*317.4*	0	*400*	0	*79.4*	*50-130*	0			
Surr: 13C2-PFHxA	*343.4*	0	*400*	0	*85.9*	*50-130*	0			
Surr: 13C4-PFHpA	*319.6*	0	*400*	0	*79.9*	*50-130*	0			
Surr: 13C4-PFOA	*320.9*	0	*400*	0	*80.2*	*70-130*	0			
Surr: 13C5-PFNA	*342.2*	0	*400*	0	*85.5*	*70-130*	0			
Surr: 13C2-PFDA	*349.7*	0	*400*	0	*87.4*	*70-130*	0			
Surr: 13C2-PFUnA	*357*	0	*400*	0	*89.3*	*70-130*	0			
Surr: 13C2-PFDoA	*323.2*	0	*400*	0	*80.8*	*70-130*	0			
Surr: 13C3-PFBS	*312.4*	0	*400*	0	*78.1*	*50-130*	0			
Surr: 18O2-PFHxS	*290.6*	0	*378*	0	*76.9*	*70-130*	0			
Surr: 13C4-PFOS	*288*	0	*383*	0	*75.2*	*70-130*	0			
Surr: 13C2-FtS 4:2	*268*	0	*373*	0	*71.8*	*50-130*	0			
Surr: 13C2-FtS 6:2	*216.9*	0	*380*	0	*57.1*	*50-130*	0			
Surr: 13C2-FtS 8:2	*279.5*	0	*383*	0	*73*	*50-130*	0			

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

QC BATCH REPORT

Batch ID: **193928** Instrument ID **LCMS1** Method: **D7968-17a**

Surr: 13C8-FOSA	*319.8*	0	*400*	0	*79.9*	*50-130*	0
Surr: d3-N-MeFOSAA	*351.5*	0	*400*	0	*87.9*	*50-130*	0
Surr: d5-N-EtFOSAA	*286.8*	0	*400*	0	*71.7*	*50-130*	0
Surr: 13C3-HFPO-DA	*343.7*	0	*400*	0	*85.9*	*50-130*	0

LCSD2 Sample ID: **LCSD2-193928-193928** Units: **ng/Kg** Analysis Date: **4/5/2022 04:10 PM**
Client ID: Run ID: **LCMS1_220405A** SeqNo: **8302195** Prep Date: **3/31/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluorononanesulfonic Acid (PFNS)	390.9	120	480	0	81.4	70-130	544.7	32.9	30	R
Fluorotelomer Sulphonic Acid 6:2 (FtS	354.1	120	474	0	74.7	70-130	339.7	4.16	30	
Fluorotelomer Sulphonic Acid 8:2 (FtS	523.8	120	479	0	109	70-130	564.1	7.4	30	

