

May 8, 2020

Ms. Alyx Karpowicz California Regional Water Quality Control Board San Francisco Bay Region (RWQCB) 1515 Clay Street, Suite 1400 Oakland, CA 94612

Re: PFAS Sampling and Analysis Report, Clover Flat Landfill, Calistoga, California

Dear Ms. Karpowicz:

The attached PFAS Sampling and Analysis Report for the Clover Flat Landfill (Landfill), which was prepared by Golder Associates Inc. for Clover Flat Landfill, Inc., is hereby submitted in compliance with the Water Code Section 13267 Order, WQ2019-0006-DWQ issued by the State Water Quality Control Board on March 20, 2019. The report has been prepared to present the results of the one-time leachate and groundwater sampling for PFAS.

"I, Christy Pestoni, under penalty of perjury, do hereby state that to the best of my knowledge, the information contained in this report is true, complete, and correct."

Sincerely,

Christy Pestoni

Chief Operations Officer

Upper Valley Disposal & Recycling

Clover Flat Resource Recovery Park

cc: Mr. Kano Galindo, Clover Flat Landfill, Inc.

Enclosure: PFAS Sampling and Reporting (May 2020).



PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) SAMPLING AND ANALYSIS REPORT CLOVER FLAT LANDFILL

Submitted to:

Clover Flat Landfill, Inc.

P.O. Box 382 St. Helena, CA 94574

Submitted by:

Golder Associates Inc.

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Project No. 130029701

May 2020

Distribution List

- (1) PDF Christy Pestoni Clover Flat Landfill, Inc.
- (1) PDF Kano Galindo Clover Flat Landfill, Inc.
- (1) PDF Alyx Karpowicz Regional Water Quality Control Board



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1.0 INTRODUCTION

On behalf of Clover Flat Landfill, Inc., Golder Associates Inc. has prepared this report to present the results of the one-time leachate and groundwater sampling of per- and polyfluoroalkyl substances (PFAS) at the Clover Flat Landfill (Landfill) in Calistoga, California (Figure 1). This report has been prepared to address the March 20, 2019, Water Code Section 13267 Order WQ 2019-0006-DWQ request from San Francisco Bay Regional Water Quality Control Board (Water Board). Golder submitted a workplan for the one-time leachate and groundwater sampling of PFAS at the Landfill to San Francisco Regional Water Quality Control Board on May 17, 2019.

The site has been identified by the Water Board as a facility that may have accepted, stored, or used materials that contained PFAS. This report presents the results of the one-time leachate and groundwater sampling of PFAS at the Landfill.

2.0 PFAS SAMPLE COLLECTION

The PFAS sampling was conducted on March 30, 2020, according to the Standard Operating Procedure included in the workplan. Groundwater samples were taken from wells B-4, B-5A, and B-5B. In addition, leachate and composite condensate/leachate samples were also collected.

Prior to sample collection, groundwater wells B-4, B-5A, and B-5B were each purged using an electric submersible pump. Groundwater samples from wells B-4, B-5A, and B-5B were collected using the same electric submersible pump that was used to purge each well. The leachate grab sample was collected from the sample port of Modules 2A and 2B located within Module 1A and the condensate/leachate composite sample was collected from holding tanks T1 through T5. Sample locations are shown on Figure 2.

Field parameters, including temperature, electrical conductivity, pH, color, turbidity, dissolved oxygen (DO), and oxidation reduction potential (ORP) were measured during well purging at least once for each casing volume and again at the time of sample collection. All field measurements were recorded on a Water Sample Field Data Sheet (Appendix A).

All samples were poured directly into two 250-mL unpreserved, HDPE bottles (supplied by the lab and guaranteed to be PFAS free) at the wellheads and were placed on ice in a laboratory supplied cooler. The samples were submitted to BC Laboratories in Bakersfield, California (Calif. ELAP No. 1186). BC Laboratories then shipped the samples to Eurofins Lancaster Laboratories Environmental (ELLE) located in Lancaster, Pennsylvania under a chain of custody.

2.1 Sample Analysis

Samples were analyzed by EPA Method 537-Modified (method compliant with DoD Table B-15 of Quality Systems Manual Version 5.1 [or later]) for the 23 PFAS listed in the approved workplan.

2.2 Quality Control

2.2.1 Field Quality Control Samples

The following field quality control (QC) samples were collected during the sampling event:

 One blind field duplicate groundwater sample was collected by field personnel during the sampling event and was analyzed for PFAS. The field duplicate was collected in the laboratory-supplied sample containers

¹ Golder Associates Inc., May 16, 2019, Per- and Polyfluoroalkyl Substances (PFAS) Sampling and Analysis Work Plan.



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immediately after collection of the primary sample. Duplicate sample DUP-1 was collected from groundwater well B-5A. As shown on Table 1, the primary and duplicate samples from well B-5A had similar results for all analytes tested.

- One field blank was collected using PFAS-free water provided by the laboratory. Laboratory-supplied HDPE field-blank sample containers were opened during the collection of a groundwater sample, and the laboratory-supplied PFAS-free water was poured directly into the field blank sample container and then resealed. No PFAS were detected in the field blank sample.
- One trip blank was submitted during the sampling event. The trip blanks were prepared by the laboratory and accompanied the bottles throughout the shipment and sampling process. No PFAS were detected in the trip blank.

2.2.2 Laboratory Quality Control Procedures

Standard laboratory QC procedures were used by the analytical laboratory to document possible biases related to the analytical process. The laboratory reported concentrations to method detection limits (MDLs) and limits of quantification (LOCs). Values between the MDL and LOC are reported as trace and are considered estimates of the actual concentration. Method blanks were analyzed to assess possible effects of the laboratory environment on samples. Laboratory control samples (LCS) and LCS duplicates were analyzed by the laboratory to provide a quantitative measure of accuracy and precision exclusive of matrix sample effects.

Laboratory QC data were evaluated to assess the acceptability of the analytical data:

- All samples were received at the appropriate temperature and analyzed within hold time.
- Reporting limits were raised due to interference from the sample matrix for both the leachate and leachate/condensate samples.
- A few labeled isotope quality control recoveries associated with analytes PFOSA and 4:2 FTS were outside the method established limits.
- All laboratory control spikes, and laboratory control spike duplicates were within method acceptable limits.
- The recovery for injection and extraction standards for some samples was outside of acceptance limits as noted in the laboratory QC Summary.

These qualifications are typical when modifying a drinking water analytical method for analyses of groundwater and leachate samples. Details on laboratory QC results are included with the analytical reports in Appendix B.

3.0 ANALYTICAL RESULTS

PFAS were detected in all groundwater, leachate, and leachate/condensate samples collected. All PFAS that were detected in groundwater samples were also detected in the leachate samples. The results of the one-time leachate and groundwater sampling of PFAS at the Landfill are presented in Table 1. The complete laboratory analytical report is included as Appendix B.



Signature Page

Golder Associates Inc.



FB/AK/ks

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Table

May 2020 130029701

Table 1. PFAS Analytical Results - Clover Flat Landfill

Chemical Name	Abbreviation	Chemical Abstracts Service (CAS) No.	Units	B-4	B-5A	Dup-1 (B-5A)	B-5B	Leachate	Holding Tanks*	Field Blank	Trip Blank
4:2 Fluorotelomer sulfonic acid	4:2 FTS	757124-72-4	ng/L	<0.40	<0.41	<0.40	<0.41	<40	<41	<0.40	<0.45
6:2 Fluorotelomer sulfonic acid	6:2 FTS	27619-97-2	ng/L	<1.6	<1.6	<1.6	4.6	<160	<160	<1.6	<1.8
8:2 Fluorotelomer sulfonic acid	8:2 FTS	39108-34-4	ng/L	<0.80	<0.82	<0.79	<0.81	<80	<81	<0.81	<0.89
N-Ethyl perfluorooctane sulfonamidoacetic acid	NEtFOSAA	2991-50-6	ng/L	<0.40	8.7	8.1	<0.41	<40	760	<0.40	<0.45
N-Methyl perfluorooctane sulfonamidoacetic acid	NMeFOSAA	2355-31-9	ng/L	<0.48	<0.49	0.54 J	<0.49	<48	65 J	<0.48	<0.54
Perfluorobutane sulfonic acid	PFBS	375-73-5	ng/L	<0.40	7.3	8.1	13	44 J	82 J	<0.40	<0.45
Perfluorobutanoic acid	PFBA	375-22-4	ng/L	2.8 J	72	69	59	210 J	220 J	<1.6	<1.8
Perfluorodecane sulfonic acid	PFDS	335-77-3	ng/L	<0.40	<0.41	<0.40	<0.41	<40	<41	<0.40	<0.45
Perfluorodecanoic acid	PFDA	335-76-2	ng/L	<0.40	<0.41	<0.40	<0.41	<40	<41	<0.40	<0.45
Perfluorododecanoic acid	PFDoDA	307-55-1	ng/L	<0.40	<0.41	<0.40	<0.41	<40	<41	<0.40	<0.45
Perfluoroheptane sulfonic acid	PFHpS	375-92-8	ng/L	<0.40	0.54 J	0.59 J	0.90 J	<40	<41	<0.40	<0.45
Perfluoroheptanoic acid	PFHpA	375-85-9	ng/L	0.92 J	12	12	14	330	230	<0.40	<0.45
Perfluorohexane sulfonic acid	PFHxS	355-46-4	ng/L	< 0.40	26	27	15	310	670	<0.40	<0.45
Perfluorohexanoic acid	PFHxA	307-24-4	ng/L	3	79	73	27	1400	1500	<0.40	<0.45
Perfluorononanoic acid	PFNA	375-95-1	ng/L	<0.40	0.72 J	0.62 J	<0.41	<40	<41	<0.40	<0.45
Perfluorooctanesulfonamide	PFOSAm	754-91-6	ng/L	<0.40	1.0 J	0.98 J	<0.41	<40	<41	<0.40	<0.45
Perfluorooctane sulfonic acid	PFOS	1763-23-1	ng/L	<0.40	24	25	11	74 J	140 J	<0.40	<0.45
Perfluorooctanoic acid	PFOA	335-67-1	ng/L	1.5 J	55	52	63	580	730	<0.40	<0.45
Perfluoropentane sulfonoic acid	PFPeS	2706-91-4	ng/L	< 0.40	4.1	3.5	6.2	<40	<41	<0.40	<0.45
Perfluoropentanoiic acid	PFPeA	2706-90-3	ng/L	2.4	25	23	11	500	480	<0.40	<0.45
Perfluorotetradecanoic acid	PFTeDA	376-06-7	ng/L	<0.40	<0.41	<0.40	<0.41	<40	<41	<0.40	<0.45
Perfluorotridecanoic acid	PFTrDA	72629-94-8	ng/L	<0.40	<0.41	<0.40	<0.41	<40	<41	<0.40	<0.45
Perfluoroundecanoic acid	PFUnDA	2058-94-8	ng/L	<0.40	<0.41	<0.40	<0.41	<40	<41	<0.40	<0.45

Notes:

Reporting limits from Eurofins Lancaster Laboratories for non-potable water by EPA 537 modified using the Order-required Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS) method compliant with DoD Table B-15 of Quality Systems Manual Version 5.1 (or later).

