



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,

A handwritten signature in blue ink, appearing to read "Christy Pestoni".

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:

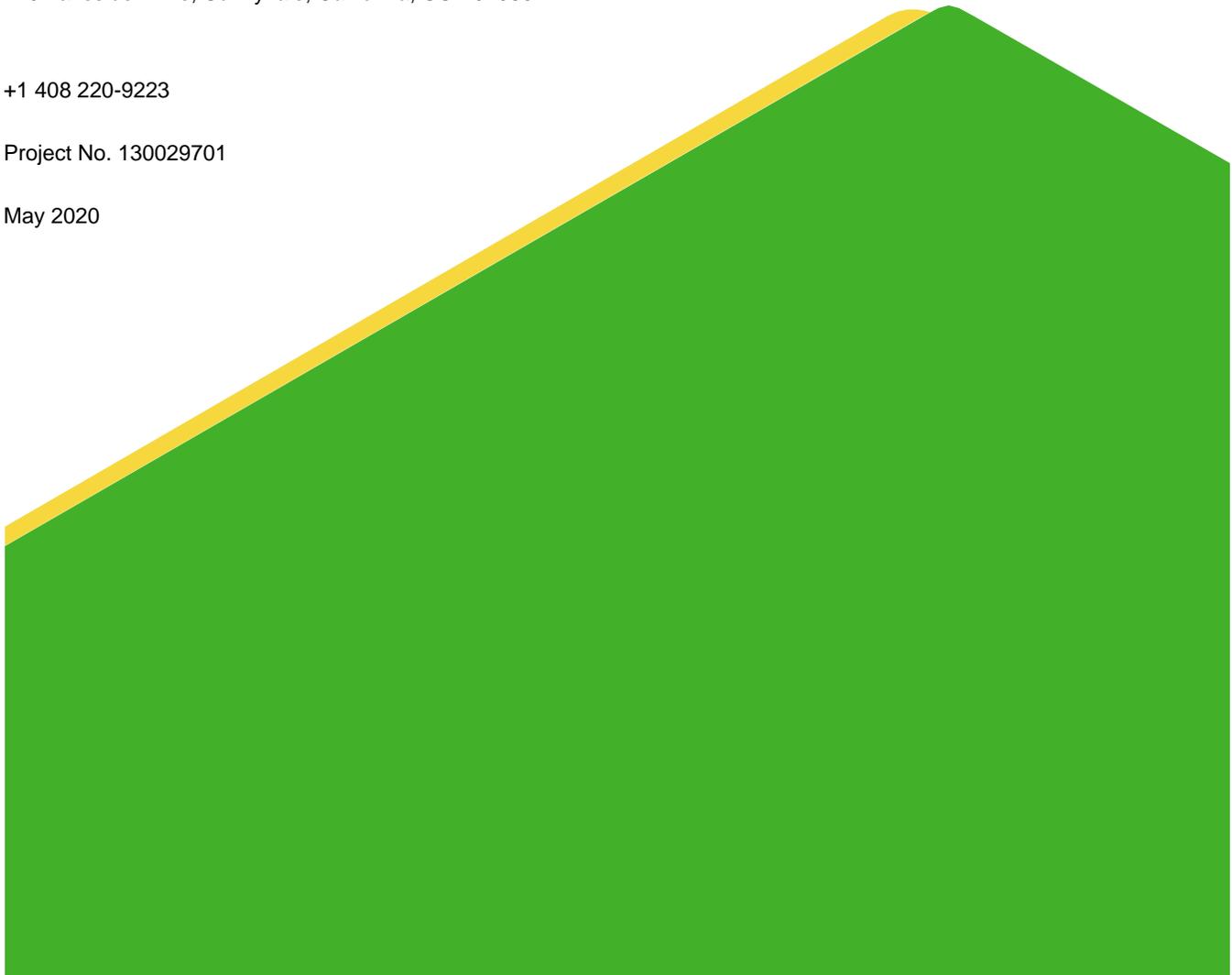
Golder Associates Inc.

425 Lakeside Drive, Sunnyvale, California, USA 94085

+1 408 220-9223

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

Table of Contents

1.0 INTRODUCTION.....1

2.0 PFAS SAMPLE COLLECTION1

 2.1 Sample Analysis.....1

 2.2 Quality Control.....1

 2.2.1 Field Quality Control Samples1

 2.2.2 Laboratory Quality Control Procedures2

3.0 ANALYTICAL RESULTS.....2

TABLES

Table 1 PFAS Analytical Results – Clover Flat Landfill

FIGURES

Figure 1 Site Location Map

Figure 2 PFAS Sampling Locations

APPENDICES

APPENDIX A

Field Sampling Sheets

APPENDIX B

Laboratory Analytical Report

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, 2019.¹

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*.

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.


Archana Kukreti, PE
Senior Consultant



FB/AK/ks

Golder and the G logo are trademarks of Golder Associates Corporation

\\sunnyvale\data\projects\clover flat\20138546 (groundwater monitoring -2020)\pfas\pfas report\final_pfas monitoring summary report.docx

Table

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 sulfonic acid	PFPeS	2706-91-4	ng/L	<0.40	4.1	3.5	6.2	<40	<41	<0.40	<0.45
Perfluoropentanoic 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	PFTTrDA	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:

* Holding tanks containing comingled condensate and leachate.

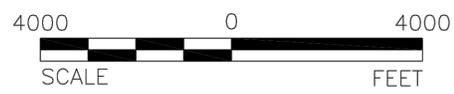
Reporting limits from Eurofins Lancaster Laboratories for non-potable water by EPA 537 modified using the Order-required Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS) method compliant with DoD Table B-15 of Quality Systems Manual Version 5.1 (or later).

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.

Figures



Last Edited By: kmotoni Date: 2018-10-25 Time: 3:41:42 PM | Printed By: kmotoni Date: 2018-10-25 Time: 3:42:27 PM
 Path: \\saunmyaie\data\Projects\Clover Flat\1300297-01 (Groundwater Monitoring 2014-2017)\Figures\CAD | File Name: Fig_1_Site Location_New Logo.dwg

CLIENT
CLOVER FLAT LANDFILL, INC.
 CALISTOGA, CALIFORNIA

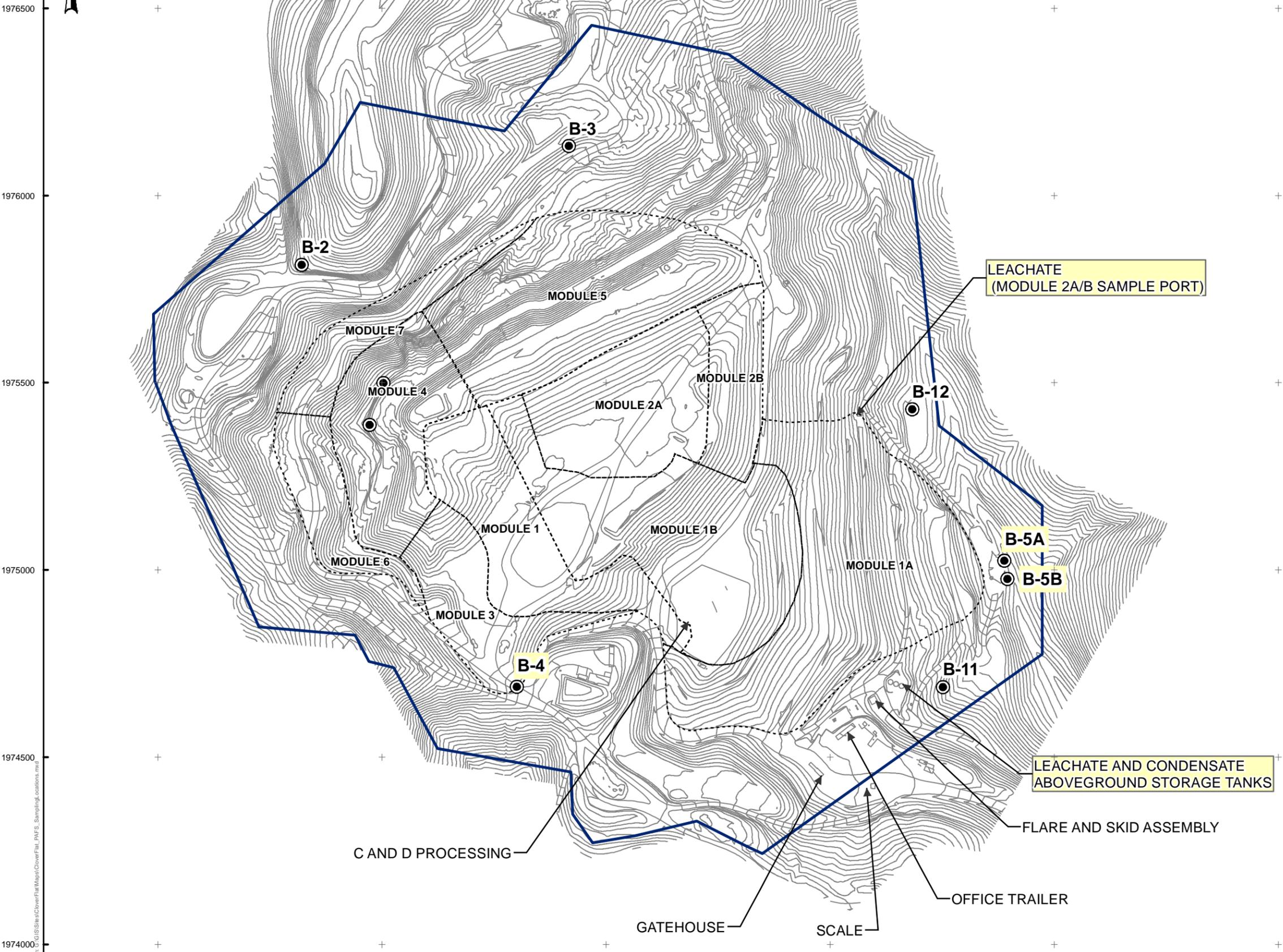
CONSULTANT	YYYY-MM-DD	2018-10-25
	DESIGNED	KMM
	PREPARED	KMM
	REVIEWED	TLV
	APPROVED	TLV

PROJECT
CLOVER FLAT LANDFILL
 4380 SILVERADO TRAIL
 CALISTOGA, CALIFORNIA

TITLE
FIGURE 1
SITE LOCATION MAP

PROJECT NO.	1300297-01	REV.	
-------------	------------	------	--

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANS/A



LEGEND

- GROUNDWATER MONITORING WELL
- DISPOSAL SITE PERMITTED FACILITY BOUNDARY
- MODULE LIMITS

NOTES

HIGHLIGHTED LOCATIONS SAMPLED FOR PFAS ON MARCH 30, 2020.



REFERENCE

COORDINATE SYSTEM: NAD 1983 STATEPLANE CALIFORNIA II FIPS 0402 FEET.

TOPOGRAPHY PREPARED BY TETRA TECH GEOMATIC TECHNOLOGIES, LAFAYETTE, CALIFORNIA. DATE OF PHOTOGRAPHY: 7-1-19.

CLIENT
CLOVER FLAT LANDFILL INC.

PROJECT
CLOVER FLAT LANDFILL
4380 SILVERADO TRAIL
CALISTOGA, CALIFORNIA

TITLE
PFAS SAMPLING LOCATIONS

CONSULTANT	YYYY-MM-DD	2020-05-08
GOLDER	PREPARED	KMM
	DESIGN	XX
	REVIEW	AK
	APPROVED	KMM

Path: C:\GIS\Site\CloverFlatMap\CloverFlat_PAFS_SamplingLocations.mxd

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM ANSB

APPENDIX A

Field Sampling Sheets



WATER SAMPLE FIELD DATA

GOLDER

LOCATION: Clover Flat LF SAMPLE ID: MZ LS
 PROJECT NO: 130029701 SAMPLED BY: JG
 SAMPLE TYPE: Groundwater _____ Surface Water _____ Leachate Other _____
 CASING DIAMETER (OD-inches): 3/4 _____ 1 _____ 2 _____ 4 _____ 4.5 _____ 6 _____ 8 _____ Other
 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 _____ Peristaltic Pump _____ Centrifugal Pump _____
 Bladder Pump _____ Electric Submersible Pump _____ Dedicated _____ Other _____
 Purge Water Containment: _____
 Field QC Samples Collected: EB- _____ FB- _____ DUP- _____ Time: _____ Other _____

Time (2400 Hr)	Volume (gallons)	Temp. (°C)	EC (µmhos/cm)	pH (std. units)	Color (visual)	Turbidity (visual)	Other	Observation

Purge Date: _____

SAMPLE:

Device (Depth of Intake from TOC): Disp. Bailer _____ Peristaltic Pump _____ Centrifugal Pump _____
 Bladder Pump _____ Electric Submersible Pump _____ Dedicated _____ Other

Time (2400 Hr)	Temp. (°C)	EC (µmhos/cm)	pH (std. units)	DO (mg/l)	Color (visual)	Turbidity (NTU)	ORP (mV)
<u>1735</u>	<u>21.2</u>	<u>3920</u>	<u>6.51</u>	<u>-</u>	<u>Hazy</u>	<u>25.0</u>	<u>-19</u>

Sheen: _____ Odor: _____ Sample Date: 3-30-20

Field Measurement Devices: Horiba: _____ YSI: Hanna Turbidity: Other: _____

Meter Calibration Date: 3-30-20 Time: 11:54 Location: B-4 Ins. # _____
 pH 4: (_____ / _____ @ _____ °C) pH 7: (_____ / _____ @ _____ °C) pH 10: (_____ / _____ @ _____ °C)
 D.O. (_____ / _____ @ 100%) EC (_____ / _____ µmhos/cm @ 25°C)
 ORP (_____ / _____ / _____ @ °C) Turbidity (_____ / _____ NTU)

REMARKS: Hold PEAS

SIGNATURE: [Signature] DATE: 4-1-20



WATER SAMPLE FIELD DATA

GOLDER

LOCATION: CFL

SAMPLE ID: Holding Tanks

PROJECT NO: 130029701

SAMPLED BY: JG

SAMPLE TYPE: Groundwater Surface Water Leachate Other Condensate

CASING DIAMETER (OD-inches): 3/4 1 2 4 4.5 6 8 Other

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 Peristaltic Pump Centrifugal Pump

Bladder Pump Electric Submersible Pump Dedicated Other

Purge Water Containment: _____

Field QC Samples Collected: EB-___ FB-___ DUP-___ Time: _____ Other _____

Time (2400 Hr)	Volume (gallons)	Temp. (°C)	EC (µmhos/cm)	pH (std. units)	Color (visual)	Turbidity (visual)	Other	Observation

Purge Date: _____

SAMPLE:

Device (Depth of Intake from TOC): Disp. Bailer Peristaltic Pump Centrifugal Pump

Bladder Pump Electric Submersible Pump Dedicated Other

Time (2400 Hr)	Temp. (°C)	EC (µmhos/cm)	pH (std. units)	DO (mg/l)	Color (visual)	Turbidity (NTU)	ORP (mV)
<u>1710</u>	<u>13.70</u>	<u>2630</u>	<u>7.71</u>	<u>-</u>	<u>Brownish</u>	<u>154</u>	<u>101.5</u>

Sheen: _____ Odor: _____ Sample Date: 3-30-20

Field Measurement Devices: Horiba: _____ YSI: _____ Hanna Turbidity: _____ Other: _____

Meter Calibration Date: 3-30-20 Time: 11:54 Location: B-4 Ins. # _____

pH 4: (____ / ____ @ ____ °C) pH 7: (____ / ____ @ ____ °C) pH 10: (____ / ____ @ ____ °C)

D.O. (____ / ____ @100%) EC (____ / ____ µmhos/cm@25°C)

ORP (____ / ____ / ____ @°C) Turbidity (____ / ____ NTU)

REMARKS: Tanks T-1, T-2, T-3, T-4, T-5 Comp Sample PFAS

Could hear liquid draining into tank.

SIGNATURE: [Signature] DATE: 4-1-20



WATER SAMPLE FIELD DATA

GOLDER

LOCATION: Clover Flat LF

SAMPLE ID: B-5A

PROJECT NO: 130029701

SAMPLED BY: JB

SAMPLE TYPE: Groundwater Surface Water Leachate Other

CASING DIAMETER (OD-inches): 3/4 1 2 4 4.5 6 8 Other

GALLONS PER LINEAR FOOT: (0.02) (0.04) (0.17) (0.66) (0.83) (1.5) (2.6)

Well Total Depth (ft): <u>24.15</u>	Volume in Casing (gal): <u>16.3095</u>
Depth to Water (ft): <u>4.50</u>	Calculated Purge (volumes / gal.): <u>48.9285</u>
Height of Water Column (ft): <u>19.65</u>	Actual Pre-Sampling Purge (gal): _____

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- 1 Time: 1527 PFA Other _____

Time (2400 Hr)	Volume (gallons)	Temp. (°C)	EC (µmhos/cm)	pH (std. units)	Color (visual)	Turbidity (visual)	Other	Observation
<u>1517</u>	<u>16</u>	<u>18.60</u>	<u>1262</u>	<u>6.30</u>	<u>Clear</u>	<u>34.60</u>		
<u>1521</u>	<u>32</u>	<u>17.50</u>	<u>1275</u>	<u>6.15</u>	<u>Hazy</u>	<u>Low 48.0</u>		
<u>1526</u>	<u>49</u>	<u>17.0</u>	<u>1296</u>	<u>6.07</u>	<u>Hazy</u>	<u>18.90</u>		

Purge Date: 3-30-20

SAMPLE:

Device (Depth of Intake from TOC): Disp. Bailer Peristaltic Pump Centrifugal Pump

Bladder Pump Electric Submersible Pump Dedicated Other

Time (2400 Hr)	Temp. (°C)	EC (µmhos/cm)	pH (std. units)	DO (mg/l)	Color (visual)	Turbidity (NTU)	ORP (mV)
<u>1528</u>	<u>17.0</u>	<u>1296</u>	<u>6.07</u>	<u>-</u>	<u>Hazy</u>	<u>18.90</u>	<u>103.8</u>

Sheen: - Odor: - Sample Date: 3-30-29

Field Measurement Devices: Horiba: _____ YSI: Hanna Turbidity: Other: _____

Meter Calibration Date: 3-30-20 Time: 11:54 Location: B-4 Ins. # _____

pH 4: (_____ / _____ @ _____ °C) pH 7: (_____ / _____ @ _____ °C) pH 10: (_____ / _____ @ _____ °C)

D.O. (_____ / _____ @100%) EC (_____ / _____ µmhos/cm @25°C)

ORP (_____ / _____ / _____ @°C) Turbidity (_____ / _____ NTU)

REMARKS: PFA 15:26

SIGNATURE: [Signature] DATE: 4-1-20



WATER SAMPLE FIELD DATA

GOLDER

LOCATION: Clower Flat LF SAMPLE ID: B-5B
 PROJECT NO: 130029701 SAMPLED BY: JG
 SAMPLE TYPE: Groundwater Surface Water Leachate Other
 CASING DIAMETER (OD-inches): 3/4 1 2 4 4.5 6 8 Other
 GALLONS PER LINEAR FOOT: (0.02) (0.04) (0.17) (0.66) (0.83) (1.5) (2.6)

Well Total Depth (ft): 86.59 Volume in Casing (gal): 2.4962
 Depth to Water (ft): 83.65 Calculated Purge (volumes / gal.): 7.3206
 Height of Water Column (ft): 2.94 Actual Pre-Sampling Purge (gal): ~2

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- 1 FB- 2 DUP- Time: 1538 Other _____

Time (2400 Hr)	Volume (gallons)	Temp. (°C)	EC (µmhos/cm)	pH (std. units)	Color (visual)	Turbidity (visual)	Other	Observation
1450	<u>2</u>	34.40	766	7.20	Clear	4.85		
1452	<u>~750L</u>	36.0	757	7.28	Clear	Low		
1455		36.20	609	7.29	Clear	Low		
1458	<u>~25</u>	36.0	751	7.30	Clear	Low		recharge
								1458 DTW: 84.80
								1518 84.80
								1548 84.80

Purge Date: 3-30-20

SAMPLE:

Device (Depth of Intake from TOC): Disp. Bailer Peristaltic Pump Centrifugal Pump
 Bladder Pump Electric Submersible Pump Dedicated Other

Time (2400 Hr)	Temp. (°C)	EC (µmhos/cm)	pH (std. units)	DO (mg/l)	Color (visual)	Turbidity (NTU)	ORP (mV)
1603	31.20	776	6.76	--	Clear	32.91	108.6

Sheen: - Odor: - Sample Date: 3-30-20

Field Measurement Devices: Horiba: _____ YSI: Hanna Turbidity: Other: _____

Meter Calibration Date: 3-30-20 Time: 11:54 Location: B-4 Ins. # _____
 pH 4: (____ / ____ @ ____ °C) pH 7: (____ / ____ @ ____ °C) pH 10: (____ / ____ @ ____ °C)
 D.O. (____ / ____ @ 100%) EC (____ / ____ µmhos/cm @ 25°C)
 ORP (____ / ____ / ____ @ °C) Turbidity (____ / ____ NTU)

REMARKS: Purge 1 case volume → sample Per Pm
PEAS: 1600 1613: DTW 85.41

SIGNATURE: [Signature] DATE: 4-1-20

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

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.



Table of Contents

Sample Information

Chain of Custody and Cooler Receipt form.....	3
Laboratory / Client Sample Cross Reference.....	5

Subcontract Reports

WO_2009617_SUB_ERLLB.pdf.....	8
-------------------------------	---

Notes

Notes and Definitions.....	32
----------------------------	----



BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

TEMP: 20-04617

Chain of Custody

Client/Company Name: **BC Labs** Report Address: **Vanessa Sandoval** Phone: (661) 852-4203 FAX: # E-mail: **vanessa.sandoval@bclabs.com**

Address: **4100 Atlas Ct Bakersfield CA 93308** City: **Bakersfield** State: **CA** Zip: **93308**

Project Information: **4100 Atlas Ct Bakersfield CA 93308** PO # BCL Quote #

How would you like your completed results sent? E-Mail Fax EDD Mail Only

QC Request STD Level II STD Day** Day** Day**

Result Request ** Surcharge STD Day** Day** Day**

Sampler Name Printed / Signature: **Johnny Gower**

Carbon Copies: CDHS Fresno Co EPA Merced Co Tulare Co Other: Regulatory Compliance Electronic Data Transfer: Y N System No. *

Matrix Types: **RSW - Raw Surface Water CFW - Chlorinated Finished Water CWW - Chlorinated Waste Water BW - Bottled Water**
RGW - Raw Ground Water FW - Finished Water WW - Waste Water SW - Storm Water DW - Drinking Water SQ - Solid

Sample #	u Bottles	Sampled Date	Time	Sample Description / Location *	Matrix *	Comments / Station Code
B-4	2	3/30/06	1814	-1		EDF (Geotracker file) needed
MZLS	2	3/30/06	1735	-2		Hold
FRANKS	2	3/30/06	1710	-3		
B-5A	2	3/30/06	1526	-4		
B-5B	2	3/30/06	1600	-5		
Field Blank	2	3/30/06	1302	-6		
DUP-Blank	2	3/30/06	-	-7		
Blank	2	3/30/06	-	-8		

PFAS (See Analyte List) **23 PFAS**

Relinquished by: (Signature and Printed Name) **Vanessa Sandoval** Company **BC Labs** Date **3/30/06** Time **9:00**

Relinquished by: (Signature and Printed Name) **Vanessa Sandoval** Company **BC Labs** Date **3/30/06** Time **9:45**

Received for Lab by: (Signature and Printed Name) **Vanessa Sandoval** Company **BC Labs** Date **4/1/10** Time **9:20**

Received by: (Signature and Print Name) **Vanessa Sandoval** Company **BC Labs**

Received by: (Signature and Print Name) **Vanessa Sandoval** Company **BC Labs**

Payment Received at Delivery: **Vanessa Sandoval** Date: **4/1/10** Amount: **920** Check/Cash/Card PIA # **920** Init.

Shipping Method: **CAO UPS GSO WALKIN-SW-C-PED EX-OTHER** Packing Material: **WET BLUE NONE**

CHICKEN DISTRIBUTION **CAO** **SUS OUT X**

548 L 0012 (06/04/04)

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.



BC LABORATORIES INC.		COOLER RECEIPT FORM		Page	1	Of	1
Submission #: <u>20-09617</u>							
SHIPPING INFORMATION Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Ontrac <input type="checkbox"/> Hand Delivery <input type="checkbox"/> BC Lab Field Service <input type="checkbox"/> Other <input checked="" type="checkbox"/> (Specify) <u>GSD</u>				SHIPPING CONTAINER Ice Chest <input checked="" type="checkbox"/> None <input type="checkbox"/> Box <input type="checkbox"/> Other <input type="checkbox"/> (Specify) _____		FREE LIQUID YES <input type="checkbox"/> NO <input type="checkbox"/> W / S	
Refrigerant: Ice <input checked="" type="checkbox"/> Blue Ice <input type="checkbox"/> None <input type="checkbox"/> Other <input type="checkbox"/> Comments: _____							
Custody Seals		Containers		None <input checked="" type="checkbox"/>			
Ice Chest <input type="checkbox"/> Intact? Yes <input type="checkbox"/> No <input type="checkbox"/>		Containers <input type="checkbox"/> Intact? Yes <input type="checkbox"/> No <input type="checkbox"/>		Comments: _____			
All samples received? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		All samples containers intact? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Description(s) match COC? Yes <input type="checkbox"/> No <input type="checkbox"/>			
COC Received <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Emissivity: <u>0.97</u>		Container: <u>PE</u>		Thermometer ID: <u>234</u>	
		Temperature: (A) <u>0.0</u> °C / (C) <u>0.0</u> °C		Date/Time: <u>4/1/20</u>		Analyst Init: <u>JML</u> <u>930</u>	

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES	AB	AB	AB	AB	AB	AB	AB	AB	AB	
2oz Cr ⁶⁺										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PIA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL - 504										
QT EPA 508/508/8089										
QT EPA 515.1/8159										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548										
QT EPA 549										
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER										
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments: _____

Sample Numbering Completed By: Jm Date/Time: 4/1/20 1933

Actual / C = Corrected

Rev 21 05/23/2016
 IS:\WP\Decl\Word\Per\test\LAB_COCS\FORMS\SI\ChainOfCustody 201

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.



Golder
425 Lakeside Drive
Sunnyvale, CA 94085

Reported: 04/15/2020 10:04
Project: Clover Flat
Project Number: 1300297-01
Project Manager: Kate 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: GAMV	Receive Date: 04/01/2020 09:30 Sampling Date: 03/30/2020 18:14 Sample Depth: --- Lab Matrix: Water Sample Type: Water Delivery Work Order: Global ID: L10001344067 Location ID (FieldPoint): B-4 Matrix: W Sample QC Type (SACode): CS Cooler ID:
-------------------	---	--

2009617-02	COC Number: --- Project Number: Clover Flat LF Sampling Location: M2LS Sampling Point: M2LS Sampled By: GAMV	Receive Date: 04/01/2020 09:30 Sampling Date: 03/30/2020 17:35 Sample Depth: --- Lab Matrix: Water Sample Type: Water Delivery Work Order: Global ID: L10001344067 Location ID (FieldPoint): M2LS Matrix: W Sample QC Type (SACode): CS Cooler ID:
-------------------	---	---

2009617-03	COC Number: --- Project Number: Clover Flat LF Sampling Location: Holding Tanks Sampling Point: Holding Tanks Sampled By: GAMV	Receive Date: 04/01/2020 09:30 Sampling Date: 03/30/2020 17:10 Sample Depth: --- Lab Matrix: Water Sample Type: Water Delivery Work Order: Global ID: L10001344067 Location ID (FieldPoint): Holding Tanks Matrix: W Sample QC Type (SACode): CS Cooler ID:
-------------------	---	--

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.



Golder
425 Lakeside Drive
Sunnyvale, CA 94085

Reported: 04/15/2020 10:04
Project: Clover Flat
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	Receive Date: 04/01/2020 09:30 Sampling Date: 03/30/2020 15:26 Sample Depth: --- Lab Matrix: Water Sample Type: Water Delivery Work Order: Global ID: L10001344067 Location ID (FieldPoint): B-5A Matrix: W Sample QC Type (SACode): CS Cooler ID:
-------------------	---	---

2009617-05	COC Number: --- Project Number: Clover Flat LF Sampling Location: B-5B Sampling Point: B-5B Sampled By: GAMV	Receive Date: 04/01/2020 09:30 Sampling Date: 03/30/2020 16:00 Sample Depth: --- Lab Matrix: Water Sample Type: Water Delivery Work Order: Global ID: L10001344067 Location ID (FieldPoint): B-5B Matrix: W Sample QC Type (SACode): CS Cooler ID:
-------------------	---	---

2009617-06	COC Number: --- Project Number: Clover Flat LF Sampling Location: Field Blank Sampling Point: Field Blank Sampled By: GAMV	Receive Date: 04/01/2020 09:30 Sampling Date: 03/30/2020 13:02 Sample Depth: --- Lab Matrix: Water Sample Type: Water Delivery Work Order: Global ID: L10001344067 Location ID (FieldPoint): Field Blank Matrix: W Sample QC Type (SACode): CS Cooler ID:
-------------------	---	--

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.



Golder
425 Lakeside Drive
Sunnyvale, CA 94085

Reported: 04/15/2020 10:04
Project: Clover Flat
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	Receive Date: 04/01/2020 09:30 Sampling Date: 03/30/2020 00:00 Sample Depth: --- Lab Matrix: Water Sample Type: Water Delivery Work Order: Global ID: L10001344067 Location ID (FieldPoint): DUP-1 Matrix: W 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 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:
-------------------	---	--

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.



Lancaster Laboratories
Environmental



2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2320 • Fax: 717-656-6768 • www.EurofinsUS.com/LancLabEnv

ANALYSIS REPORT

Prepared by:

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

Prepared for:

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 <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



Lancaster Laboratories
Environmental



2435 New Holland Pike, Lancaster, PA 17601 • 717-656-2320 • Fax: 717-656-6768 • www.Eurofins.com/LancLabEnv

SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
2009617-01 Water	03/30/2020 18:14	1292177
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.



Lancaster Laboratories
Environmental

Case Narrative

3435 New Holland Pike, Lancaster, PA 17601 • T11.656.2380 • Fax: 717.656.6788 • www.Eurofins.com/LancLabEnv

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 noted.

Analysis Specific Comments:

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

Sample #: 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 #: 1292181

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

Sample #: 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



Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-696-2308 • Fax: 717-656-6196 • www.EurofinsUS.com/LancLabsEnv

Sample Description: 2009617-01 Water
2009617
2009617

BC Laboratories, Inc.
ELLE Sample #: WW 1292177
ELLE Group #: 2094726
Matrix: Water

Project Name: 2009617

Submission Date/Time: 04/03/2020 08:30
Collection Date/Time: 03/30/2020 18:14
SDG#: BCL94-01

Table with 7 columns: CAT No., Analysis Name, CAS Number, Result, Method Detection Limit*, Limit of Quantitation, Dilution Factor. Lists various perfluorinated compounds and their results.

Sample Comments

CA ELAP Lab Certification No. 2792

Laboratory Sample Analysis Record

Table with 8 columns: CAT No., Analysis Name, Method, Trial#, Batch#, Analysis Date and Time, Analyst, Dilution Factor. Summarizes analysis details for two samples.

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



Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17301 • 717-696-2308 • Fax: 717-656-6166 • www.EurofinsUS.com/LancLabsEnv

Sample Description: 2009617-02 Water
2009617
2009617

BC Laboratories, Inc.
ELLE Sample #: WW 1292178
ELLE Group #: 2094726
Matrix: Water

Project Name: 2009617

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

Table with 7 columns: CAT No., Analysis Name, CAS Number, Result, Method Detection Limit*, Limit of Quantitation, Dilution Factor. Lists various perfluorinated compounds and their results.

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

Table with 8 columns: CAT No., Analysis Name, Method, Trial#, Batch#, Analysis Date and Time, Analyst, Dilution Factor. Shows analysis details for 23 PFAS in water.

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



Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-696-2308 • Fax: 717-656-6166 • www.EurofinsUS.com/LancLabsEnv

Sample Description: 2009617-02 Water
2009617
2009617

BC Laboratories, Inc.
ELLE Sample #: WW 1292178
ELLE Group #: 2094726
Matrix: Water

Project Name: 2009617

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

Laboratory Sample Analysis Record

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

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



Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17301 • 717-696-2308 • Fax: 717-656-6166 • www.EurofinsUS.com/LancLabsEnv

Sample Description: 2009617-03 Water
2009617
2009617

BC Laboratories, Inc.
ELLE Sample #: WW 1292179
ELLE Group #: 2094726
Matrix: Water

Project Name: 2009617

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

Table with 7 columns: CAT No., Analysis Name, CAS Number, Result, Method Detection Limit*, Limit of Quantitation, Dilution Factor. Lists various perfluorinated compounds and their detection results.

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

Table with 8 columns: CAT No., Analysis Name, Method, Trial#, Batch#, Analysis Date and Time, Analyst, Dilution Factor. Contains one row of analysis data.

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



Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-696-2308 • Fax: 717-656-6166 • www.EurofinsUS.com/LancLabsEnv

Sample Description: 2009617-03 Water
2009617
2009617

BC Laboratories, Inc.
ELLE Sample #: WW 1292179
ELLE Group #: 2094726
Matrix: Water

Project Name: 2009617

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

Laboratory Sample Analysis Record

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

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



Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17301 • 717-696-2308 • Fax: 717-656-6166 • www.EurofinsUS.com/LancLabsEnv

Sample Description: 2009617-04 Water
2009617
2009617

BC Laboratories, Inc.
ELLE Sample #: WW 1292180
ELLE Group #: 2094726
Matrix: Water

Project Name: 2009617

Submission Date/Time: 04/03/2020 08:30
Collection Date/Time: 03/30/2020 15:26
SDG#: BCL94-04

Table with 7 columns: CAT No., Analysis Name, CAS Number, Result, Method Detection Limit*, Limit of Quantitation, Dilution Factor. Lists various perfluorinated compounds and their results.

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.

Sample Comments

CA ELAP Lab Certification No. 2792

Laboratory Sample Analysis Record

Table with 8 columns: CAT No., Analysis Name, Method, Trial#, Batch#, Analysis Date and Time, Analyst, Dilution Factor.

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



Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-696-2308 • Fax: 717-656-6166 • www.EurofinsUS.com/LancLabsEnv

Sample Description: 2009617-04 Water
2009617
2009617

BC Laboratories, Inc.
ELLE Sample #: WW 1292180
ELLE Group #: 2094726
Matrix: Water

Project Name: 2009617

Submittal Date/Time: 04/03/2020 08:30
Collection Date/Time: 03/30/2020 15:26
SDG#: BCL94-04

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 18:03	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

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



Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17301 • 717-466-2308 • Fax: 717-456-6166 • www.EurofinsUS.com/LancLabsEnv

Sample Description: 2009617-05 Water
2009617
2009617

BC Laboratories, Inc.
ELLE Sample #: WW 1292181
ELLE Group #: 2094726
Matrix: Water

Project Name: 2009617

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

Table with 7 columns: CAT No., Analysis Name, CAS Number, Result, Method Detection Limit*, Limit of Quantitation, Dilution Factor. Lists various perfluorinated compounds and their results.

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

Table with 8 columns: CAT No., Analysis Name, Method, Trial#, Batch#, Analysis Date and Time, Analyst, Dilution Factor. Shows analysis details for PFAS in water and PFAS Water Prep.

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



Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-696-2308 • Fax: 717-656-6196 • www.EurofinsUS.com/LancLabsEnv

Sample Description: 2009617-06 Water
2009617
2009617

BC Laboratories, Inc.
ELLE Sample #: WW 1292182
ELLE Group #: 2094726
Matrix: Water

Project Name: 2009617

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

Table with 7 columns: CAT No., Analysis Name, CAS Number, Result, Method Detection Limit*, Limit of Quantitation, Dilution Factor. Lists various perfluorinated compounds and their results.

Sample Comments

CA ELAP Lab Certification No. 2792

Laboratory Sample Analysis Record

Table with 8 columns: CAT No., Analysis Name, Method, Trial#, Batch#, Analysis Date and Time, Analyst, Dilution Factor. Shows analysis details for PFAS in water.

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



Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17301 • 717-696-2308 • Fax: 717-656-6166 • www.EurofinsUS.com/LancLabsEnv

Sample Description: 2009617-07 Water
2009617
2009617

BC Laboratories, Inc.
ELLE Sample #: WW 1292183
ELLE Group #: 2094726
Matrix: Water

Project Name: 2009617

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

Table with 7 columns: CAT No., Analysis Name, CAS Number, Result, Method Detection Limit*, Limit of Quantitation, Dilution Factor. Lists various perfluorinated compounds and their results.

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.

Sample Comments

CA ELAP Lab Certification No. 2792

Laboratory Sample Analysis Record

Table with 8 columns: CAT No., Analysis Name, Method, Trial#, Batch#, Analysis Date and Time, Analyst, Dilution Factor

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



Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-696-2308 • Fax: 717-656-6166 • www.EurofinsUS.com/LancLabsEnv

Sample Description: 2009617-07 Water
2009617
2009617

BC Laboratories, Inc.
ELLE Sample #: WW 1292183
ELLE Group #: 2094726
Matrix: Water

Project Name: 2009617

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

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 18:39	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

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



Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-696-2308 • Fax: 717-656-6196 • www.EurofinsUS.com/LancLabsEnv

Sample Description: 2009617-08 Water
2009617
2009617

BC Laboratories, Inc.
ELLE Sample #: WW 1292184
ELLE Group #: 2094726
Matrix: Water

Project Name: 2009617

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

Table with 7 columns: CAT No., Analysis Name, CAS Number, Result, Method Detection Limit*, Limit of Quantitation, Dilution Factor. Lists various perfluorinated compounds and their detection results.

Sample Comments

CA ELAP Lab Certification No. 2792

Laboratory Sample Analysis Record

Table with 8 columns: CAT No., Analysis Name, Method, Trial#, Batch#, Analysis Date and Time, Analyst, Dilution Factor. Summarizes analysis details for two samples.

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



Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-696-2308 • Fax: 717-656-6166 • www.EurofinsUS.com/LancLabEnv

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

Table with 4 columns: Analysis Name, Result, MDL**, LOQ. Lists various perfluorinated compounds and their detection limits.

LCS/LCSD

Table with 10 columns: Analysis Name, LCS Spike Added, LCS Conc, LCSD Spike Added, LCSD Conc, LCS %REC, LCSD %REC, LCS/LCSD Limits, RPD, RPD Max. Shows recovery percentages and limits for various compounds.

*- 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.



Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-696-2308 • Fax: 717-656-6166 • www.EurofinsUS.com/LancLabEnv

Quality Control Summary

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

Group Number: 2094726

LCS/LCSD (continued)

Table with 10 columns: Analysis Name, LCS Added (ng/l), LCS Conc (ng/l), LCSD Added (ng/l), LCSD Conc (ng/l), LCS %REC, LCSD %REC, LCS/LCSD Limits, RPD, RPD Max. Lists various perfluorinated acids and sulfonamides with their respective recovery percentages and RPD values.

Labeled Isotope Quality Control

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

Table with 7 columns: 13C4-PFBA, 13C5-PFPbA, 13C3-PFBS, 13C2-4:2-FTS, 13C5-PFbA, 13C3-PFbS. Lists recovery percentages for various isotopes and includes a 'Limits' row at the bottom.

*- 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.



Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-466-2308 • Fax: 717-456-6166 • www.EurofinsUS.com/LancLabsEnv

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

Table with 7 columns: 13C4-PFHxA, 13C2-6,2-FTS, 13C8-PFOA, 13C8-PFOS, 13C9-PFNA, 13C6-PFDA. Rows include sample IDs (1292177-1292184), Blank, LCS, LCSD, and Limits.

Table with 7 columns: 13C2-8,2-FTS, d8-NM-FOSAA, 13C7-PFluDA, d5-NEIFOSAA, 13C2-PFDaDA, 13C2-PFTeDA. Rows include sample IDs (1292177-1292184), Blank, LCS, LCSD, and Limits.

Table with 2 columns: 13C8-PFOSA. Rows include sample IDs (1292177-1292184), Blank, LCS, LCSD.

*- 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.



Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-696-2308 • Fax: 717-656-6166 • www.EurofinsUS.com/LancLabsEnv

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.

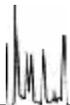
Analysis Name: 23 PFAS in water Table B-15
Batch number: 20097002

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.



4261 209A726
1292177-BA

SUBCONTRACT ORDER
BC Laboratories
2009617

ERLLB

SENDING LABORATORY:

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Vanessa Sandoval

RECEIVING LABORATORY:

Eurofins Lancaster Lab
2425 New Hollad Pike
Lancaster, PA 17601
Amanda Porter
Phone: (717) 656-2300
FAX: (000) 000-0000

Analysis	Due	Expires	Comments
Sample ID: 2009617-01 EPA 537 - 23 Perfluorinated Aky Containers supplied:	Water 04/15/20 17:00	Sampled: 03/30/20 18:14 04/13/20 18:14	EDF: Clover Flat LF- L10001344067 GAMV & Equis Sample description: B-4
Sample ID: 2009617-02 EPA 537 - 23 Perfluorinated Aky Containers supplied:	Water 04/15/20 17:00	Sampled: 03/30/20 17:35 04/13/20 17:35	EDF: Clover Flat LF- L10001344067 GAMV & Equis Sample description: M3-2LS
Sample ID: 2009617-03 EPA 537 - 23 Perfluorinated Aky Containers supplied:	Water 04/15/20 17:00	Sampled: 03/30/20 17:10 04/13/20 17:10	EDF: Clover Flat LF- L10001344067 GAMV & Equis Sample description: Holding Tank
Sample ID: 2009617-04 EPA 537 - 23 Perfluorinated Aky Containers supplied:	Water 04/15/20 17:00	Sampled: 03/30/20 15:26 04/13/20 15:26	EDF: Clover Flat LF- L10001344067 GAMV & Equis Sample description: B-5A
Sample ID: 2009617-05 EPA 537 - 23 Perfluorinated Aky Containers supplied:	Water 04/15/20 17:00	Sampled: 03/30/20 16:00 04/13/20 16:00	EDF: Clover Flat LF- L10001344067 GAMV & Equis Sample description: B-5B
Sample ID: 2009617-06 EPA 537 - 23 Perfluorinated Aky Containers supplied:	Water 04/15/20 17:00	Sampled: 03/30/20 13:02 04/13/20 13:02	EDF: Clover Flat LF- L10001344067 GAMV & Equis Sample description: Field Blank

Released By	Date	Received By	Date
<i>[Signature]</i>	4/2/20	<i>[Signature]</i>	4/3/20 08:30
Released By	Date	Received By	Date

FRI I R

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.



A4261 2099726
1292177-0A

SUBCONTRACT ORDER
BC Laboratories
2009617

Analysis	Due	Expires	Comments
Sample ID: 2009617-07	Water	Sampled: 03/30/20 00:00	EDF: Clover Flat LF- L10001344067 GAMV & Equis
EPA 537 - 23 Perfluorinated Aky Containers supplied:	Acids	04/15/20 17:00	04/13/20 00:00 Sample description: DUP-1
Sample ID: 2009617-08	Water	Sampled: 03/30/20 00:00	EDF: Clover Flat LF- L10001344067 GAMV & Equis
EPA 537 - 23 Perfluorinated Aky Containers supplied:	Acids	04/15/20 17:00	04/13/20 00:00 Sample description: Trip Blank

Released By	Date	Received By	Date
		<i>[Signature]</i>	4/3/20 09:30
Released By	Date	Received By	Date

COI ID

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.



Lancaster Laboratories
Environmental

**Sample Administration
Receipt Documentation Log**

Doc Log ID: 280895



Group Number(s): 2094726

Client: BC LABORATORIES

Delivery and Receipt Information

Delivery Method:	<u>UPS</u>	Arrival Date:	<u>04/03/2020</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>

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:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	UNP
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	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	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	46730060WS	2.2	IR	Wet	Y	Bagged	N

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.



Lancaster Laboratories
Environmental

Explanation of Symbols and Abbreviations

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

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	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
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For 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	parts per billion		
Dry weight basis	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 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.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



Lancaster Laboratories
Environmental

Data Qualifiers

Qualifier	Definition
C	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 \geq 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.



Golder
425 Lakeside Drive
Sunnyvale, CA 94085

Reported: 04/15/2020 10:04
Project: Clover Flat
Project Number: 1300297-01
Project Manager: Käte Motroni

Notes And Definitions



golder.com