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

Client: Genesee County WWS
Work Order: 22030506
Project: ARTP Biosolids

QC BATCH REPORT

Batch ID: **193928** Instrument ID **LCMS1** Method: **D7968-17a**

LCSD2	Sample ID: **LCSD2-193928-193928**				Units: **ng/Kg**			Analysis Date: **4/7/2022 03:56 AM**			
Client ID:		Run ID: **LCMS1_220406B**			SeqNo: **8304004**			Prep Date: **3/31/2022**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluorobutanoic Acid (PFBA)	405.2	120	500	0	81	50-130	387.8	4.4	30	
Perfluoropentanoic Acid (PFPeA)	475.2	120	500	0	95	70-130	396.5	18.1	30	
Perfluorohexanoic Acid (PFHxA)	428.1	120	500	0	85.6	50-130	349.9	20.1	30	
Perfluoroheptanoic Acid (PFHpA)	400.5	120	500	0	80.1	50-130	387	3.43	30	
Perfluorooctanoic Acid (PFOA)	389.9	25	500	0	78	70-130	400.1	2.56	30	
Perfluorononanoic Acid (PFNA)	410.8	25	500	0	82.2	70-130	424.6	3.29	30	
Perfluorodecanoic Acid (PFDA)	466.4	120	500	0	93.3	70-130	441.2	5.55	30	
Perfluoroundecanoic Acid (PFUnA)	470.1	120	500	0	94	70-130	439.1	6.83	30	
Perfluorododecanoic Acid (PFDoA)	410	120	500	0	82	70-130	377.4	8.28	30	
Perfluorotridecanoic Acid (PFTriA)	555.8	120	500	0	111	70-130	534.1	3.98	30	
Perfluorotetradecanoic Acid (PFTeA)	531.5	120	500	0	106	70-130	492.1	7.71	30	
Perfluorobutanesulfonic Acid (PFBS)	335.2	25	442	0	75.8	70-130	322.4	3.87	30	
Perfluoropentanesulfonic Acid (PFPeS	348.5	25	469	0	74.3	70-130	411.1	16.5	30	
Perfluorohexanesulfonic Acid (PFHxS)	339.7	120	455	0	74.7	70-130	338.2	0.455	30	
Perfluoroheptanesulfonic Acid (PFHpS	366.2	120	476	0	76.9	70-130	356.7	2.63	30	
Perfluorooctanesulfonic Acid (PFOS)	341.3	25	464	0	73.5	70-130	385.3	12.1	30	
Perfluorodecanesulfonic Acid (PFDS)	347.1	25	482	0	72	70-130	397.6	13.6	30	
Fluorotelomer Sulphonic Acid 4:2 (FtS	419	120	467	0	89.7	70-130	423.8	1.14	30	
Perfluorooctanesulfonamide (PFOSA)	365.6	25	500	0	73.1	70-130	375.3	2.6	30	
N-Ethylperfluorooctanesulfonamidoace	419.8	120	500	0	84	70-130	431.4	2.73	30	
N-Methylperfluorooctanesulfonamidoa	381.8	120	500	0	76.4	70-130	406	6.13	30	
11Cl-Pf3OUdS	393.4	25	471	0	83.5	70-130	426.5	8.08	30	
4,8-Dioxa-3H-perfluorononanoic Acid (	379.3	25	471	0	80.5	70-130	394.2	3.87	30	
9Cl-PF3ONS	403.4	25	466	0	86.6	70-130	387.7	3.97	30	
Hexafluoropropylene oxide dimer acid	357.7	120	500	0	71.5	50-130	352.7	1.42	30	
Surr: 13C4-PFBA	*312.5*	0	*400*	0	*78.1*	*50-130*	330	*5.45*	*30*	
Surr: 13C5-PFPeA	*324.8*	0	*400*	0	*81.2*	*50-130*	329.2	*1.33*	*30*	
Surr: 13C2-PFHxA	*318*	0	*400*	0	*79.5*	*50-130*	283.5	*11.5*	*30*	
Surr: 13C4-PFHpA	*296.1*	0	*400*	0	*74*	*50-130*	277	*6.66*	*30*	
Surr: 13C4-PFOA	*306.3*	0	*400*	0	*76.6*	*70-130*	328.9	*7.12*	*30*	
Surr: 13C5-PFNA	*322.5*	0	*400*	0	*80.6*	*70-130*	341	*5.58*	*30*	
Surr: 13C2-PFDA	*353.8*	0	*400*	0	*88.4*	*70-130*	350.4	*0.95*	*30*	
Surr: 13C2-PFUnA	*416.5*	0	*400*	0	*104*	*70-130*	447.2	*7.09*	*30*	
Surr: 13C2-PFDoA	*444.9*	0	*400*	0	*111*	*70-130*	467.6	*4.98*	*30*	
Surr: 13C2-PFTeA	*376.3*	0	*400*	0	*94.1*	*50-130*	383.4	*1.87*	*30*	
Surr: 13C3-PFBS	*274.2*	0	*400*	0	*68.6*	*50-130*	300.5	*9.13*	*30*	
Surr: 18O2-PFHxS	*299.3*	0	*378*	0	*79.2*	*70-130*	312	*4.15*	*30*	
Surr: 13C4-PFOS	*281.1*	0	*383*	0	*73.4*	*70-130*	324	*14.2*	*30*	
Surr: 13C2-FtS 4:2	*247.4*	0	*373*	0	*66.3*	*50-130*	266.5	*7.42*	*30*	
Surr: 13C2-FtS 6:2	*291.4*	0	*380*	0	*76.7*	*50-130*	253.4	*13.9*	*30*	
Surr: 13C2-FtS 8:2	*293.7*	0	*383*	0	*76.7*	*50-130*	234.3	*22.5*	*30*	
Surr: 13C8-FOSA	*323.2*	0	*400*	0	*80.8*	*50-130*	329.8	*2.04*	*30*	