Only those compounds that were detected in the groundwater and leachate samples are shown.

ng/L nanograms per liter

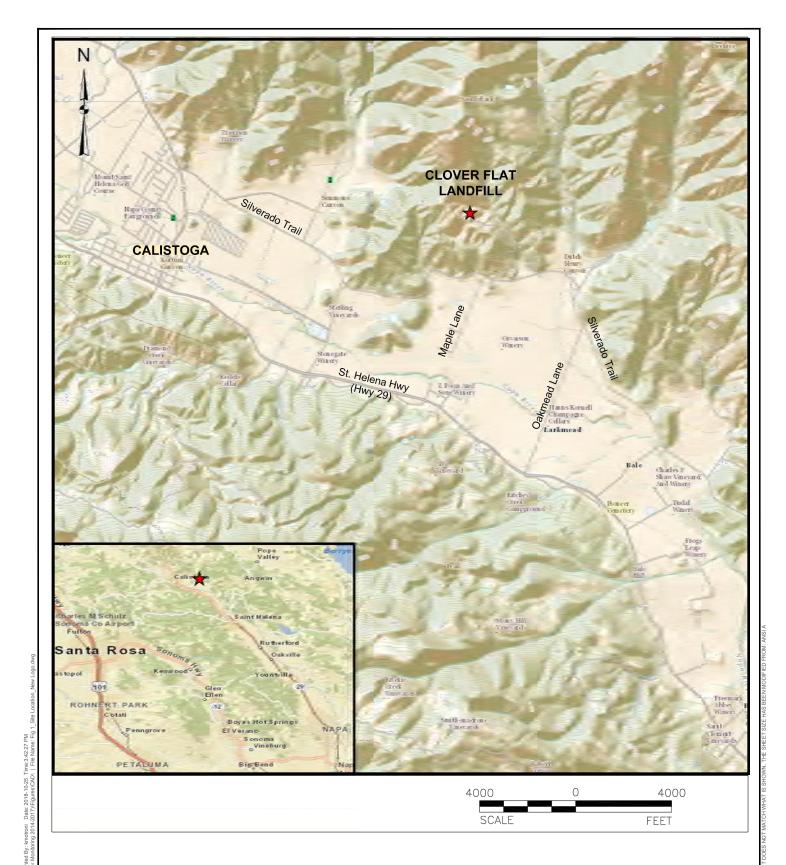
J Value greater than Method Detection Limit, but below Limit of Quantitation. Value is an estimate.



1

^{*} Holding tanks containing comingled condensate and leachate.

Figures



CLIENT CLOVER FLAT LANDFILL, INC. CALISTOGA, CALIFORNIA

CONSULTANT



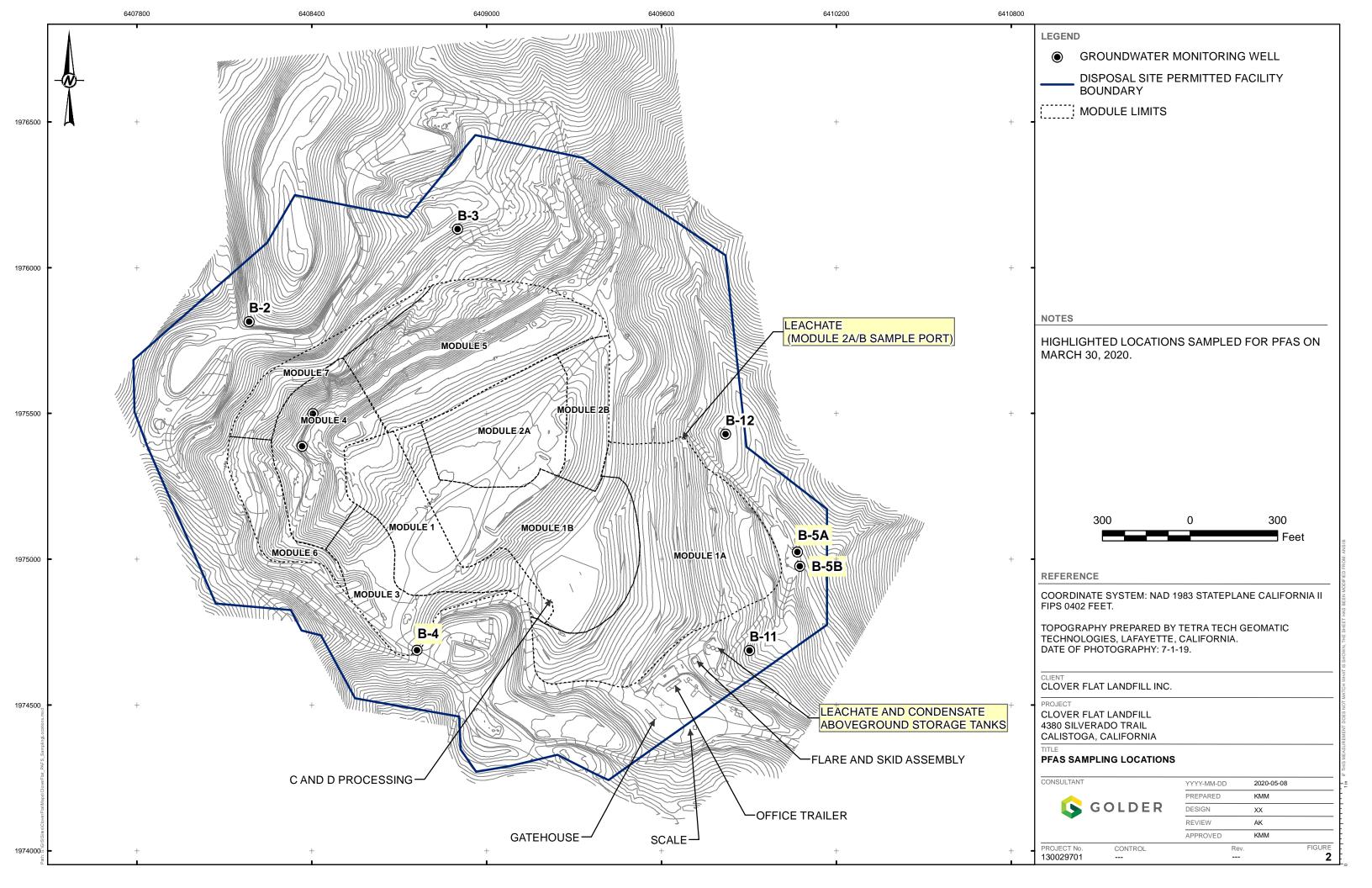
YYYY-MM-DD	2018-10-25
DESIGNED	KMM
PREPARED	KMM
REVIEWED	TLV
APPROVED	TLV

PROJECT
CLOVER FLAT LANDFILL
4380 SILVERADO TRAIL
CALISTOGA, CALIFORNIA

TITLE

FIGURE 1 SITE LOCATION MAP

PROJECT NO. REV. 1300297-01



APPENDIX A

Field Sampling Sheets



LOCATION: Clover Flat LF	CAMPLE	D: MZ L	<	
PROJECT NO: 1300 29701		BY: JG	<u></u>	
SAMPLE TYPE: Groundwater Surface Water				
CASING DIAMETER (OD-inches): 3/4 1	2 4	4.5		
GALLONS PER LINEAR FOOT: (0.02) (0.04) (0.17) (0.	66) (0.83)	(1.5) (2.6	
Well Total Depth (ft):	Volume in	Casing (gal):	/	
Depth to Water (ft):	Calculated	Purge (volumes	/ gal.):	
Height of Water Column (ft):	Actual Pre	-Sampling/Purge	(gal):	
PURGE: Device (Depth of Intake from TOC): Disp. Bailer Bladder Pump Electric Submersible Pump Purge Water Containment: Field QC Samples Collected: EB FB E	Dedica	ľеd О	ther	
Tiold 40 campios collected. EB 1B E	701 Tulle.	Ou	.ei	
Time Volume Temp. EC (2400 Hr) (gallons) (°C) (μmhos/cm) (s	pH Co std. units) (visu	or Turbidity ual) (visual)		Observation
		Purge Date:		
SAMPLE: Device (Depth of Intake from TOC): Disp. Bailer	Peristaltic Pursible Pump	mp Ce Dedicated_	entrifugal Pumi	p Other X
1	•	O Color	•	
		g/l) (visual)	` ,	(mV)
		- Hazy		-19
Sheen: Odor: Odor:		Sample Da	ate: <u>3·3<i>o-</i></u>	20
Field Measurement Devices: Horiba: YSI:				
pH 4: (/				
				@°C)
, , ,	· 			
ORP (/	ity (/_	NTU)	
REMARKS: Hold PEAS				
AA AA				
SIGNATURE:			DATE:	4-1-20
C/Users/JGGlover/Desktop/Field sheets/Water sample field data new.docx				



GOLDER LOCATION: CFC	SAMPLEID: Halding Tunks
LOCATION:	SAMPLED BY:
SAMPLE TYPE: Groundwater Surface Water	Leachate X Other Condustric
CASING DIAMETER (OD-inches): 3/4 1	2 4 4.5 6 8 Other X
GALLONS PER LINEAR FOOT: (0.02) (0.04)	
Well Total Depth (ft):	-
Depth to Water (ft):	Calculated Purge (volumes / gal.):
Height of Water Column (ft):	Actual Pre-Sampling Purge (gal):
PURGE: Device (Depth of Intake from TOC): Disp. Bailer Bladder Pump Electric Submersible Pump Purge Water Containment: Field QC Samples Collected: EB FB DU	Peristaltic Pump Centrifugal Pump Dedicated Other
· · · · · · · · · · · · · · · · · · ·	
· ·	pH Color Turbidity units) (visual) Other Observation
<u> </u>	
	Purge Date:
SAMPLE: Device (Depth of Intake from TOC): Disp. Bailer Bladder Pump Electric Submersil	_Peristaltic Pump Centrifugal Pump ble Pump Dedicated Other
Time Temp. EC pl	
(2400 Hr) (°C) (μmhos/cm) (std. u	
<u>17/0 13.70 2630 7.7</u>	
Sheen: Odor:	Sample Date: 3-30-20
Field Measurement Devices: Horiba: YSI: _	Hanna Turbidity: Other:
Meter Calibration Date: 3-30-20 Time: 11:59	Location: B-4 Ins.#
I I	°C) pH 10: (/°C)
D.O. (/@100%) EC (
ORP (/@°C Turbidity	(/NTU)
REMARKS: Tanks T-1, T-2, T-3, T-4	T-5 Comp Sharps PFAS
Could hear liquid draining into	tuak.
SIGNATURE:	DATE: 4-1-20