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

Batch ID: **193928** Instrument ID **LCMS1** Method: **D7968-17a**

Surr: d3-N-MeFOSAA	*348.4*	0	*400*	0	*87.1*	*50-130*	374.3	*7.16*	*30*	
Surr: d5-N-EtFOSAA	*338.6*	0	*400*	0	*84.7*	*50-130*	350.8	*3.55*	*30*	
Surr: 13C3-HFPO-DA	*327.6*	0	*400*	0	*81.9*	*50-130*	331.8	*1.27*	*30*	

LCS1 Sample ID: **LCS1-193928-193928** Units: **ng/Kg** Analysis Date: **4/5/2022 03:04 PM**
Client ID: Run ID: **LCMS1_220405A** SeqNo: **8302188** Prep Date: **3/31/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluorononanoic Acid (PFNA)	28.18	25	25	0	113	35-150	0			

LCS1 Sample ID: **LCS1-193928-193928** Units: **ng/Kg** Analysis Date: **4/7/2022 03:23 AM**
Client ID: Run ID: **LCMS1_220406B** SeqNo: **8304000** Prep Date: **3/31/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluorooctanoic Acid (PFOA)	22.65	25	25	0	90.6	35-150	0			J
Perfluorobutanesulfonic Acid (PFBS)	26.9	25	22	0	122	35-150	0			
Perfluoropentanesulfonic Acid (PFPeS	27.31	25	23.5	0	116	35-150	0			
Perfluorooctanesulfonic Acid (PFOS)	22.3	25	23	0	97	35-150	0			J
Perfluorodecanesulfonic Acid (PFDS)	28.2	25	24	0	118	35-150	0			
Perfluorooctanesulfonamide (PFOSA)	18.21	25	25	0	72.9	35-150	0			J
11Cl-Pf3OUdS	16.71	25	23.5	0	71.1	35-150	0			J
4,8-Dioxa-3H-perfluorononanoic Acid (	14.68	25	23.5	0	62.5	35-150	0			J
9Cl-PF3ONS	26.18	25	23	0	114	35-150	0			
Surr: 13C4-PFBA	*319.9*	0	*400*	0	*80*	*50-130*	0			
Surr: 13C5-PFPeA	*318.9*	0	*400*	0	*79.7*	*50-130*	0			
Surr: 13C2-PFHxA	*327.9*	0	*400*	0	*82*	*50-130*	0			
Surr: 13C4-PFHpA	*332.7*	0	*400*	0	*83.2*	*50-130*	0			
Surr: 13C4-PFOA	*331*	0	*400*	0	*82.7*	*70-130*	0			
Surr: 13C5-PFNA	*320.8*	0	*400*	0	*80.2*	*70-130*	0			
Surr: 13C2-PFDA	*335.9*	0	*400*	0	*84*	*70-130*	0			
Surr: 13C2-PFUnA	*406*	0	*400*	0	*102*	*70-130*	0			
Surr: 13C2-PFDoA	*398.7*	0	*400*	0	*99.7*	*70-130*	0			
Surr: 13C2-PFTeA	*233.2*	0	*400*	0	*58.3*	*50-130*	0			
Surr: 13C3-PFBS	*287.5*	0	*400*	0	*71.9*	*50-130*	0			
Surr: 18O2-PFHxS	*285.7*	0	*378*	0	*75.6*	*70-130*	0			
Surr: 13C4-PFOS	*338.7*	0	*383*	0	*88.4*	*70-130*	0			
Surr: 13C2-FtS 4:2	*240.1*	0	*373*	0	*64.4*	*50-130*	0			
Surr: 13C2-FtS 6:2	*238.5*	0	*380*	0	*62.8*	*50-130*	0			
Surr: 13C2-FtS 8:2	*220.7*	0	*383*	0	*57.6*	*50-130*	0			
Surr: 13C8-FOSA	*334.6*	0	*400*	0	*83.6*	*50-130*	0			
Surr: d3-N-MeFOSAA	*408.2*	0	*400*	0	*102*	*50-130*	0			
Surr: d5-N-EtFOSAA	*406.7*	0	*400*	0	*102*	*50-130*	0			
Surr: 13C3-HFPO-DA	*356.3*	0	*400*	0	*89.1*	*50-130*	0			

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

Client: Genesee County WWS
Work Order: 22030506
Project: ARTP Biosolids

QC BATCH REPORT

Batch ID: **193928** Instrument ID **LCMS1** Method: **D7968-17a**

LCS2	Sample ID: **LCS2-193928-193928**				Units: **ng/Kg**			Analysis Date: **4/5/2022 04:02 PM**			
Client ID:		Run ID: **LCMS1_220405A**			SeqNo: **8302194**			Prep Date: **3/31/2022**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluorononanesulfonic Acid (PFNS)	544.7	120	480	0	113	70-130	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS	339.7	120	474	0	71.7	70-130	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	564.1	120	479	0	118	70-130	0			

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

Client: Genesee County WWS
Work Order: 22030506
Project: ARTP Biosolids

QC BATCH REPORT

Batch ID: **193928** Instrument ID **LCMS1** Method: **D7968-17a**

LCS2	Sample ID: **LCS2-193928-193928**				Units: **ng/Kg**			Analysis Date: **4/7/2022 03:48 AM**			
Client ID:		Run ID: **LCMS1_220406B**			SeqNo: **8304003**			Prep Date: **3/31/2022**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluorobutanoic Acid (PFBA)	387.8	120	500	0	77.6	50-130	0			
Perfluoropentanoic Acid (PFPeA)	396.5	120	500	0	79.3	70-130	0			
Perfluorohexanoic Acid (PFHxA)	349.9	120	500	0	70	50-130	0			
Perfluoroheptanoic Acid (PFHpA)	387	120	500	0	77.4	50-130	0			
Perfluorooctanoic Acid (PFOA)	400.1	25	500	0	80	70-130	0			
Perfluorononanoic Acid (PFNA)	424.6	25	500	0	84.9	70-130	0			
Perfluorodecanoic Acid (PFDA)	441.2	120	500	0	88.2	70-130	0			
Perfluoroundecanoic Acid (PFUnA)	439.1	120	500	0	87.8	70-130	0			
Perfluorododecanoic Acid (PFDoA)	377.4	120	500	0	75.5	70-130	0			
Perfluorotridecanoic Acid (PFTriA)	534.1	120	500	0	107	70-130	0			
Perfluorotetradecanoic Acid (PFTeA)	492.1	120	500	0	98.4	70-130	0			
Perfluorobutanesulfonic Acid (PFBS)	322.4	25	442	0	72.9	70-130	0			
Perfluoropentanesulfonic Acid (PFPeS	411.1	25	469	0	87.7	70-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	338.2	120	455	0	74.3	70-130	0			
Perfluoroheptanesulfonic Acid (PFHpS	356.7	120	476	0	74.9	70-130	0			
Perfluorooctanesulfonic Acid (PFOS)	385.3	25	464	0	83	70-130	0			
Perfluorodecanesulfonic Acid (PFDS)	397.6	25	482	0	82.5	70-130	0			
Fluorotelomer Sulphonic Acid 4:2 (FtS	423.8	120	467	0	90.8	70-130	0			
Perfluorooctanesulfonamide (PFOSA)	375.3	25	500	0	75.1	70-130	0			
N-Ethylperfluorooctanesulfonamidoace	431.4	120	500	0	86.3	70-130	0			
N-Methylperfluorooctanesulfonamidoa	406	120	500	0	81.2	70-130	0			
11Cl-Pf3OUdS	426.5	25	471	0	90.5	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	394.2	25	471	0	83.7	70-130	0			
9Cl-PF3ONS	387.7	25	466	0	83.2	70-130	0			
Hexafluoropropylene oxide dimer acid	352.7	120	500	0	70.5	50-130	0			
Surr: 13C4-PFBA	*330*	0	*400*	0	*82.5*	*50-130*	0			
Surr: 13C5-PFPeA	*329.2*	0	*400*	0	*82.3*	*50-130*	0			
Surr: 13C2-PFHxA	*283.5*	0	*400*	0	*70.9*	*50-130*	0			
Surr: 13C4-PFHpA	*277*	0	*400*	0	*69.2*	*50-130*	0			
Surr: 13C4-PFOA	*328.9*	0	*400*	0	*82.2*	*70-130*	0			
Surr: 13C5-PFNA	*341*	0	*400*	0	*85.2*	*70-130*	0			
Surr: 13C2-PFDA	*350.4*	0	*400*	0	*87.6*	*70-130*	0			
Surr: 13C2-PFUnA	*447.2*	0	*400*	0	*112*	*70-130*	0			
Surr: 13C2-PFDoA	*467.6*	0	*400*	0	*117*	*70-130*	0			
Surr: 13C2-PFTeA	*383.4*	0	*400*	0	*95.9*	*50-130*	0			
Surr: 13C3-PFBS	*300.5*	0	*400*	0	*75.1*	*50-130*	0			
Surr: 18O2-PFHxS	*312*	0	*378*	0	*82.5*	*70-130*	0			
Surr: 13C4-PFOS	*324*	0	*383*	0	*84.6*	*70-130*	0			
Surr: 13C2-FtS 4:2	*266.5*	0	*373*	0	*71.4*	*50-130*	0			
Surr: 13C2-FtS 6:2	*253.4*	0	*380*	0	*66.7*	*50-130*	0			
Surr: 13C2-FtS 8:2	*234.3*	0	*383*	0	*61.2*	*50-130*	0			
Surr: 13C8-FOSA	*329.8*	0	*400*	0	*82.5*	*50-130*	0			