GOLDER		D 11		
LOCATION: Clover Flat LF	SAMPLE ID: _			
PROJECT NO:	SAMPLED BY:			
SAMPLE TYPE: Groundwater Surface Water _				
CASING DIAMETER (OD-inches): 3/411	2 <u>4</u> (0.17) (0.66)		8 (2.6)	-
Well Total Depth (ft): 145,32	Volume in Casir	ng (gal):	20.492	7
Depth to Water (ft): 120. 63	Calculated Purg	je (volumes / g	jal.): 61.4	マ
Height of Water Column (ft): 24.69	Actual Pre-Sam	pling Purge (g	al): \\B	38.50
PURGE: Device (Depth of Intake from TOC): Disp. Bailer Bladder Pump Electric Submersible Pump Purge Water Containment: Field QC Samples Collected: EB FB DUF	Peristaltic Pump Dedicated Time: [36	Othe	er	
(2400 Hr) (gallons) (°C) (μmhos/cm) (std.	OH Color units) (visual)	Turbidity (visual) & 50	Other	Observation
1234 42			Dr-1 1	2122
				
		-		
	Gr.			
	Purge	Date: 3-	30-Z0	
SAMPLE: Device (Depth of Intake from TOC): Disp. Bailer	_Peristaltic Pump le Pump [Cent Dedicated	rifugal Pump	ther
Time Temp. EC pH		Color	Turbidity	7
(2400 Hr) (°C) (μmhos/cm) (std. ur 1815 25.70 1120 6.1		(visual)	(NTU)	(mV) -28.30
Sheen: Odor: -		Sample Date		
Field Measurement Devices: Horiba: YSI:	X Oakton Tu			Trans.
Meter Calibration Date: 3-30 Zo Time: 11:54				= 1.
pH 4: (3.60 / 4.0 @ 12.7 °C) pH 7: (6.85 /	7.0 @ •	C) pH 10: (_/6	2.701 100	@12,7°C)
D.O. (/ @100%) EC (_/397				
ORP (217 / 220 / 13 6 @°C Turbidity (750 1 75	NTU)		-
PFAS Sample tran: 1814 Installed	1 13:14 150' dedic	ated tube	DT 140 139.	32 12:38
SIGNATURE: Malli			.	111-25
OIGINATURE.	and the same	. 4 .	DATE: _	41-20
C: Users\IGGlover Desktop Field sheets Water sample field data new.docx	1.0	1		



GOLD		10 C E I	1. 1-)_ CA		
			t LF		MPLE ID:			
PROJECT I					MPLED BY:			.
			Surface V					
CASING DI. GALLONS I				2 (0.17)	4 <u>(0.66)</u>		(1.5) 8 (2.6)	
Well Total						ng (gal):		
Depth to W	/ater (ft):	4.50)			je (volumes / g		
Height of V						pling Purge (g		
Bladder Pur	np	Electric S): Disp. Bailer_ Submersible Pu FB	impl	Dedicated _	Othe	er	ump
Time (2400 Hr)	Volume (gallons)	Temp. (°C)	EC (μmhos/cm)	pH (std. units)	Color (visual)	Turbidity (visual)	Other	Observation
1517		18.60	1262	6.34	cles	34.60		
1521	32	17.50	1275	6.15	Huzy	LOW 48.0)	
1526	49.	17.0	1296	6.07	Hazy	18.90		
						<i>C</i> *		
					·		-	
				-	·			
				N. Common of the	- S			
					Purge	Date: <u>3</u>	-30 -2	<u> </u>
SAMPLE: Device (Der	oth of Intake	e from TOC): Disp. Bailer_	Perista	altic Pump	Cent	trifugal Pump	
Bladder Pur	np	5 110M1 1 0 0	Electric Sub	mersible Pum	p <u>×</u> 1	Dedicated	O	ther
Time			EC			6		
(2400		•		pH (std. units)	DO (mg/l)	Color (visual)	Turbidity (NTU)	ORP (mV)
1528	17.0		296	6.07	- =	Hazy	18.90	103.8
Sheen:			Odor:			Sample Date	3-30-	29
Field Meası	rement De	vices: Hor	iba:	vsi. ko	Hanna Tu	rbidity: 😕	Other	··· -
			D-Zo Time: /					
		<u> </u>	°C) pH 7: (
D.O. (1	0%) EC (į.	·	
ORP (@°C Tu					
	Dri			<u> </u>				
REMARKS	- [F]	49 15:2	. 6			<u> </u>		<u> </u>
SIGNATUR	E.	(h	1 14				D.4.T.F.	4-1-20
SIGNATUR	E:	- JUA	79				_ DATE:	71-20



GOLDER	- .				P. Ju	t+				
LOCATION: Clover Flat LF SAMPLE ID: B-50										
PROJECT NO:										
SAMPLE TYPE: Groundwater 🔀 Surface Water Leachate Other										
CASING DIAMETER (GALLONS PER LINEA	AR FOOT :	(0.02) $(0$.04) 2 <u>(0.17)</u>	4 <u>(0.66)</u>	4.5 <u>×</u> 6_ (0.83) (1.5) (2.6	Other 6)			
Well Total Depth (ft): Volume in Casing (gal): 2,4462										
Depth to Water (ft): _	82.47		Cale	culated Purg	e (volumes / g	yal.): 7 .^	3206			
Height of Water Colu	mn (ft):	2.94	Actu	ıal Pre-Sam	pling Purge (g	al): <u>~ 2</u>				
PURGE: Device (Depth of Intake from TOC): Disp. Bailer Peristaltic Pump Centrifugal Pump Bladder Pump Electric Submersible Pump Dedicated Other Purge Water Containment: Field QC Samples Collected: EB FB DUP Time: 1538 Other										
Time Volume	Temp.	EC	pН	Color	Turbidity					
(2400 Hr) (gallers)		(µmhos/cm)	•		(visual)	Other	Observation			
1450 Bater	34.40	766	7.20	Ciew	4.85					
1452 27502		757	7.28	Cer	Low					
1455	36.20	609	7.29	Clear	Low					
1458 125	36.0	751	<u> 730 </u>	Clear	Low		recharge			
l						1458	DTW 8480			
							578 8480			
							548 8480			
					Date:		7 0 0 (100			
SAMPLE: Device (Depth of Intak Bladder Pump	e from TOC): Disp. Bailer_ Electric Sub	Perista mersible Pum	iltic Pump	Cent	rifugal Pum	p Other			
	mp.	EC	рН	DO	Color	Turbidity				
		hos/cm)			(visual)					
<u>iw3</u> 31.	<u> 20 </u>		6.76		Cleur					
Sheen:		Odor:			Sample Date	: 3-30	24			
Field Measurement De										
Meter Calibration Da										
pH 4: (/						/	°C)			
D.O. (/_	@100	0%) EC (µmhos/c	m@25°C)					
ORP (/_		@°C Tu	rbidity (1 394	NTU)					
REMARKS: Pry	1	ax volum	-7 Sam	pe Per	(Pm					
PFAS: 1600		1613 C	DTW 85.4	1	167					
SIGNATURE:	MM	5	,		Y.	DATE	41-20			
SIGNATURE:	T I W/JU	HT			10 mm	_ DATE:	1100			

APPENDIX B

Laboratory Analytical Report



Date of Report: 04/15/2020

Käte Motroni

Golder

425 Lakeside Drive Sunnyvale, CA 94085

Client Project: 1300297-01
BCL Project: Clover Flat
BCL Work Order: 2009617
Invoice ID: B377230

Enclosed are the results of analyses for samples received by the laboratory on 4/1/2020. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval

Client Service Rep

Stuart Buttram
Technical Director

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101



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Chain of Custody and Cooler Receipt Form for 2009617 Page 1 of 2 Chain of Custody Ī ANALYSIS REQUESTED 930 CheckCash/Card PIA # Packing Material: ۷ بز بد 23 PFAS > Х بز SIEN FUCK PFAS (See Analyte List) ሂ 8. × ¥ 70-00(a)7 vanessa.sandoval@bclabs.com Ó eceived at Delivery NONE EDF (Geotracker lile) needed CDHS Presno Co Tulane Co PAX*a: Regulatory Compliance Electronic Data Transfer: System No. * Comments / Station Code SO - Solid BLUE Carbon Copies: Moreed Co Phone * A: (661) 852-4203 WET CFW - Clerinsted Finished Water CWW - Cherinated Wayse Wayer BW - Bouled Water FW - Finished Water WW - Weste Water SW - Stern Water DW - Drinking Waser Hold Other 4100 Atlas Court Bakersfield, Ca. 93308 (661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com Cooling Method:]sro []s 0ay** []z 0ay** [] 10ay* Matrix * 3 E-mail: Jime Jime Result Request ** Surcharge 93308 200 ŝ BCL Quote 8 BUTION Mail Only Vanessa Sandoval ŝ CAO UPS GSO WALKEN SAVE-FED EX-OTHER CAO UPS GSO WALKEN SAVE-FED EX-OTHER State * STD | Level II 9 Report Attention *: E-Mail Fax Bakersfield ₹) Ħ ۲ ļ LABORATORIES 7 ۶ flow would you like your completed results sent? してなるない RSW = Raw Surface Water RGW = Raw Ground Water 526 302 1814 1735 88 Sampler Name Printed / Signatu 250 3322 3332 3302 33000 33020 Date Client/Company Name * 4100 Atlas Ct. BC Labs Project Information: Shipping Method: Required Fields JOHNAY Matrix Types: N $\widecheck{\mathbf{a}}$ 7245 858 850

Report ID: 1001018976 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 3 of 32



Chain of Custody and Cooler Receipt Form for 2009617 Page 2 of 2

BC LABORATORIES INC.			c	OOLER	RECEIPT	FORM			Page		of
Submission #: 70-0941:	A										
F SHIPPING INF	ORM	Hand	Delivery	0	Ice Che	est El	CONTAI None □	Box []		REE LIQ	0 0
Refrigerant: Ich Blue le	e 🛭	None	0 (Other 🗆	Comr	nents:					
Custody Seals Ice Chest I	F.	Containers None Comments:									
All samples received? Yes 🗸 No 🗅	AI	l samples d	containers	Intact? Y	′es Dr No		Descrip	tion(s) mat	eh COC? Ye	No No	0
COC Received	Emis	sivity: 0	<u>17</u>	Container:	PE	Thermon	neter ID: _	774	Date/Time	4/1/12	
SAMPLE CONTAINERS							NUMBERS			W/VC	
OT PELINPRES	-	1	2	3	4	6	6	7	8	9	10
loz (Soz)/1602 PE UNPRES	-	AB	AB	0.0	AB	na	n.o	- 46	0.0		
loz Cr*f	-	1419	1419	AB	40	AB	AB	AB	48		
OT INORGANIC CHEMICAL METALS	-		-			-		-			
NORGANIC CHEMICAL METALS 40x / 80x /	1600										
T CYANIDE	2002										
T NITROGEN FORMS	\vdash		-								
T TOTAL SULFIDE										-	
oz. NITRATE / NITRITE								 			
T TOTAL ORGANIC CARBON											
T CHEMICAL OXYGEN DEMAND											
NA PHENOLICS											
Oml YOA VIAL TRAVEL BLANK								-			
0ml VOA VIAL									-		
T EPA 1664										-	
T ODOR											
ADIOLOGICAL -											
ACTERIOLOGICAL .											
ml VOA VIAL-504						-					
T RPA 508/608/8080											
T EPA 515.1/8150									- 1		
T EPA 525											
T EPA 525 TRAVEL BLANK									1		
ml EPA 547											
ml EPA 531.1											
x EPA 548											
T EPA 549							-				
P EPA 8015M											
T EPA \$270											
z/16zz/32oz AMBER											
z/160z/32oz JAR											
OIL SLEEVE											
CB VIAL											
ASTIC BAG				1							
EDLAR BAG											
RROUS IRON											
CORE											
ART KIT					-					-	
mma canister											
								-	-		