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

Batch ID: **193928** Instrument ID **LCMS1** Method: **D7968-17a**

Surr: d3-N-MeFOSAA	*374.3*	0	*400*	0	*93.6*	*50-130*	0			
Surr: d5-N-EtFOSAA	*350.8*	0	*400*	0	*87.7*	*50-130*	0			
Surr: 13C3-HFPO-DA	*331.8*	0	*400*	0	*82.9*	*50-130*	0			

LCS3 Sample ID: **LCS3-193928-193928** Units: **ng/Kg** Analysis Date: **4/5/2022 03:20 PM**
Client ID: Run ID: **LCMS1_220405A** SeqNo: **8302190** Prep Date: **3/31/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 8:2 (FtS	119.3	120	120	0	99.4	35-150	0			J
Surr: 13C2-PFUnA	*465.9*	0	*400*	0	*116*	*70-130*	0			

LCS3 Sample ID: **LCS3-193928-193928** Units: **ng/Kg** Analysis Date: **4/5/2022 03:54 PM**
Client ID: Run ID: **LCMS1_220405A** SeqNo: **8302193** Prep Date: **3/31/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 8:2 (FtS	119.7	120	120	0	99.7	35-150	0			J

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

Client: Genesee County WWS
Work Order: 22030506
Project: ARTP Biosolids

QC BATCH REPORT

Batch ID: **193928** Instrument ID **LCMS1** Method: **D7968-17a**

LCS3 Sample ID: **LCS3-193928-193928** Units: **ng/Kg** Analysis Date: **4/7/2022 03:39 AM**
Client ID: Run ID: **LCMS1_220406B** SeqNo: **8304002** Prep Date: **3/31/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluorobutanoic Acid (PFBA)	90.9	120	125	0	72.7	35-150	0			J
Perfluoropentanoic Acid (PFPeA)	99.7	120	125	0	79.8	35-150	0			J
Perfluorohexanoic Acid (PFHxA)	92.64	120	125	0	74.1	35-150	0			J
Perfluoroheptanoic Acid (PFHpA)	89.41	120	125	0	71.5	35-150	0			J
Perfluorooctanoic Acid (PFOA)	86.2	25	125	0	69	35-150	0			
Perfluorononanoic Acid (PFNA)	84.78	25	125	0	67.8	35-150	0			
Perfluorodecanoic Acid (PFDA)	121.4	120	125	0	97.1	35-150	0			
Perfluoroundecanoic Acid (PFUnA)	109.9	120	125	0	87.9	35-150	0			J
Perfluorododecanoic Acid (PFDoA)	63.51	120	125	0	50.8	35-150	0			J
Perfluorotridecanoic Acid (PFTriA)	94.31	120	125	0	75.4	35-150	0			J
Perfluorotetradecanoic Acid (PFTeA)	59.15	120	125	0	47.3	35-150	0			J
Perfluorobutanesulfonic Acid (PFBS)	89.84	25	110	0	81.7	35-150	0			
Perfluoropentanesulfonic Acid (PFPeS	69.04	25	118	0	58.5	35-150	0			
Perfluorohexanesulfonic Acid (PFHxS)	54.67	120	115	0	47.5	35-150	0			J
Perfluoroheptanesulfonic Acid (PFHpS	69.4	120	120	0	57.8	35-150	0			J
Perfluorooctanesulfonic Acid (PFOS)	74.64	25	115	0	64.9	35-150	0			
Perfluorononanesulfonic Acid (PFNS)	90.07	120	120	0	75.1	35-150	0			J
Perfluorodecanesulfonic Acid (PFDS)	91.82	25	120	0	76.5	35-150	0			
Fluorotelomer Sulphonic Acid 4:2 (FtS	98	120	118	0	83	35-150	0			J
Fluorotelomer Sulphonic Acid 6:2 (FtS	84.24	120	118	0	71.4	35-150	0			J
Perfluorooctanesulfonamide (PFOSA)	79.66	25	125	0	63.7	35-150	0			
N-Ethylperfluorooctanesulfonamidoace	93.91	120	125	0	75.1	35-150	0			J
N-Methylperfluorooctanesulfonamidoa	48.13	120	125	0	38.5	35-150	0			J
11Cl-Pf3OUdS	79.69	25	118	0	67.5	35-150	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	74.99	25	118	0	63.5	35-150	0			
9Cl-PF3ONS	79.99	25	118	0	67.8	35-150	0			
Hexafluoropropylene oxide dimer acid	U	120	125	0	0	35-150	0			S
Surr: 13C4-PFBA	*301.5*	0	*400*	0	*75.4*	*50-130*	0			
Surr: 13C5-PFPeA	*320.8*	0	*400*	0	*80.2*	*50-130*	0			
Surr: 13C2-PFHxA	*326.1*	0	*400*	0	*81.5*	*50-130*	0			
Surr: 13C4-PFHpA	*282.3*	0	*400*	0	*70.6*	*50-130*	0			
Surr: 13C4-PFOA	*313.4*	0	*400*	0	*78.4*	*70-130*	0			
Surr: 13C5-PFNA	*330.8*	0	*400*	0	*82.7*	*70-130*	0			
Surr: 13C2-PFDA	*323*	0	*400*	0	*80.8*	*70-130*	0			
Surr: 13C2-PFUnA	*381.9*	0	*400*	0	*95.5*	*70-130*	0			
Surr: 13C2-PFDoA	*373.5*	0	*400*	0	*93.4*	*70-130*	0			
Surr: 13C2-PFTeA	*264.7*	0	*400*	0	*66.2*	*50-130*	0			
Surr: 13C3-PFBS	*286.1*	0	*400*	0	*71.5*	*50-130*	0			
Surr: 18O2-PFHxS	*311*	0	*378*	0	*82.3*	*70-130*	0			
Surr: 13C4-PFOS	*298.4*	0	*383*	0	*77.9*	*70-130*	0			
Surr: 13C2-FtS 4:2	*212.4*	0	*373*	0	*56.9*	*50-130*	0			
Surr: 13C2-FtS 6:2	*266.2*	0	*380*	0	*70.1*	*50-130*	0			