Golder Reported: 04/15/2020 10:04

425 Lakeside Drive Project: Clover Flat Sunnyvale, CA 94085 Project Number: 1300297-01 Project Manager: Käte Motroni

Laboratory / Client Sample Cross Reference

Laboratory **Client Sample Information**

2009617-01 COC Number:

> **Project Number:** Clover Flat LF

Sampling Location: B-4 Sampling Point: B-4 Sampled By:

Lab Matrix: **GAMV** Sample Type:

Delivery Work Order: Global ID: L10001344067 Location ID (FieldPoint): B-4

Matrix: W

Receive Date: Sampling Date:

Sample Depth:

Sample QC Type (SACode): CS

Cooler ID:

2009617-02 **COC Number:**

> **Project Number:** Clover Flat LF

M2LS Sampling Location: M2LS Sampling Point: **GAMV** Sampled By:

04/01/2020 09:30 Receive Date: Sampling Date: 03/30/2020 17:35

04/01/2020 09:30

03/30/2020 18:14

Water

Water

Sample Depth: Lab Matrix: Water Water Sample Type: Delivery Work Order: Global ID: L10001344067

Matrix: W

Sample QC Type (SACode): CS

Location ID (FieldPoint): M2LS

Cooler ID:

2009617-03 COC Number:

> Clover Flat LF **Project Number:** Sampling Location: **Holding Tanks Holding Tanks** Sampling Point: **GAMV** Sampled By:

Receive Date: 04/01/2020 09:30 03/30/2020 17:10 Sampling Date:

Sample Depth: Water Lab Matrix: Water Sample Type: Delivery Work Order: Global ID: L10001344067

Location ID (FieldPoint): Holding Tanks

Matrix: W

Sample QC Type (SACode): CS

Cooler ID:

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Golder Reported: 04/15/2020 10:04

425 Lakeside Drive Project: Clover Flat Sunnyvale, CA 94085 Project Number: 1300297-01 Project Manager: Käte Motroni

Laboratory / Client Sample Cross Reference

Laboratory **Client Sample Information**

2009617-04 COC Number:

> **Project Number:** Clover Flat LF **Sampling Location:** B-5A

Sampling Point: B-5A Sampled By: **GAMV**

2009617-05 **COC Number:**

> **Project Number:** Clover Flat LF

B-5B Sampling Location: B-5B Sampling Point: **GAMV** Sampled By:

COC Number:

Sampled By:

2009617-06

Clover Flat LF **Project Number:** Sampling Location: Field Blank Field Blank Sampling Point:

GAMV

Sample Depth: Lab Matrix: Sample Type:

Delivery Work Order: Global ID: L10001344067

Location ID (FieldPoint): Field Blank

04/01/2020 09:30

03/30/2020 15:26

04/01/2020 09:30

03/30/2020 16:00

04/01/2020 09:30

03/30/2020 13:02

Water

Water

Water

Water

Water

Water

Sample QC Type (SACode): CS

Sample QC Type (SACode): CS

Matrix: W

Receive Date: Sampling Date:

Sample Depth:

Lab Matrix:

Matrix: W

Cooler ID:

Receive Date:

Sampling Date:

Sample Depth:

Lab Matrix:

Matrix: W

Cooler ID:

Receive Date:

Sampling Date:

Sample Type: Delivery Work Order: Global ID: L10001344067 Location ID (FieldPoint): B-5B

Sample Type: Delivery Work Order: Global ID: L10001344067 Location ID (FieldPoint): B-5A

Sample QC Type (SACode): CS

Cooler ID:

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Golder Reported: 04/15/2020 10:04

425 Lakeside Drive Project: Clover Flat
Sunnyvale, CA 94085 Project Number: 1300297-01
Project Manager: Käte Motroni

Laboratory / Client Sample Cross Reference

Laboratory Client Sample Information

2009617-07 COC Number: ---

Project Number: Clover Flat LF
Sampling Location: DUP-1
Sampling Point: DUP-1
Sampled By: GAMV

Sample Depth: --Lab Matrix: Water

Receive Date:

Sampling Date:

Sample Type: Water
Delivery Work Order:
Global ID: L10001344067

Global ID: L10001344067 Location ID (FieldPoint): DUP-1 Matrix: W

viallix. vv

Sample QC Type (SACode): CS

Cooler ID:

2009617-08 COC Number: ---

Project Number: Clover Flat LF
Sampling Location: Trip Blank
Sampling Point: Trip Blank
Sampled By: GAMV

Receive Date: 04/01/2020 09:30 **Sampling Date:** 03/30/2020 00:00

04/01/2020 09:30

03/30/2020 00:00

Sample Depth: --Lab Matrix: Water
Sample Type: Trip Blank

Delivery Work Order: Global ID: L10001344067

Location ID (FieldPoint): Trip Blank

Matrix: W

Sample QC Type (SACode): CS

Cooler ID:

Report ID: 1001018976 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 7 of 32



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Lancaster Laboratories Environmental







Milland Pile, Canceller, NA 17001 - 717-000-2200 - Fix: T17-000-0708 - www.EurofinioScience.ancLabeEur

ANALYSIS REPORT

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601

BC Laboratories, Inc. 4100 Atlas Court Bakersfield CA 93308

Report Date: April 15, 2020 12:33

Project: 2009617

Account #: 44261 Group Number: 2094726 SDG: BCL94 State of Sample Origin: CA

Electronic Copy To BC Laboratories, Inc. Electronic Copy To BC Laboratories, Inc.

Attn: Molly Meyers Attn: Vanessa Sandoval

Respectfully Submitted,

Elizabeth M. Zanar Project Manager

(717) 556-7290

To view our laboratory's current scopes of accreditation please go to <a href="https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/certifications-eurofins-lancaster-laboratories-environmental/certifications-eurofins-lancaster-laboratories-environmental/certifications-env environmental/. Historical copies may be requested through your project manager.

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Lancaster Laboratories Environmental







3425 New Historia Pille, Cancester, PA 17621 + 717-656-2300 + Fay: T17-656-6768 + www.EurofewillE.comCancLabeEnv

SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
2009617-01 Water	03/30/2020 18:14	1292177
2009617-01 Water	03/30/2020 18:14	1282177
2009617-02 Water	03/30/2020 17:35	1292178
2009617-03 Water	03/30/2020 17:10	1292179
2009617-04 Water	03/30/2020 15:26	1292180
2009617-05 Water	03/30/2020 16:00	1292181
2009617-06 Water	03/30/2020 13:02	1292182
2009617-07 Water	03/30/2020	1292183
2009617-08 Water	03/30/2020	1292184

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Lancaster Laboratories Environmental

Case Narrative

3435 New Holland Pile, Lancianier, PA 17801 + 717-656-2390 + Fee: 217-656-6766 + www.EurofineUS.com/Lancianistm

Project Name: 2009617 ELLE Group #: 2094726

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise potent.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 1292178, 1292179

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary.

Sample #s: 1292181

The recovery for the sample extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary.

Sample #s: 1292180, 1292183

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for the sample extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary.

Batch #: 20097002 (Sample number(s): 1292177-1292184)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 1292178, 1292179, 1292180, 1292183

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 1292179, 1292180, 1292181, 1292183

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Lancaster Laboratories Environmental

Analysis Report

WW 1292177

2094726

BC Laboratories, Inc.

ELLE Sample #:

ELLE Group #:

Matrix: Water

05 New Holland Pike, Lancaster, PA 17861 + 717-698-2009 + Fax: 717-698-6786 - www.Eurofest/SuconsLancLabsEnv

Sample Description: 2009617-01 Water

2009617

2009617

Project Name: 2009617

Submittal Date/Time: Collection Date/Time: SDG#:

04/03/2020 08:30 03/30/2020 18:14 BCL94-01

CAT No.	Analysis Name		CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS	/MS Miscellaneous	EPA 537 mo table B-15	d QSM 5.1	ng/l	ng/l	ng/l	
14434	4:2-Fluorotelomersulfonio	acid	757124-72-4	N.D.	0.40	1.6	1
14434	6:2-Fluorotelomersulfonio	acid	27619-97-2	N.D.	1.6	4.0	1
14434	8:2-Fluorotelomersulfonio	acid	39108-34-4	N.D.	0.80	2.4	1
14434	NEtFOSAA		2991-50-6	N.D.	0.40	2.4	1
	NEtFOSAA is the acrony	n for N-ethyl perflu	iorooctanesulfonam	nidoacetic Acid.			
14434	NMeFOSAA		2355-31-9	N.D.	0.48	1.6	1
	NMeFOSAA is the acrony	m for N-methyl pe	rfluorooctanesulfon	ramidoacetic Acid.			
14434	Perfluorobutanesulfonic a	cid	375-73-5	N.D.	0.40	1.6	1
14434	Perfluorobutanoic acid		375-22-4	2.8 J	1.6	4.0	1
14434	Perfluorodecanesulfonic	ıcid	335-77-3	N.D.	0.40	1.6	1
14434	Perfluorodecanoic acid		335-76-2	N.D.	0.40	1.6	1
14434	Perfluorododecanoic acid		307-55-1	N.D.	0.40	1.6	1
14434	Perfluoroheptanesulfonic	acid	375-92-8	N.D.	0.40	1.6	1
14434	Perfluoroheptanoic acid		375-85-9	0.92 J	0.40	1.6	1
14434	Perfluorohexanesulfonic	acid	355-46-4	N.D.	0.40	1.6	1
14434	Perfluorohexanoic acid		307-24-4	3.0	0.40	1.6	1
14434	Perfluorononanoic acid		375-95-1	N.D.	0.40	1.6	1
14434	Perfluorooctanesulfonami	ide	754-91-6	N.D.	0.40	1.6	1
14434	Perfluorooctanesulfonic a	cid	1763-23-1	N.D.	0.40	1.6	1
14434	Perfluorocctanoic acid		335-67-1	1.5 J	0.40	1.6	1
14434	Perfluoropentanesulfonat	0	2706-91-4	N.D.	0.40	1.6	1
14434	Perfluoropentanoic acid		2706-90-3	2.4	0.40	1.6	1
14434	Perfluorotetradecanoic ad	id	376-06-7	N.D.	0.40	1.6	1
14434	Perfluorotridecanoic acid		72629-94-8	N.D.	0.40	1.6	1
14434	Perfluoroundecanoic acid		2058-94-8	N.D.	0.40	1.6	1

Sample Comments

CA ELAP Lab Certification No. 2792

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	23 PFAS in water Table B-15	EPA 537 mod QSM 5.1 table B-15	1	20097002	04/13/2020 15:33	Devon M Whooley	1
14465	PFAS Water Prep - DeD	EPA 537 mod QSM 5.1	1	20097002	04/06/2020 06:48	Austin Prince	1

^{*=}This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

25 New Holland Piles, Lancaster, PA 17861 + 717-858-2308 + Fax: 717-658-6786 + www.Eurofest/SuconsLancLabsEnv

Sample Description: 2009617-02 Water

2009617

2009617

Project Name: 2009617

WW 1292178 ELLE Sample #: ELLE Group #: 2094726

Matrix: Water

BC Laboratories, Inc.

Submittal Date/Time:	04/03/2020 08:30
Collection Date/Time:	03/30/2020 17:35
SDG#:	BCL94-02

CAT No.	Analysis Name		CAS Number	Result	t	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/I	MS Miscellaneous	EPA 537 mod table B-15	1 QSM 5.1	ng/l		ng/l	ng/l	
14434	4:2-Fluorotelomersulfonic	acid	757124-72-4	N.D.		40	160	100
14434	6:2-Fluorotelomersulfonic	acid	27619-97-2	N.D.		160	400	100
14434	8:2-Fluorotelomersulfonic	acid	39108-34-4	N.D.		80	240	100
14434	NEtFOSAA		2991-50-6	N.D.		40	240	100
	NEtFOSAA is the acronym	for N-ethyl perflux	orooctanesulfonamic	doacetic	: Acid.			
14434	NMeFOSAA		2355-31-9	N.D.		48	160	100
	NMeFOSAA is the acrony	m for N-methyl per	fluorooctanesulfona	midoac	etic Acid.			
14434	Perfluorobutanesulfonic ad	oid	375-73-5	44	J	40	160	100
14434	Perfluorobutanoic acid		375-22-4	210	J	160	400	100
14434	Perfluorodecanesulfonic a	cid	335-77-3	N.D.		40	160	100
14434	Perfluorodecanoic acid		335-76-2	N.D.		40	160	100
14434	Perfluorododecanoic acid		307-55-1	N.D.		40	160	100
14434	Perfluoroheptanesulfonic a	acid	375-92-8	N.D.		40	160	100
14434	Perfluoroheptanoic acid		375-85-9	330		40	160	100
14434	Perfluorohexanesulfonic a	cid	355-46-4	310		40	160	100
14434	Perfluorohexanoic acid		307-24-4	1,400		40	160	100
14434	Perfluorononanoic acid		375-95-1	N.D.		40	160	100
14434	Perfluorooctanesulfonamio	ie .	754-91-6	N.D.		40	160	100
14434	Perfluorooctanesulfonic ad	id	1763-23-1	74	J	40	160	100
14434	Perfluorooctanoic acid		335-67-1	580		40	160	100
14434	Perfluoropentanesulfonate	1	2706-91-4	N.D.		40	160	100
14434	Perfluoropentanoic acid		2706-90-3	500		40	160	100
14434	Perfluorotetradecanoic aci	d	376-06-7	N.D.		40	160	100
14434	Perfluorotridecanoic acid		72629-94-8	N.D.		40	160	100
14434	Perfluoroundecanoic acid		2058-94-8	N.D.		40	160	100
_								

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary.

Sample Comments

CA ELAP Lab Certification No. 2792

Laboratory Sample Analysis Record

Method Analysis Name Batch# Analysis Analyst Dilution Date and Time 04/13/2020 16:37 No. 14434 23 PFAS in water Table B-15 Factor 100 EPA 537 mod QSM 5.1 1 table B-15 20097002 Devon M Whooley

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[&]quot;=This limit was used in the evaluation of the final result



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Lancaster Laboratories Environmental

Analysis Report

25 New Holland Pike, Lancester, PA 17861 + 717-858-2308 + Fax: 717-656-6766 + www.Eurofest/Scoret.anclasteEav

Sample Description: 2009617-02 Water

2009617 2009617

Project Name: 2009617

Submittal Date/Time: 04/03/2020 08:30 Collection Date/Time: 03/30/2020 17:35 SDG#: BCL94-02

BC Laboratories, Inc.

WW 1292178 ELLE Sample #: ELLE Group #: 2094726

Matrix: Water

Laboratory Sample Analysis Record

Method CAT Batch# Dilution Analysis Name Analysis Analyst No. 14465 PFAS Water Prep - DoD Date and Time Factor EPA 537 mod QSM 5.1 1 table B-15 20097002 04/06/2020 06:48 Austin Prince

"=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

WW 1292179

2094726

BC Laboratories, Inc.

ELLE Sample #:

ELLE Group #:

Matrix: Water

25 New Holland Piles, Lancaster, PA 17861 + 717-858-2308 + Fax: 717-658-6786 + www.Eurofest/SuconsLancLabsEnv

Sample Description: 2009617-03 Water

2009617

2009617

Project Name: 2009617

Submittal Date/Time: Collection Date/Time: SDG#: BCL94-03

04/03/2020 08:30 03/30/2020 17:10

CAT No.	Analysis Name		CAS Number	Result	ı	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS	/MS Miscellaneous	EPA 537 mo table B-15	d QSM 5.1	ng/l		ng/l	ng/l	
14434	4:2-Fluorotelomersulfonio	acid	757124-72-4	N.D.		41	160	100
14434	6:2-Fluorotelomersulfonio	acid	27619-97-2	N.D.		160	410	100
14434	8:2-Fluorotelomersulfonio	acid	39108-34-4	N.D.		81	240	100
14434	NEtFOSAA		2991-50-6	760		41	240	100
	NEtFOSAA is the acrony	m for N-ethyl perflu	orooctanesulfonami	doacetic	: Acid.			
14434	NMeFOSAA		2355-31-9	65	J	49	160	100
	NMeFOSAA is the acrony	ym for N-methyl pe	rfluorooctanesulfons	amidoac	etic Acid.			
14434	Perfluorobutanesulfonic a	ecid	375-73-5	82	J	41	160	100
14434	Perfluorobutanoic acid		375-22-4	220	J	160	410	100
14434	Perfluorodecanesulfonic	acid	335-77-3	N.D.		41	160	100
14434	Perfluorodecanoic acid		335-76-2	N.D.		41	160	100
14434	Perfluorododecanoic acid	I	307-55-1	N.D.		41	160	100
14434	Perfluoroheptanesulfonic	acid	375-92-8	N.D.		41	160	100
14434	Perfluoroheptanoic acid		375-85-9	230		41	160	100
14434	Perfluorohexanesulfonic	acid	355-46-4	670		41	160	100
14434	Perfluorohexanoic acid		307-24-4	1,500		41	160	100
14434	Perfluorononanoic acid		375-95-1	N.D.		41	160	100
14434	Perfluorooctanesulfonam	ide	754-91-6	N.D.		41	160	100
14434	Perfluorooctanesulfonic a	icid	1763-23-1	140	J	41	160	100
14434	Perfluorooctanoic acid		335-67-1	730		41	160	100
14434	Perfluoropentanesulfonal	ie e	2706-91-4	N.D.		41	160	100
14434	Perfluoropentanoic acid		2706-90-3	480		41	160	100
14434	Perfluorotetradecanoic ad	id	376-06-7	N.D.		41	160	100
14434	Perfluorotridecanoic acid		72629-94-8	N.D.		41	160	100
14434	Perfluoroundecanoic acid	I	2058-94-8	N.D.		41	160	100
Repo	rting limits were raised due							

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary.

Sample Comments

CA ELAP Lab Certification No. 2792

Laboratory Sample Analysis Record

Method Analysis Name Batch# Analysis Analyst Dilution Date and Time 04/13/2020 16:46 No. 14434 23 PFAS in water Table B-15 Factor 100 EPA 537 mod QSM 5.1 1 20097002 Mark Collare table B-15

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Report ID: 1001018976

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eurofins

Lancaster Laboratories Environmental

Analysis Report

WW 1292179

2094726

BC Laboratories, Inc.

ELLE Sample #:

ELLE Group #:

25 New Holland Pike, Lancester, PA 17861 + 717-858-2308 + Fax: 717-656-6766 + www.Eurofest/Scoret.anclasteEav

Sample Description: 2009617-03 Water

2009617 2009617

Project Name: 2009617

Submittal Date/Time: 04/03/2020 08:30 Collection Date/Time: 03/30/2020 17:10 SDG#: BCL94-03

Matrix: Water

Laboratory Sample Analysis Record

Method CAT Batch# Dilution Analysis Name Analysis Analyst No. 14465 PFAS Water Prep - DoD Date and Time Factor EPA 537 mod QSM 5.1 1 table B-15 20097002 04/06/2020 06:48 Austin Prince

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Lancaster Laboratories Environmental

Analysis Report

WW 1292180

2094726

BC Laboratories, Inc.

ELLE Sample #:

ELLE Group #:

Matrix: Water

25 New Holland Pike, Lancester, PA 17861 + 717-858-2308 + Fax: 717-656-6766 + www.Eurofest/Scoret.anclasteEav

2009617-04 Water Sample Description:

2009617

2009617

Project Name: 2009617

Submittal Date/Time: Collection Date/Time: SDG#:

04/03/2020 08:30 03/30/2020 15:26 BCL94-04

CAT No.	Analysis Name		CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilutio Factor
LC/MS/	MS Miscellaneous	EPA 537 mod table B-15	1 QSM 5.1	ng/l	ng/l	ng/l	
14434	4:2-Fluorotelomersulfonic	acid	757124-72-4	N.D.	0.41	1.6	1
14434	6:2-Fluorotelomersulfonic	acid	27619-97-2	N.D.	1.6	4.1	1
14434	8:2-Fluorotelomersulfonic	acid	39108-34-4	N.D.	0.82	2.4	1
14434	NEtFOSAA		2991-50-6	8.7	0.41	2.4	1
	NEtFOSAA is the acronym	for N-ethyl perfluc	prooctanesulfonami	doacetic Acid.			
14434	NMeFOSAA		2355-31-9	N.D.	0.49	1.6	1
	NMeFOSAA is the acronyr	n for N-methyl per	fluorooctanesulfona	midoacetic Acid.			
14434	Perfluorobutanesulfonic ac	sid	375-73-5	7.3	0.41	1.6	1
14434	Perfluorobutanoic acid		375-22-4	72	1.6	4.1	1
14434	Perfluorodocanesulfonic a	cid	335-77-3	N.D.	0.41	1.6	1
14434	Perfluorodecanoic acid		335-76-2	N.D.	0.41	1.6	1
14434	Perfluorododecanoic acid		307-55-1	N.D.	0.41	1.6	1
14434	Perfluoroheptanesulfonic a	ecid	375-92-8	0.54 J	0.41	1.6	1
14434	Perfluoroheptanoic acid		375-85-9	12	0.41	1.6	1
14434	Perfluorohexanesulfonic a	cid	355-46-4	26	0.41	1.6	1
14434	Perfluorohexanoic acid		307-24-4	79	0.41	1.6	1
14434	Perfluorononanoic acid		375-95-1	0.72 J	0.41	1.6	1
14434	Perfluorooctanesulfonamic	le	754-91-6	1.0 J	0.41	1.6	1
14434	Perfluorooctanesulfonic ad	id	1763-23-1	24	0.41	1.6	1
14434	Perfluorooctanoic acid		335-67-1	55	0.41	1.6	1
14434	Perfluoropentanesulfonate	1	2706-91-4	4.1	0.41	1.6	1
14434	Perfluoropentanoic acid		2706-90-3	25	0.41	1.6	1
14434	Perfluorotetradecanoic aci	d	376-06-7	N.D.	0.41	1.6	1
14434	Perfluorotridecanoic acid		72629-94-8	N.D.	0.41	1.6	1
14434	Perfluoroundecanoic acid		2058-94-8	N.D.	0.41	1.6	1
71		decide a selection of the second					

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Method

The recovery for the sample extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary.

Sample Comments

CA ELAP Lab Certification No. 2792

Analysis Name

CAT

Laboratory Sample Analysis Record Batch# Analysis Analyst Dilution Date and Time Factor

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Lancaster Laboratories Environmental

Analysis Report

+ Holland Pike, Lancester, PA 17861 + 717-698-2909 + Fax: 717-696-6790 + www.EurofeasUS.com/LancLabellav

Sample Description: 2009617-04 Water

2009617 2009617

2009617

Submittal Date/Time: Collection Date/Time:

Project Name:

SDG#:

04/03/2020 08:30 03/30/2020 15:26 BCL94-04

BC Laboratories, Inc. ELLE Sample #:

WW 1292180 ELLE Group #: 2094726

Matrix: Water

Laboratory Sample Analysis Record

Method CAT Dilution Analysis Name Batch# Analysis Analyst Date and Time 04/08/2020 18:03 Factor EPA 537 mod QSM 5.1 table B-15 14434 23 PFAS in water Table B-15 20097002 Devon M Whooley EPA 537 mod QSM 5.1 1 20097002 04/06/2020 06:48 14465 PFAS Water Prep - DoD Austin Prince table B-15

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Lancaster Laboratories Environmental

Analysis Report

+ Holland Pike, Lancester, PA 17861 + 717-698-2909 + Fax: 717-696-6799 - www.EurofeasUS.com/LancLabellav

Sample Description: 2009617-05 Water

2009617

2009617

2009617 Project Name:

Submittal Date/Time: 04/03/2020 08:30 Collection Date/Time: 03/30/2020 16:00 SDG#: BCL94-05

BC Laboratories, Inc.

WW 1292181 ELLE Sample #: ELLE Group #: 2094726

Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
.C/MS	/MS Miscellaneous EPA 53	7 mod QSM 5.1	ng/l	ng/l	ng/l	
14434	4:2-Fluorotelomersulfonic acid	757124-72-4	N.D.	0.41	1.6	1
14434	6:2-Fluorotelomersulfonic acid	27619-97-2	4.6	1.6	4.1	1
14434	8:2-Fluorotelomersulfonic acid	39108-34-4	N.D.	0.81	2.4	1
14434	NEtFOSAA	2991-50-6	N.D.	0.41	2.4	1
	NEtFOSAA is the acronym for N-ethy			0.41	2.7	
14434	NMeFOSAA	2355-31-9	N.D.	0.49	1.6	1
14434	NMeFOSAA is the acronym for N-me			0.49	1.0	'
14434	Perfluorobutanesulfonic acid	375-73-5		0.41	4.6	
			13		1.6	1
14434	Perfluorobutanoic acid	375-22-4	59	1.6	4.1	1
14434	Perfluorodecanesulfonic acid	335-77-3	N.D.	0.41	1.6	1
14434	Perfluorodecanoic acid	335-76-2	N.D.	0.41	1.6	1
14434	Perfluorododecanoic acid	307-55-1	N.D.	0.41	1.6	1
14434	Perfluoroheptanesulfonic acid	375-92-8	0.90 J	0.41	1.6	1
14434	Perfluoroheptanoic acid	375-85-9	14	0.41	1.6	1
14434	Perfluorohexanesulfonic acid	355-46-4	15	0.41	1.6	1
14434	Perfluorohexanoic acid	307-24-4	27	0.41	1.6	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.41	1.6	1
14434	Perfluorocctanesulfonamide	754-91-6	N.D.	0.41	1.6	1
14434	Perfluorocctanesulfonic acid	1763-23-1	11	0.41	1.6	1
14434	Perfluoroectanoic acid	335-67-1	63	0.41	1.6	1
14434	Perfluoropentanesulfonate	2708-91-4	6.2	0.41	1.6	1
14434	Perfluoropentanoic acid	2706-90-3	11	0.41	1.6	1
4434	Perfluorotetradecanoic acid	376-06-7	N.D.	0.41	1.6	1
14434	Perfluorotridecanoic acid	72629-94-8	N.D.	0.41	1.6	1
14434	Perfluoroundecanoic acid	2058-94-8	N.D.	0.41	1.6	4

Sample Comments

CA ELAP Lab Certification No. 2792

Laboratory Sample Analysis Record

Method Analysis Date and Time Analyst Dilution CAT Trial# Batch# Analysis Name Factor 14434 23 PFAS in water Table B-15 EPA 537 mod QSM 5.1 20097002 04/08/2020 18:12 Devon M Whooley table B-15 EPA 537 mod QSM 5.1 1 20097002 14465 PFAS Water Prep - DoD 04/06/2020 06:48 Austin Prince 1 table B-15

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Lancaster Laboratories Environmental

Analysis Report

65 New Holland Pike, Lancaster, PA 17861 + 717-656-2509 + Fax: 717-656-6766 + www.Eurofest/Sucond.ancLabsEnv

Sample Description: 2009617-06 Water

2009617

2009617

Project Name: 2009617

Submittal Date/Time: 04/03/2020 08:30 Collection Date/Time: 03/30/2020 13:02 SDG#: BCL94-06FB

BC Laboratories, Inc.

WW 1292182 ELLE Sample #: ELLE Group #: 2094726

Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
.C/MS	/MS Miscellaneous EPA 537 r table B-15	nod QSM 5.1	ng/l	ng/l	ng/l	
14434	4:2-Fluorotelomersulfonic acid	757124-72-4	N.D.	0.40	1.6	1
14434	6:2-Fluorotelomersulfonic acid	27619-97-2	N.D.	1.6	4.0	1
4434	8:2-Fluorotelomersulfonic acid	39108-34-4	N.D.	0.81	2.4	1
4434	NEtFOSAA	2991-50-6	N.D.	0.40	2.4	1
	NEtFOSAA is the acronym for N-ethyl po	erfluorooctanesulfona	midoacetic Acid.			
4434	NMeFOSAA	2355-31-9	N.D.	0.48	1.6	1
	NMeFOSAA is the acronym for N-methy	l perfluorooctanesulfo	namidoacetic Acid.			
14434	Perfluorobutanesulfonic acid	375-73-5	N.D.	0.40	1.6	1
4434	Perfluorobutanoic acid	375-22-4	N.D.	1,6	4.0	1
4434	Perfluorodecanesulfonic acid	335-77-3	N.D.	0.40	1.6	1
4434	Perfluorodecanoic acid	335-76-2	N.D.	0.40	1.6	1
4434	Perfluorododecanoic acid	307-55-1	N.D.	0.40	1.6	1
4434	Perfluoroheptanesulfonic acid	375-92-8	N.D.	0.40	1.6	1
4434	Perfluoroheptanoic acid	375-85-9	N.D.	0.40	1.6	1
4434	Perfluorohexanesulfonic acid	355-46-4	N.D.	0.40	1.6	1
4434	Perfluorohexanoic acid	307-24-4	N.D.	0.40	1.6	1
4434	Perfluorononanoic acid	375-95-1	N.D.	0.40	1.6	1
4434	Perfluorooctanesulfonamide	754-91-6	N.D.	0.40	1.6	1
4434	Perfluorooctanesulfonic acid	1763-23-1	N.D.	0.40	1.6	1
4434	Perfluorocctanoic acid	335-67-1	N.D.	0.40	1.6	1
4434	Perfluoropentanesulfonate	2706-91-4	N.D.	0.40	1.6	1
4434	Perfluoropentanoic acid	2706-90-3	N.D.	0.40	1.6	1
4434	Perfluorotetradecanoic acid	376-06-7	N.D.	0.40	1.6	1
4434	Perfluorotridecanoic acid	72629-94-8	N.D.	0.40	1.6	1
4434	Perfluoroundecanoic acid	2058-94-8	N.D.	0.40	1,6	1

Sample Comments

CA ELAP Lab Certification No. 2792

Laboratory Sample Analysis Record

CAT	Analysis Name	Method	Trial#	Batch#	Analysis	Analyst	Dilution
No. 14434	23 PFAS in water Table B-15	EPA 537 mod QSM 5.1	1	20097002	Date and Time 04/08/2020 18:30	Devon M Whooley	Factor 1
14465	PFAS Water Prep - DoD	table B-15 EPA 537 mod QSM 5.1 table B-15	1	20097002	04/06/2020 06:48	Austin Prince	1

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Lancaster Laboratories Environmental

Analysis Report

65 New Holland Pike, Lancaster, PA 17861 + 717-656-2509 + Fax: 717-656-6766 + www.Eurofest/Sucond.ancLabsEnv

Sample Description: 2009617-07 Water

2009617

2009617

Project Name: 2009617

Submittal Date/Time: Collection Date/Time: SDG#:

04/03/2020 08:30 03/30/2020 BCL94-07FD

BC Laboratories, Inc.

WW 1292183 ELLE Sample #: ELLE Group #: 2094726

Matrix: Water

CAT No.	Analysis Name		CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/	/MS Miscellaneous	EPA 537 mod table B-15	I QSM 5.1	ng/l	ngil	ngil	
14434	4:2-Fluorotelomersulfonic	acid	757124-72-4	N.D.	0.40	1.6	1
14434	6:2-Fluorotelomersulfonic	acid	27619-97-2	N.D.	1.6	4.0	1
14434	8:2-Fluorotelomersulfonic	acid	39108-34-4	N.D.	0.79	2.4	1
14434	NEtFOSAA		2991-50-6	8,1	0.40	2.4	1
	NEtFOSAA is the acronyn	for N-ethyl perfluc	prooctanesulfonami	doacetic Acid.			
14434	NMeFOSAA		2355-31-9	0.54 J	0.47	1.6	1
	NMeFOSAA is the acrony	m for N-methyl peri	fluorooctanesulfona	midoacetic Acid.			
14434	Perfluorobutanesulfonic a	oid	375-73-5	8.1	0.40	1.6	1
14434	Perfluorobutanoic acid		375-22-4	69	1.6	4.0	1
14434	Perfluorodecanesulfonic a	cid	335-77-3	N.D.	0.40	1.6	1
14434	Perfluorodecanoic acid		335-76-2	N.D.	0.40	1.6	1
14434	Perfluorododecanoic acid		307-55-1	N.D.	0.40	1.6	1
14434	Perfluoroheptanesulfonic	acid	375-92-8	0.59 J	0.40	1.6	1
14434	Perfluoroheptanoic acid		375-85-9	12	0.40	1.6	1
14434	Perfluorohexanesulfonic a	cid	355-46-4	27	0.40	1.6	1
14434	Perfluorohexanoic acid		307-24-4	73	0.40	1.6	1
14434	Perfluorononanoic acid		375-95-1	0.62 J	0.40	1.6	1
14434	Perfluorooctanesulfonamie	de	754-91-6	0.98 J	0.40	1.6	1
14434	Perfluorooctanesulfonic ad	id	1763-23-1	25	0.40	1.6	1
14434	Perfluorooctanoic acid		335-67-1	52	0.40	1.6	1
14434	Perfluoropentanesulfonate)	2706-91-4	3.5	0.40	1.6	1
14434	Perfluoropentanoic acid		2706-90-3	23	0.40	1.6	1
14434	Perfluorotetradecanoic ac	id	376-06-7	N.D.	0.40	1.6	1
14434	Perfluorotridecanoic acid		72629-94-8	N.D.	0.40	1.6	1
14434	Perfluoroundecanoic acid		2058-94-8	N.D.	0.40	1.6	1
limits	ample injection internal star for both the initial injection a om the initial injection of the	and the re-injection.		oc			

The recovery for the sample extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary.

Sample Comments

CA ELAP Lab Certification No. 2792

Laboratory Sample Analysis Record Method

CAT Analysis Name Batch# Analysis Analyst Dilution Date and Time Factor

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Lancaster Laboratories Environmental

Analysis Report

+ Holland Pike, Lancester, PA 17861 + 717-698-2909 + Fax: 717-696-6799 - www.EurofeasUS.com/LancLabellav

Sample Description: 2009617-07 Water

2009617 2009617

Project Name: 2009617

Submittal Date/Time: 04/03/2020 08:30 Collection Date/Time: 03/30/2020 SDG#: BCL94-07FD

BC Laboratories, Inc.

WW 1292183 ELLE Sample #: ELLE Group #: 2094726

Matrix: Water

Laboratory Sample Analysis Record

Method CAT Dilution Analysis Name Batch# Analysis Analyst Date and Time 04/08/2020 18:39 Factor EPA 537 mod QSM 5.1 table B-15 14434 23 PFAS in water Table B-15 20097002 Devon M Whooley EPA 537 mod QSM 5.1 1 20097002 04/06/2020 06:48 14465 PFAS Water Prep - DoD Austin Prince table B-15

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Lancaster Laboratories Environmental

Analysis Report

WW 1292184

2094726

BC Laboratories, Inc.

ELLE Sample #:

ELLE Group #:

Matrix: Water

25 New Holland Pike, Lancester, PA 17861 + 717-698-2309 + Fax: 717-698-6766 + www.Eurofest/Scoret.anclasteEav

Sample Description: 2009617-08 Water

2009617

2009617

Project Name: 2009617

Submittal Date/Time: 04/03/2020 08:30 03/30/2020 Collection Date/Time: SDG#: BCL94-08TB

CAT No.	Analysis Name		CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS	/MS Miscellaneous	EPA 537 mo table B-15	d QSM 5.1	ng/l	ng/l	ng/l	
14434	4:2-Fluorotelomersulfonio	acid	757124-72-4	N.D.	0.45	1.8	1
14434	6:2-Fluorotelomersulfonio	acid	27619-97-2	N.D.	1.8	4.5	1
14434	8:2-Fluorotelomersulfonio	acid	39108-34-4	N.D.	0.89	2.7	1
14434	NEtFOSAA		2991-50-6	N.D.	0.45	2.7	1
	NEtFOSAA is the acrony	m for N-ethyl perflu	uorooctanesulfonar	midoacetic Acid.			
14434	NMeFOSAA		2355-31-9	N.D.	0.54	1.8	1
	NMeFOSAA is the acrony	ym for N-methyl pe	erfluorooctanesulfo	namidoacetic Acid.			
14434	Perfluorobutanesulfonic a	ecid	375-73-5	N.D.	0.45	1.8	1
14434	Perfluorobutanoic acid		375-22-4	N.D.	1,8	4.5	1
14434	Perfluorodecanesulfonic	acid	335-77-3	N.D.	0.45	1.8	1
14434	Perfluorodecanoic acid		335-76-2	N.D.	0.45	1.8	1
14434	Perfluorododecanoic acid	I	307-55-1	N.D.	0.45	1.8	1
14434	Perfluoroheptanesulfonic	acid	375-92-8	N.D.	0.45	1.8	1
14434	Perfluoroheptanoic acid		375-85-9	N.D.	0.45	1.8	1
14434	Perfluorohexanesulfonic	acid	355-46-4	N.D.	0.45	1.8	1
14434	Perfluorohexanoic acid		307-24-4	N.D.	0.45	1.8	1
14434	Perfluorononanoic acid		375-95-1	N.D.	0.45	1.8	1
14434	Perfluorooctanesulfonam	ide	754-91-6	N.D.	0.45	1.8	1
14434	Perfluorooctanesulfonic a	icid	1763-23-1	N.D.	0.45	1.8	1
14434	Perfluorooctanoic acid		335-67-1	N.D.	0.45	1.8	1
14434	Perfluoropentanesulfonal	10	2706-91-4	N.D.	0.45	1.8	1
14434	Perfluoropentanoic acid		2706-90-3	N.D.	0.45	1.8	1
14434	Perfluorotetradecanoic ad	cid	376-06-7	N.D.	0.45	1.8	1
14434	Perfluorotridecanoic acid		72629-94-8	N.D.	0.45	1.8	1
14434	Perfluoroundecanoic acid	I	2058-94-8	N.D.	0.45	1.8	1

Sample Comments

CA ELAP Lab Certification No. 2792

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	23 PFAS in water Table B-15	EPA 537 mod QSM 5.1 table B-15	1	20097002	04/08/2020 18:48	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	20097002	04/06/2020 06:48	Austin Prince	1

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Lancaster Laboratories Environmental

Analysis Report

25 New Holland Piles, Lancaster, PA 17861 + 717-858-2308 + Fax: 717-658-6786 + www.EurofiesUS.com/LancLabs/Env

Quality Control Summary

Client Name: BC Laboratories, Inc. Reported: 04/15/2020 12:33

Group Number: 2094726

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Namo	Result	MDL"	LOQ
	ng/l	ng/I	ng/l
Batch number: 20097002	Sample number(s): 1292177-12	92184
4:2-Fluorotelomersulfonic acid	N.D.	0.50	2.0
6:2-Fluorotelomersulfonic acid	N.D.	2.0	5.0
8:2-Fluorotelomersulfonic acid	N.D.	1.0	3.0
NEtFOSAA	N.D.	0.50	3.0
NMeFOSAA	N.D.	0.60	2.0
Perfluorobutanosulfonic acid	N.D.	0.50	2.0
Perfluorobutanoic acid	N.D.	2.0	5.0
Perfluorodecanesulfonic acid	N.D.	0.50	2.0
Perfluorodecanoic acid	N.D.	0.50	2.0
Perfluorododecanoic acid	N.D.	0.50	2.0
Perfluoroheptanesulfonic acid	N.D.	0.50	2.0
Perfluoroheptanoic acid	N.D.	0.50	2.0
Perfluorohexanesulfonic acid	N.D.	0.50	2.0
Perfluorohexanoic acid	N.D.	0.50	2.0
Perfluorononanoic acid	N.D.	0.50	2.0
Perfluorocctanesulfonamide	N.D.	0.50	2.0
Perfluorocctanesulfonic acid	N.D.	0.50	2.0
Perfluorooctanoic acid	N.D.	0.50	2.0
Perfluoropentanesulfonate	N.D.	0.50	2.0
Perfluoropentanoic acid	N.D.	0.50	2.0
Perfluorotetradecanoic acid	N.D.	0.50	2.0
Perfluorotridecanoic acid	N.D.	0.50	2.0
Perfluoroundecanoic acid	N.D.	0.50	2.0

LCS/LCSD

Analysis Namo	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	CSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 20097002	Sample number(s): 1292177-1	292184						
4:2-Fluorotolomersulfonic acid	23.92	19.3	23.92	21.73	81	91	64-134	12	30
6:2-Fluorotelomersulfonic acid	24.28	20.67	24.28	23.31	85	96	51-155	12	30
8:2-Fluorotelomersulfonic acid	24.52	23.22	24.52	24.26	95	99	62-133	4	30
NEIFOSAA.	25.6	24.46	25.6	25.52	96	100	59-145	4	30
NMeFOSAA	25.6	25.78	25.6	29.99	101	117	53-136	15	30
Perfluorobutanesulfonic acid	22.64	21.64	22.64	22.43	96	99	81-133	4	30

^{*-} Outside of specification

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^{**-}This limit was used in the evaluation of the final result for the blank

⁽¹⁾ The result for one or both determinations was less than five times the LOQ.

⁽²⁾ The unspiked result was more than four times the spike added.



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Lancaster Laboratories Environmental

Analysis Report

25 New Holland Pike, Lancester, PA 17861 + 717-858-2308 + Fax: 717-656-6766 + www.Eurofest/SuconsLancLabsEnv

Quality Control Summary

Client Name: BC Laboratories, Inc. Reported: 04/15/2020 12:33

Group Number: 2094726

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorobutanoic acid	25.6	22.96	25.6	23.97	90	94	84-135	4	30
Perfluorodecanesulfonic acid	24.64	21.78	24.64	23.63	88	96	69-124	8	30
Perfluorodecanoic acid	25.6	24.93	25.6	26.82	97	105	78-137	7	30
Perfluorododecanoic acid	25.6	23.92	25.6	26.29	93	103	75-139	9	30
Perfluoroheptanesulfonic acid	24.36	21.31	24.36	22.73	87	93	80-129	6	30
Perfluoroheptanoic acid	25.6	24.57	25.6	25.93	96	101	80-140	5	30
Perfluorohexanesulfonic acid	24.2	23.06	24.2	24.19	95	100	71-131	5	30
Perfluorohexanoic acid	25.6	23.57	25.6	23.9	92	93	80-137	1	30
Perfluorononanoic acid	25.6	22.8	25.6	25.69	89	100	73-140	12	30
Perfluorooctanesulfonamide	25.6	22.12	25.6	24.34	86	95	73-121	10	30
Perfluorooctanesulfonic acid	24.48	20.55	24.48	22.7	84	93	54-139	10	30
Perfluorocctanoic acid	25.6	24.66	25.6	24.67	96	96	83-138	0	30
Perfluoropentanesulfonate	24	21.09	24	21.83	88	91	82-132	3	30
Perfluoropentanoic acid	25.6	22.98	25.6	24.75	90	97	75-138	7	30
Perfluorotetradecanoic acid	25.6	26.31	25.6	28.83	103	113	79-134	9	30
Perfluorotridecanoic acid	25.6	23.54	25.6	26.12	92	102	67-144	10	30
Perfluoroundecanoic acid	25.6	22.71	25.6	22.69	89	89	70-134	0	30

Labeled Isotope Quality Control

Labeled isotope recoveries which are outside of the QC window are confirmed unless otherwise noted on the analysis report.

Analysis Namo: 23 PFAS in water Table B-15 Batch number: 20097002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C2-4:2-FTS	13C5-PFHvA	13C3-PFHxS
1292177	93	91	97	106	91	85
1292178	67	82	98	222*	83	78
1292179	61	56	84	188*	81	77
1292180	89	142	171*	189*	67	80
1292181	92	119	126	134	93	93
1292182	96	99	91	102	96	92
1292183	92	149	174*	186*	73	82
1292184	94	97	90	96	95	99
Blank	86	90	81	85	82	83
LCS	97	99	95	100	98	100
LCSD	90	89	88	86	90	87
Limits:	50-150	50-150	50-150	50-150	50-150	50-150

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^{*-} Outside of specification

^{**-}This limit was used in the evaluation of the final result for the blank

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⁽²⁾ The unspiked result was more than four times the spike added.



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Lancaster Laboratories Environmental

Analysis Report

S New Holland Pike, Lancaster, PA 17861 + 717-858-2508 + Fax: 717-666-6786 + www.EurofeasUS.com/LancLabellav

Quality Control Summary

Client Name: BC Laboratories, Inc. Reported: 04/15/2020 12:33

Group Number: 2094726

Labeled Isotope Quality Control (continued)

Labeled isotope recoveries which are outside of the QC window are confirmed unless otherwise noted on the analysis report.

Analysis Name: 23 PFAS in water Table B-15 Batch number: 20097002

Duncin mainte	U. ZOODI OOL					
	13C4-PFHpA	13C2-6:2-FTS	1308-PFQA	13C8-PFOS	13C9-PFNA	1308-PFDA
1292177	94	88	91	88	98	80
1292178	78	139	88	82	102	80
1292179	85	145	77	79	100	72
1292180	109	146	89	85	112	87
1292181	98	108	94	88	99	85
1292182	93	96	94	91	97	90
1292183	111	137	94	89	116	83
1292184	96	97	97	93	100	92
Blank	84	82	85	83	91	77
LCS	102	100	100	101	103	99
LCSD	89	89	89	88	91	89
Limits:	50-150	50-150	50-150	50-150	50-150	50-150

	13C2-82-FTS	d3-NMoFOSAA	13C7-PFUhDA	d5-NEIFOSAA	13C2-PFDoDA	13C2-PFTeDA
1292177	84	82	93	97	90	87
1292178	89	84	102	116	105	77
1292179	87	99	88	77	78	64
1292180	106	82	84	86	76	69
1292181	99	87	88	93	80	68
1292182	90	83	88	86	87	78
1292183	94	86	85	88	79	74
1292184	92	90	97	95	88	91
Blank	80	78	81	85	76	73
LCS	99	104	101	99	98	95
LCSD	89	89	95	96	88	84
Limits:	50-150	50-150	50-150	50-150	50-150	50-150

	1308-PFOSA	
1292177	73	
1292178	57	
1292179	48"	
1292180	17*	
1292181	47*	
1292182	82	
1292183	20*	
1292184	92	
Blank	75	
LCS	98	
LCSD	86	

^{*-} Outside of specification

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^{**-}This limit was used in the evaluation of the final result for the blank

⁽¹⁾ The result for one or both determinations was less than five times the LOQ.

⁽²⁾ The unspiked result was more than four times the spike added.



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Lancaster Laboratories Environmental

Analysis Report

25 New Holland Piles, Lancaster, PA 17861 + 717-858-2308 + Fax: 717-658-6786 + www.EurofiesUS.com/LancLabs/Env

Quality Control Summary

Client Name: BC Laboratories, Inc. Reported: 04/15/2020 12:33

Group Number: 2094726

Labeled Isotope Quality Control (continued)

Labeled isotope recoveries which are outside of the QC window are confirmed unless otherwise noted on the analysis report.

Analysis Name: 23 PFAS in water Table B-15

Batch number: 20097002

Limits: 50-150

- *- Outside of specification
- **-This limit was used in the evaluation of the final result for the blank
- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

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44261 2094726 292177-84		BC La	TRACT ORDER aboratories 009617		:
SENDING LABORATORY: BC Laboratories 4100 Atlas Court Bakersfield, CA 93308 Phone: 661-327-4911 FAX: 661-327-1918 Project Manager: Vanessa Sand	oval	Eui 242 Lar Am Pho	CEIVING LABORAT rofins Lancaster Lab 25 New Hollad Pike ncaster, PA 17601 landa Porter one: (717) 656-2300 X: (000) 000-0000		ERLLB
Analysis		Due	Expires	Comments	
Sample ID: 2009617-01	Water	Sampled:	03/30/20 18:14	EDF: Clover Flat LF- L1 GAMV & Equis	0001344067
EPA 537 - 23 Perfluorinated Akyl Containers supplied:	Acids	04/15/20 17:00	04/13/20 18:14	Sample description: B-4	
Sample ID: 2009617-02	Water	Sampled:	03/30/20 17:35	EDF: Clover Flat LF- L' GAMV & Equis	0001344067
EPA 537 - 23 Perfluorinated Akyl Containers supplied:	Acids	04/15/20 17:00	04/13/20 17:35	Sample description: M3	-2LS
Sample ID: 2009617-03	Water	Sampled:	03/30/20 17:10	EDF: Clover Flat LF- L1 GAMV & Equis	0001344067
EPA 537 - 23 Perfluorinated Akyl Containers supplied:	Acids	04/15/20 17:00	04/13/20 17:10	Sample description: Ho	lding Tank
Sample ID: 2009617-04	Water	Sampled:	03/30/20 15:26	EDF: Clover Flat LF- L' GAMV & Equis	0001344067
EPA 537 - 23 Perfluorinated Akyl Containers supplied:	Acids	04/15/20 17:00	04/13/20 15:26	Sample description: B-	5A
Sample ID: 2009617-05	Water	Sampled:	03/30/20 16:00	EDF: Clover Flat LF- L' GAMV & Equis	0001344067
EPA 537 - 23 Perfluorinated Akyl Containers supplied:	Acids	04/15/20 17:00	04/13/20 16:00	Sample description: B-	5B
Sample ID: 2009617-06	Water	Sampled:	03/30/20 13:02	EDF: Clover Flat LF- L GAMV & Equis	10001344067
EPA 537 - 23 Perfluorinated Aky Containers supplied:	Acids	04/15/20 17:00	04/13/20 13:02	Sample description: Fig.	eld Blank
Released By 4/4v	Date	1207 -	aceived By	Date	
			Pulista R		8:30
Released By	Date	Page 2	eseived By	Date	Page 1 of 2

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A4261 2094726 292177-84		BC La	TRACT ORDER aboratories 009617		
Analysis		Due	Expires	Comments	
Sample ID: 2009617-07	Water	Sampled:	03/30/20 00:00	EDF: Clover Flat LF- L GAMV & Equis	10001344067
EPA 537 - 23 Perfluorinated Aky Containers supplied:	Acids	04/15/20 17:00	04/13/20 00:00	Sample description: DU	JP-1
Sample ID: 2009617-08	Water	Sampled:	03/30/20 00:00	EDF: Clover Flat LF- L GAMV & Equis	10001344067
EPA 537 - 23 Perfluorinated Aky Containers supplied:	Acids	04/15/20 17:00	04/13/20 00:00	Sample description: Tr	p Blank
			1		
Released By	Date	R	Received By	4/3/20 OR	30
Released By	Date	Page 2	Received By	Date	Page 2 of

Report ID: 1001018976 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 28 of 32



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Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log Doc Log ID:

280895

Group Number(s):2094-72-6

Client: BC LABORATORIES

Delivery and Receipt Information

Delivery Method:

UPS

Arrival Date:

04/03/2020

Number of Packages:

1

Number of Projects:

Arrival Condition Summary

Shipping Container Sealed:

Yes

Sample IDs on COC match Containers:

Yes

Custody Seal Present:

No

Sample Date/Times match COC:

Yes

Samples Chilled:

Yes

Total Trip Blank Qty:

Paperwork Enclosed: Samples Intact:

Yes Yes

Trip Blank Type:

UNP

Missing Samples:

No

Extra Samples: Discrepancy in Container Qty on COC: No No Air Quality Samples Present:

No

Unpacked by Julissa Rivera-Santa

Samples Chilled Details

Thermometer Types:

DT = Digital (Temp. Bottle)

IR = Infrared (Surface Temp)

All Temperatures in °C.

Cooler # Thermometer ID

46730060WS

Corrected Temp 2.2

Therm. Type IR.

ce Type Wet

ice Present?

Ice Container Bagged

Elevated Temp?

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2425 New Holland Pike Lancaster, PA 17605-2425

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Lancaster Laboratories Environmental

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

Below Minimum Quantitation Level mL milliliter(s) degrees Celsius MPN Most Probable Number cfu colony forming units N.D. non-detect CP Units cobalt-chloroplatinate units ng nanogram(s) F degrees Fahrenheit NTU nephelometric turbidity units gram(s) pg/L picogram/liter g IU International Units Reporting Limit

kg kilogram(s) TNTC Too Numerous To Count liter(s) μg microgram(s) lb. microliter(s)

pound(s) иL m3 cubic meter(s) umhos/cm micromhos/cm

milliequivalents MCL Maximum Contamination Limit meq milligram(s) mg

less than greater than >

parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For ppm aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight

very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb

Dry weight Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an basis

as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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Lancaster Laboratories Environmental

Data Qualifiers

Qualifier C	Definition Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is less than the LOQ
K2	Continuing Calibration Blank is above the QC limit and the sample result is less than the LOQ
K3	Initial Calibration Verification is above the QC limit and the sample result is less than the LOQ
K4	Continuing Calibration Verification is above the QC limit and the sample result is less than the LOQ
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
P^	Concentration difference between the primary and confirmation column > 40%. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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Reported: 04/15/2020 10:04

Project: Clover Flat Project Number: 1300297-01 Project Manager: Käte Motroni

Notes And Definitions

425 Lakeside Drive Sunnyvale, CA 94085

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