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

Client: Genesee County WWS
Work Order: 22030506
Project: ARTP Biosolids

QC BATCH REPORT

Batch ID: **193928**	Instrument ID **LCMS1**		Method: **D7968-17a**				
Surr: 13C2-FtS 8:2	*244.6*	0	*383*	0	*63.9*	*50-130*	0
Surr: 13C8-FOSA	*317*	0	*400*	0	*79.2*	*50-130*	0
Surr: d3-N-MeFOSAA	*274.2*	0	*400*	0	*68.5*	*50-130*	0
Surr: d5-N-EtFOSAA	*352.5*	0	*400*	0	*88.1*	*50-130*	0
Surr: 13C3-HFPO-DA	*317.6*	0	*400*	0	*79.4*	*50-130*	0

The following samples were analyzed in this batch: 22030506-01A

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

Client: Genesee County WWS
Work Order: 22030506
Project: ARTP Biosolids

QC BATCH REPORT

Batch ID: **R339568** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R339568** Units: **% of sample** Analysis Date: **3/8/2022 12:38 PM**
Client ID: Run ID: **MOIST_220308A** SeqNo: **8226102** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.10								

LCS Sample ID: **LCS-R339568** Units: **% of sample** Analysis Date: **3/8/2022 12:38 PM**
Client ID: Run ID: **MOIST_220308A** SeqNo: **8226101** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	99.98	0.10	100	0	100	98-102	0			

DUP Sample ID: **22030474-01A DUP** Units: **% of sample** Analysis Date: **3/8/2022 12:38 PM**
Client ID: Run ID: **MOIST_220308A** SeqNo: **8226092** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	19.95	0.10	0	0	0	0-0	20.42	2.33	10	

DUP Sample ID: **22030496-01A DUP** Units: **% of sample** Analysis Date: **3/8/2022 12:38 PM**
Client ID: Run ID: **MOIST_220308A** SeqNo: **8226098** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	97.04	0.10	0	0	0	0-0	97.02	0.0206	10	

The following samples were analyzed in this batch: 22030506-01A

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

Chain of Custody Form

Page 1 of 1

22030506

GENESEECO: Genesee County Water & Waste Services
Project: ARTP Biosolids

ALS Project Manager:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	2022-00040006	Project Name	ARTP Biosolids	A	PFAS 28
Work Order		Project Number		B	
Company Name	Genesee County Water and Waste Ser	Bill To Company	Genesee County Water and Waste Service	C	
Send Report To	Thad Domick	Invoice Attn.	Kimberly Gazso	D	
Address	9290 Farrand Road	Address	4610 Beecher Road	E	
				F	
City/State/Zip	Montrose, MI 48457	City/State/Zip	Flint, MI 48532	G	
Phone	(810) 232-7662	Phone	(810) 732-7870	H	
Fax	(810) 232-3280	Fax	(810) 732-9773	I	
e-Mail Address	tdomick@gcdcwws.com			J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	ARTP Biosolids Tank 3	3/3/2022	10:30am	SL	8	3	X										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign
Brent Pittenger

Shipment Method:

Required Turnaround Time: (Check Box)
☐ 10 Wk Days ☑ 5 Wk Days ☐ 3 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Brent Pittenger	3/4/22	0700		3-4-22	0858
Relinquished by:	Date:	Time:	Received by (Laboratory):	Date:	Time:
	3-4-22	1700		3/4/22	2300
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		
	3/7/22	0910			

Notes: Metals list: as, cd, cr, cu, pb, hg, mo, ni, se, ag, zn

ALS Cooler ID	Cooler Temp
IR1	4.8

QC Package: (Check Box Below)
☑ Level II: Standard QC ☐ Level III: Raw Data
☐ TRRP LRC ☐ TRRP Level IV
☐ Level IV: SW846 Methods/CLP like
☐ 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

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS.

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Sample Receipt Checklist

Client Name: **GENESEECO** Date/Time Received: **04-Mar-22 23:00**

Work Order: **22030506** Received by: **LYS**

Checklist completed by Lydia Sweet (eSignature) 07-Mar-22 (Date) Reviewed by: Julian Johnson (eSignature) 07-Mar-22 (Date)

Matrices: Sludge
Carrier name: Courier

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):	4.8/4.8c	IR1	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	3/7/2022 9:12:31 AM		
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: