MEMORANDUM

TO:	Richard Conforti	cc:	Mr. Joseph Rogers - MDEQ
FROM:	Clifford Yantz		Mr. John McCabe – MDEQ
RE:	PFAS Sampling Event		Mr. Grant Trigger – RACER Trust
FILE:	15388/64737/5		Mr. David Favero – RACER Trust
DATE:	September 11, 2017		Mr. Kevin Schneider – O'Brien & Gere

This technical memorandum has been prepared on behalf of the Revitalizing Auto Communities Environmental Response Trust (RACER Trust) to document the 2017 per- and polyfluorinated substances (PFAS) groundwater sampling event conducted in June 2017 at Coldwater Road Landfill facility located in Flint, Michigan (Site) (**Figure 1**).

The groundwater sampling was conducted to further evaluate PFAS at the landfill. A step-wise approach was utilized as recommended by the Michigan Department of Environmental Quality (MDEQ) in an email dated May 24, 2017 and the steps forward recommended in the February 21, 2017 technical memorandum.

SAMPLING PROTOCOL

PFAS are used in a variety of applications and products, such as fire retardants, water repellant clothing, microwavable food wrappers, cosmetics, etc. Therefore, special care was taken during sampling and transport of the samples to avoid contamination from clothing, sampling material and storage containers due to the extremely low detection limits for PFAS (<1 ng/L). **Table 1** and **Attachment A** provide a detailed list of accepted and prohibited clothing and materials and a sampling checklist that was followed during sampling.

For this sampling event, the sample team wore natural fiber clothing (predominantly 100% cotton, or as near to 100% as possible); especially no water repellant materials (coats, gloves, shoes, etc.) and avoided bathing with or applying particular products (deodorants/antiperspirants, lotions, cosmetics, etc.) prior to sampling to avoid cross contamination.

Furthermore, all clothing worn by the field sampling crew was well laundered, at least 6 times, without the use of fabric softeners. Well laundered, 100% cotton sheets were utilized in place of plastic sheeting as ground cover, where needed, to avoid using non-high density polyethylene (HDPE) sheeting.

New HDPE and silicon tubing contained in their unopened manufacturer's wrappers were utilized to avoid using rolls of tubing previously opened to further avoid potential exposure to PFAS during the transportation to the Site. As much as possible, the sample containers, coolers, materials, and equipment utilized during sampling were stored and transported in the back of the company trucks, rather than within the carpeted cabin of the trucks that could have been treated, to avoid potential cross contamination by PFAS.

SAMPLING & ANALYSIS

The sample collection activities were completed on June 19, 2017 and June 20, 2017 in accordance with the PFOS-PFAS Work Plan dated October 7, 2016 (GHD, 2016 in collaboration with OBG), including the OBG Site-specific Groundwater Sampling Standard Operating Procedure.

Location

The following sample locations with the approval from the MDEQ were selected for collection at the Coldwater Road Landfill Facility (**Figure 2**):

- **Monitoring wells**
  - Perched Aquifer - B-9, B-18A, B-24r, and B-28 (Figure 2) were sampled to evaluate the presence and/or distribution of PFAS in the shallow groundwater at the Site.
  - Deep Aquifer - B-27D was sampled to evaluate if PFAS are present and/or leaving the Site in the regional aquifer.
  - OBG MW7 and OBG MW-9 were sampled to evaluate if PFAS are present and/or leaving the Site adjacent to the former WWTP.
- **Sumps**
  - Sump A through Sump C, Sump E, and Sump F were sampled to evaluate the presence of PFAS compared to the previously analyzed Sump D.
- **Vaults**
  - Vaults A through Vault F were sampled to evaluate the concentrations of PFAS in the leak detection vaults in comparison to the sumps and the shallow groundwater concentrations.

The aforementioned samples will enhance the results already obtained from monitoring wells B-7 and B-19Ar, and sump D that were collected in November 2016 during the initial PFAS sampling at the Site (see Table 2).

Sample Procedure

Prior to sampling, water level measurements were collected from monitoring wells at the Site and the offsite wells.

The sampling was performed using new HDPE sample tubing and connected to either a peristaltic pump, bladder pump or whale pump. The following pumps were used to purge and sample the monitoring wells, sumps, and vaults:

Sample Pump Used - June 2017

Location	Used to Purge	Used to Sample
B-7, B-9, B-24r, OBG-MW-9, and B-28	Whale Pump	Peristaltic Pump
B-18A	Whale Pump	Bladder Pump
OBG-MW-7	Whale Pump	Whale Pump
B-27D	Bladder Pump	Bladder Pump
Vault A through Vault F	Peristaltic Pump	Peristaltic Pump
Sump A through Sump F	Peristaltic Pump	Peristaltic Pump

Monitoring wells B-9, B-18A, B-24r, B-28, and OBG-MW-9 were purged dry and sampled the following day. In these wells, a drawdown of less than 0.3 ft or a maximum of 10% of the water column, whichever was greater could not be maintained as confirmed by the measurement of water levels in the monitoring well during purging. Once a drawdown of greater than 0.3 ft or 10% of the water column was confirmed, the pumping rate was increased and the well was purged dry and the sample was collected once the well had sufficiently recovered.

Samples were collected from monitoring wells B-27 and OBG-MW-7 after three well volumes were purged from the wells.

While each well was being purged, field indicator parameters consisting of pH, conductivity, temperature, oxidation-reduction potential (ORP), and dissolved oxygen (DO) were monitored continuously using an in-line meter. Turbidity was measured with a Hach® colorimeter. The field indicator parameters were recorded on sampling logs at five minute intervals for the monitoring wells, and a single reading was taken from the sumps and vaults, and are provided in **Attachment B**.

Samples for analysis were placed directly into clean, laboratory pre-preserved and supplied containers, labeled, placed in an ice-filled cooler, and transported to TestAmerica Laboratories, Inc. in Sacramento, California under appropriate chain-of custody (COC) protocols. The samples were submitted to the laboratory for analysis on a standard turnaround time.

Samples were analyzed for the presence of PFAS by United States Environmental Protection Agency (US EPA) Method 537 (no preservation). The following QC samples were collected: a field duplicate, a rinsate (*i.e.*, equipment) blank (collected from bladder pump), and a field (ambient) blank. The field duplicate sample was collected at Vault E.

ANALYTICAL RESULTS

The analytical results for the samples recently collected at the Coldwater Road Landfill facility, the rinsate (*i.e.*, equipment) blank, and field (ambient) blank samples are presented in **Table 3** and discussed below. The complete analytical laboratory report is contained in **Attachment C**.

In August 2017, MDEQ proposed cleanup criteria of 70 ng/L (0.070 µg/L) for both perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). None of the other PFAS currently have established or proposed cleanup criteria.

PFOS and PFOA were not detected above the MDEQ cleanup criteria in the monitoring wells sampled this event. B-9 exhibited the highest PFOS and PFOA results at concentrations of 13 ng/L (0.013 µg/L) and 15 ng/L (0.015 µg/L), respectively.

The vaults and sumps both had detections of PFOA and PFOS above the MDEQ cleanup criteria:

- **Vaults**
  - PFOS was detected in Vaults A through Vaults F and ranged in concentrations of 150 ng/L (0.15 µg/L) in Vault B to 730 ng/L (0.73 µg/L) in the Vault E/DUP-1.
  - PFOA was not detected in the vaults above the MDEQ cleanup criteria.
- **Sumps**
  - PFOS was detected in Sump A through Sump F (Sump D not tested during this event) and ranged in concentrations of 13,000 ng/L (13 µg/L) in Sump A to 3,400 ng/L (3.4 µg/L) in the Sump E.
  - PFOA was detected above the MDEQ cleanup criteria in Sump B (230 ng/L [0.23 µg/L]), Sump C (230 ng/L [0.23 µg/L]), Sump E (95 ng/L [0.095 µg/L]), and Sump F (80 ng/L [0.080 µg/L]).

The duplicate sample results collected from Vault E were comparable to the original sample. PFAS were not detected in the equipment blank (EB-01) or the field blank (FB-01) associated with this sampling event, except for PFOS at a concentration of 1.4 ng/L in FB-01. Perfluorobutanoic acid (PFBA) and perfluorotetradecanoic acid (PFTeA) detections are associated with laboratory blank impacts and are not considered attributable to the Site. Based on these results, the precautions taken by the sample team was successful in preventing cross-contamination that would adversely effect the sample results.

CONCLUSIONS

B-7, sampled in November 2016, was the only monitoring well with PFAS at appreciable concentrations and an exceedance of the proposed criteria for PFOS at a concentration of 230 ng/L (0.23 µg/L; in the collocated sample).

PFAS were not detected near the Site boundary above the proposed criteria based on the most recent and previous PFAS sample results for the monitoring wells at the Site.

The sumps contain the highest concentrations of PFAS at the Site, which is understandable because the sumps collect leachate from the solidified plating wastes contained in the landfill cells. Sumps A and C exhibited the highest results of the six sumps. The vaults also exhibit elevated PFAS results, particularly PFOS at concentrations about a half to one and a half orders of magnitude less than their corresponding sump results. Vault E contained the highest PFOS concentration.

RECOMMENDATIONS

OBG and RACER Trust recommend collecting groundwater samples for PFAS analysis along the western property line due west of monitoring well B-7 and 200 feet north and south of this location to evaluate whether PFAS constituents are migrating from the Site west of B-7. Geoprobe® sampling techniques will be utilized to collect continuous soil samples until the first water bearing zone is encountered, or to a maximum depth of 25 feet below grade (fbg), which is approximately 5 feet deeper than B-7. A groundwater sample will then be collected after deploying a Geoprobe® Screen Point 16 (SP16) groundwater sampler system that includes the placement of a 4-slot wire-wound stainless steel screen. If the water bearing zone produces sufficient water, then the well screen will be purged at low-flow sampling rates and an attempt to collect and allow field parameters (pH, specific conductivity, dissolved oxygen, oxidation reduction potential, temperature, and turbidity) to stabilize will be made prior to sample collection. Otherwise, the sampling system will be evacuated at low-flow sampling rates, and then allowed to recover sufficiently to collect the PFAS sample. If no water is encountered at the initial borehole location, a second attempt may be made within about 20 feet of the original borehole. The boreholes will be backfilled with bentonite chips following completion of sampling collection. The location of the borings will be established utilizing a handheld GPS unit typically capable of sub-meter accuracy. Following the receipt of the analytical results, a technical memorandum will be prepared to summarize the results of this sampling.

OBG and RACER Trust also recommend sampling the six shallow monitoring wells that are part of the current semi-annual sampling program *(i.e.*, B-7, B-9, B-18A, B-19Ar, B-24r, and B-28) and Vaults A, C, and E (*i.e.*, wells and vaults with highest PFAS concentrations) on an every two years basis to continue to monitor the PFAS conditions at the Site. Should this "sentinel" sampling indicate significant changes in the concentrations of PFAS in these wells/vaults, then additional sampling will be proposed at that time. We are also proposing that for the time being the PFAS sampling be treated as a separate issue to the routine monitoring conducted at the Site under the existing post-closure care plan.

If you have any questions regarding this technical memorandum, please contact me at (248) 477-5701, ext. 16.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

Clifford Scott Yantz

Clifford S. Yantz, PG
Scientist-3

ENCLOSURES:

Table 1 – Summary of Prohibited and Acceptable Items for PFAS Sampling
Table 2 – Perfluorinated Compound Sampling Results - November 2016
Table 3 – Perfluorinated Compound Sampling Results - June 2017
Figure 1 – Site Location Map
Figure 2 – PFAS Sample Locations
Attachment A – Sampling Checklist
Attachment B – Groundwater Sampling Logs
Attachment C – Analytical Laboratory Results

TABLES

Table 1. Summary of Prohibited and Acceptable Items for PFAS Sampling	
Prohibited	**Acceptable**
Field Equipment	
Teflon® containing materials	High density polyethylene (HDPE), stainless steel or polypropylene materials
Low density polyethylene (LDPE) materials	Acetate liners
	Silicon tubing
Waterproof field books, waterproof paper and waterproof sample bottle labels	Loose non-waterproof paper and non-waterproof sample labels
Plastic clipboards, binders, or spiral hard cover notebooks	Aluminum field clipboards or with Masonite
Waterproof markers / **Sharpies®**	Pens
Post-It Notes®	
Chemical (blue) ice packs	Regular ice
Field Clothing and PPE	
New cotton clothing or synthetic water resistant, waterproof, or stain-treated clothing, clothing containing Gore-Tex™	Well-laundered clothing made of natural fibers (preferable cotton)
Clothing laundered using fabric softener	No fabric softener
Boots containing Gore-Tex™ or treated with water-resistant spray	Boots made with polyurethane and PVC
Tyvek®	Laundered cotton clothing
No cosmetics, moisturizers, hand cream, or other related products as part of personal cleaning/showering routine on the morning of sampling Sunscreens or insecticides except as noted on right	**Sunscreens** - Alba Organics Natural Sunscreen, Yes To Cucumbers, Aubrey Organics, Jason Natural Sun Block, Kiss My Face, and baby sunscreens that are "chemical free", “toxin free” or "natural" **Insect Repellents** - Jason Natural Quit Bugging Me, Repel Lemon Eucalyptus Insect repellant, Herbal Armor, California Baby Natural Bug Spray, Baby Ganics **Sunscreen and insect repellant** - Avon Skin So Soft Bug Guard Plus - SPF 30 Lotion
Sample Containers	
LDPE or glass containers	HDPE or polypropylene
Teflon®-lined caps	Unlined polypropylene caps
Rain Events	
Waterproof or resistant rain gear	Wet weather gear made of polyurethane and PVC only; field tents that are only touched or moved prior to and following sampling activities
Equipment Decontamination	
Decon 90®	Alconox® and/or Liquinox®
Water from an on-site well Potable water from untested public water supply	Potable water from tested (and PFAS free) public drinking water supply
Food Considerations	
All food and drink, with exceptions noted on right	Bottled water and hydration fluids (i.e., Gatorade® and Powerade®) to be brought and consumed only in the staging areas
Vehicle Considerations	
Vehicle fabrics, carpets and mats may contain PFAS	Avoid utilizing areas inside vehicle as sample staging areas.

TABLE 2
RACER Trust - Coldwater Road Landfill
Perfluorinated Compound Sampling Results - November 2016

Perfluorinated Compound	Well/Sample Sample Date:	B-7 *11/30/2016*	B-7 *11/30/2016*	B-19Ar *11/30/2016*	Sump D *11/29/2016*	Equipment *11/29/2016*	Watera *11/29/2016*	Field Blank *11/30/2016*
Perfluorobutanoic acid (PFBA)		9.2 J	7.1 J	1.0 J	440 J	<1.9	<1.8	<2.0
Perfluoropentanoic acid (PFPeA)		2.6	1.7 J	<2.0	300 J	<1.9	<1.8	<2.0
Perfluorohexanoic acid (PFHxA)		3.9	3.1	<2.0	99 JN	<1.9	<1.8	<2.0
Perfluoroheptanoic acid (PFHpA)		2.4	1.6 J	<2.0	24	<1.9	<1.8	<2.0
Perfluorooctanoic acid (PFOA)		9.2 JN	7.6 JN	0.84 JN	130 JN	<1.9	<1.8	<2.0
Perfluorononanoic acid (PFNA)		0.87 J	0.79 J	<2.0	7.1 JN	<1.9	<1.8	<2.0
Perfluorotetradecanoic acid (PFTeA)		<2.0 U	<2.0 U	<2.0 U	<19	<2.0 U	<2.0 U	<2.0 U
Perfluorobutanesulfonic acid (PFBS)		5.7	5.8	<2.0	74	<1.9	<1.8	<2.0
Perfluorohexanesulfonic acid (PFHxS)		23	22 JN	1.0 J	370	<1.9	<1.8	<2.0
Perfluoroheptanesulfonic Acid (PFHpS)		3.8	3.9	<2.0	83	<1.9	<1.8	<2.0
Perfluorooctanesulfonic acid (PFOS)		220	230	3.9	5,800	<1.9	<1.8	<2.0

Notes

1) Concentrations in ng/L.

2) < = Not detected at specified reporting limit.

3) J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

4) JN - Indicates that the target analyte has been "tentatively identified" as present and the associated numerical value is the estimated concentration in the sa
This qualifier may be applied due to data interpretation issues.

5) U - Indicates that the analyte was not detected and the sample RL is presented. This qualifier is alsoused to signify blank excursions.

6) F1 - MS and/or MSD Recovery is outside acceptance limits.

7) F2 - MS/MSD RPD exceeds control limits.

8) Concentrations above the USEPA advisory level (70 ng/L PFOA+PFOS) and/or MDEQ proposed drinking water criteria (70 ng/L PFOA/70 ng/L PFOS)
are highlighted in yellow.

TABLE 3
RACER Trust - Coldwater Road Landfill
Perfluorinated Compound Sampling Results - June 2017

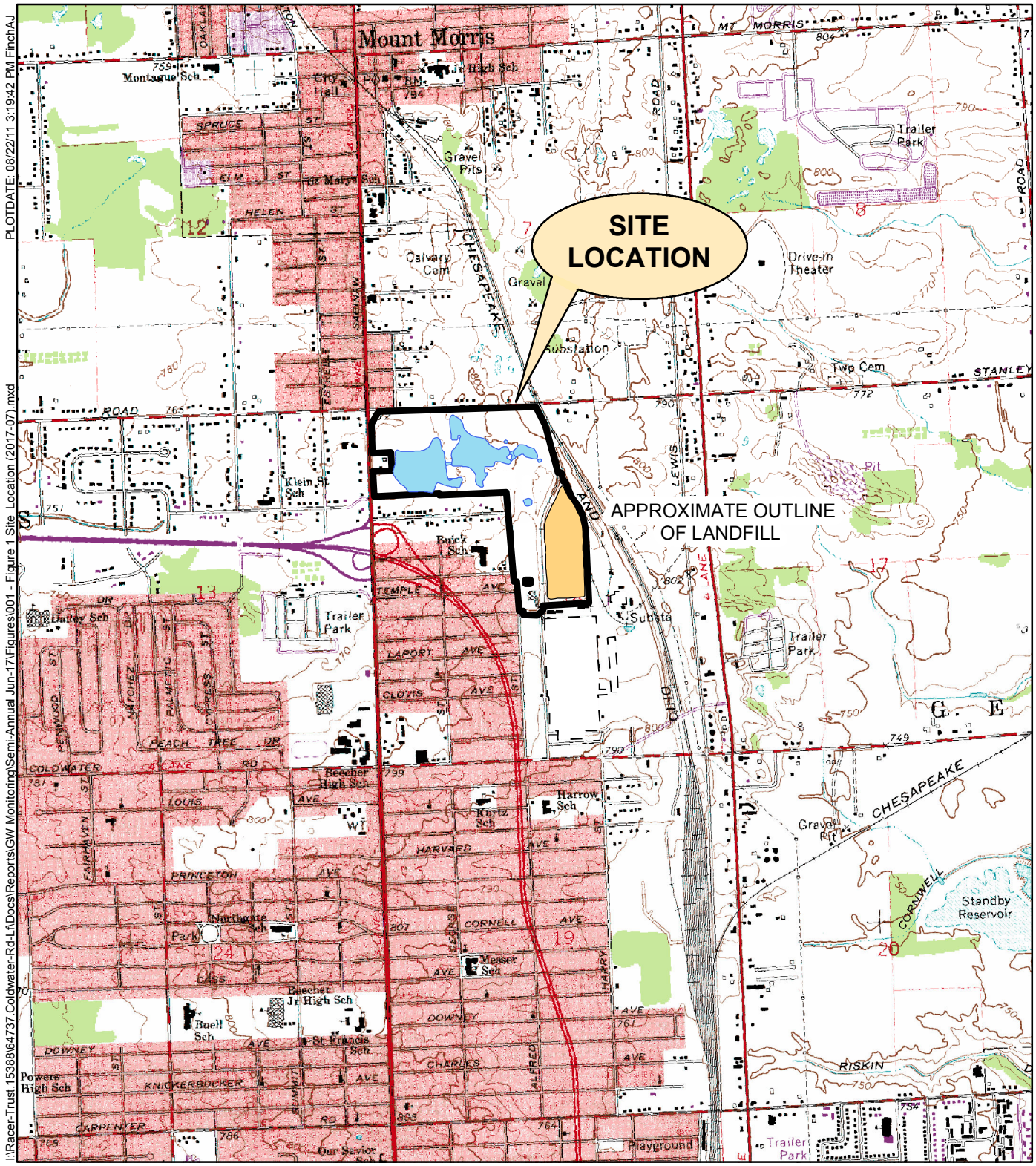
Perfluorinated Compound / Well/Sample ID: / Sample Date:	B-9 6/20/2017	B-18A 6/20/2017	B-24r 6/20/2017	B-27D 6/20/2017	B-28 6/20/2017	OBG-MW-7 6/20/2017	OBG-MW-9 6/20/2017	FB-01 6/19/2017	EB-01 Bladder 6/20/2017
Perfluorobutanoic acid (PFBA)	14 B/	4.2 B/	14 B/	2.0 B/	2.9 B/	8.0 B/	1.4 J B/	0.92 J B/	0.59 J B/
Perfluoropentanoic acid (PFPeA)	2.2	<0.94	<0.93	<0.95	<0.96	<0.96	<0.94	<0.95	<0.98
Perfluorohexanoic acid (PFHxA)	9.3	<0.75	3.9	<0.75	0.92 J/	1.0 J/	<0.75	<0.76	<0.78
Perfluoroheptanoic acid (PFHpA)	4.2	<76	1.7 J/	<0.77	<0.78	<0.78	<0.76	<0.77	<0.79
Perfluorooctanoic acid (**PFOA**)	15	1.2 J/	3.9	<0.72	0.79 J /	<0.72	1.1 J/	<0.72	<0.74
Perfluoroundecanoic acid (PFUnA)	<0.73	<0.71	<0.70	1.4 J /	<0.73	<0.72	<0.71	<0.72	<0.74
Perfluorotetradecanoic acid (PFTeA)	1.2 J B/	<0.19	<0.19	<0.19	<0.19	1.0 J B/	<0.19	<0.19	0.89 J B/
Perfluorobutanesulfonic acid (PFBS)	2.3	<0.87	3.7	<0.88	<0.89	<0.86	2.0	<0.89	<0.91
Perfluorohexanesulfonic acid (PFHxS)	6.9	<0.83	5.4	<0.83	<0.84	<0.84	5.0	<0.84	<0.86
Perfluoroheptanesulfonic Acid (PFHpS)	0.70 J/	<0.68	<0.67	<0.68	<0.69	<0.69	<0.68	<0.69	<0.70
Perfluorooctanesulfonic acid (**PFOS**)	13	1.3 J/	5.0	<1.2	1.7 J/	<1.9	2.9	1.4 J /	<1.3
Perflouorooctance Sulfonamide (FOSA)	3.3 J H/	<0.61	0.66 J /	<0.61	1.2 J/	<0.62	<0.61	<0.62	<0.63
6:2FTS	<3.7	<3.6	<3.6	<3.7	3.7	<3.7	<3.6	<3.7	<3.8

Perfluorinated Compound / Well/Sample ID: / Sample Date:	SUMP A 6/19/2017	Vault A 6/19/2017	SUMP B 6/19/2017	Vault B 6/19/2017	SUMP C 6/19/2017	Vault C 6/19/2017	Vault D 6/19/2017	SUMP E 6/19/2017	Vault E 6/19/2017	DUP 1 (Vault E) 6/19/2017	SUMP F 6/19/2017	Vault F 6/19/2017
Perfluorobutanoic acid (PFBA)	220 B/	18.0 B/	480 B/	4.6 B/	490 B/	19 B /	5.3 B/	48 B/	8.6 B	8.0 B/	260 B	6.8 B/
Perfluoropentanoic acid (PFPeA)	260	1.9	410	<0.98	1100 Cl /	<0.94	7	86	<0.96	4.7	330	15
Perfluorohexanoic acid (PFHxA)	110	4.9	280	0.79 J	390	6.0	<0.80	65	6.5	6.3	150	13
Perfluoroheptanoic acid (PFHpA)	<0.78	4.4	17	<0.79	80	3.3	<0.96 J	77	5.5	5.3	67	12
Perfluorooctanoic acid (**PFOA**)	54	16.0	230	4.1	230	12	9.9	95	24	25	80	57
Perfluorononanoic acid (PFNA)	<0.64	<0.64	29 Cl/	<0.65	18	<0.62	<0.67	21	<0.63	0.6 J/	9.7	1.2 J
Perfluorodecanoic acid (PFDA)	<0.43	<0.43	<0.43	<0.44	<0.43	<0.42	<0.45	1.6 J/	<0.43	<0.43	1.0 J/	<0.42
Perfluoroundecanoic acid (PFUnA)	<0.73	<0.73	<0.73	<0.74	<0.73	<0.71	<0.76	1.7 J/	<0.72	<0.74	<0.74	<0.71
Perfluorotetradecanoic acid (PFTeA)	<0.19	<0.19	0.37 J B/	<0.20	<0.19	0.21 J B/	0.25 J B/	0.21 J B/	<0.19	0.4 J B/	<0.20	<0.19
Perfluorobutanesulfonic acid (PFBS)	310 Cl/	9.3	190 J/	4.1	410	<0.88	11	57	13	12	100	12
Perfluorohexanesulfonic acid (PFHxS)	410	32	650	12	1200	<0.83	33	170	65	63	390	35
Perfluoroheptanesulfonic Acid (PFHpS)	150	7.2	140	2.4	200	<0.68	8.4	55	15	15.0	82	7.3
Perflouorodecanesulfonic acid (PFDS)	4.3	<1.2	2.6	<1.2	1.9	<1.2	<1.2	1.2 J/	<1.2	<1.2	<1.2	<1.2
Perfluorooctanesulfonic acid (**PFOS**)	13000	450	9600	150.0	12000	440	350	3400	730	730	5400	300
Perflouorooctance Sulfonamide (FOSA)	8.1 J B/	<0.62	6.1 J B/	<0.63	8.2 J B/	<0.61	<0.65	4.7 J B/	3.5 J H/	16 J B/	6.1 J B/	22 J H/

Notes

1) Concentrations in ng/L.
2) < = Not detected at specified detection limit.
3) B = Compound was found in the blank and the sample.
4) Cl = The peak identified in the data system exhibited chromatographic interference that could not be resolved. There is reason to suspect there may be high bias.
5) J = Result is less than the Reporting Limit (RL) but greater than or equal to the Method Detection Limit (MDL) and the concentration is an approximate value.
6) H = Sample was Prepped or analyzed beyond the specified holding time.
7) Dup = Duplicate sample.
8) Concentrations above the USEPA advisory level (70 ng/L PFOA+PFOS) and/or MDEQ proposed drinking water criteria (70 ng/L PFOA/70 ng/L PFOS) are highlighted in yellow.

FIGURES



RACER TRUST
COLDWATER ROAD LANDFILL FACILITY
FLINT, MICHIGAN

SITE LOCATION MAP

N

0 1

Miles

15388/64737/001
JULY 2017

O'BRIEN & GERE ENGINEERS, INC.

N

LEGEND

- LEACHATE COLLECTION SUMP
- ACCESS PORT FOR LEAK DETECTION VAULT
- MONITORING WELL
- ABANDONED WELL

RACER TRUST
COLDWATER ROAD
LANDFILL FACILITY
FLINT, MICHIGAN

PFAS SAMPLING LOCATIONS

0 125 250 375 500
Feet

AUGUST 2017
15388/64737/002

O'BRIEN & GERE ENGINEERS, INC.

ATTACHMENT A

Sampling Checklist

Attachment A
PFAS Sampling Checklist

Date: _____

Weather (temp/precip): _____ Site Name: _____

Field Clothing and PPE:

- ☐ No clothing or boots containing Gore-Tex™
- ☐ No clothing or boots treated with water-resistant spray
- ☐ Safety boots made from polyurethane and PVC
- ☐ No materials containing Tyvek®
- ☐ Field crew has not used fabric softener on clothing
- ☐ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☐ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☐ No Teflon® or LDPE containing materials
- ☐ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☐ No waterproof field books, waterproof paper or waterproof bottle labels, waterproof markers / Sharpies®
- ☐ No plastic clipboards, binders, or spiral hard cover notebooks
- ☐ No Post-It Notes®
- ☐ Coolers filled with regular ice only; no chemical (blue) ice packs in possession

Sample Containers:

- ☐ Sample containers made of HDPE or polypropylene
- ☐ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☐ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☐ "PFAS-free" water on-site for decontamination of sample equipment; no other water sources to be used
- ☐ Alconox® and Liquinox® to be used as decontamination cleaning agents

Food Considerations:

- ☐ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade® and Powerade®) that is available for consumption only in the staging area

Vehicle Considerations:

- ☐ Avoid utilizing areas inside vehicle as sample staging areas

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If any applicable boxes cannot be checked, the field team leader shall describe the deviations below and work with field personnel to address issues prior to commencement of that day's work. If possible, materials identified as potentially containing PFAS (i.e., Tyvek® coveralls, spare equipment) should be relocated to a separate area of the site as far away as possible from the sampling location(s) and containerized if practicable. To assist in the assessment of QC data, the field team leader should document the presence of such items, their location, whether they have been containerized, and, if containerized, what type of container.

Describe any deviation(s) and the action/outcome and document the presence of any potential PFAS-containing materials:

_____

_____

_____

_____

_____

Field Team Leader Name: _____

Field Team Leader Signature: _____Time: _____

ATTACHMENT B

Groundwater Sampling Logs

O'Brien & Gere Engineers, Inc. — **Standard Groundwater Sampling Log**

Date: 6/19/17
Site Name: Cold water Rd
Location: Flint, MI
Project No.: 64737
Personnel: CSV

Weather: Partly Cloudy, Hot (~81°F), light wind from S
Well #: B-9
Evacuation Method: WHALE PUMP
Sampling Method: PURGED DRY

Well Information:

Depth of Well *	24.6	ft.
Depth to Water *	6.28	ft.
Length of Water Column	18.32	ft.
Volume of Water in Well	2.9	gal.(s)
3X Volume of Water in Well	8.9	gal.(s)

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 4.7 gal.(s)
Did well go dry? Yes

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration: Calibrated within range

pH	Yes
ORP	Yes
Conductivity	Yes
DO	Yes

Water parameters:

	Drawdown measured (0.3 feet or less)	Temperature Celsius (±3 percent)	Conductivity mS/cm (±0.005 mS/cm)	Dissolved Oxygen mg/L (±10 percent)	pH (±0.1 pH units)	ORP mV (±10 millivolts)	Turbidity NTUs (±10 percent)
6/19/17							
initial	24.6 14:50	24.6 initial	1200 ml/min 11.3 initial	2.47 initial	2.47 initial	6.85 initial	37.0 initial	43
5 min	14:55	15.8	11.2	2.47	0.76	6.68	35.1	45
10 min	15:00	20.53	11.6	2.47	0.57	6.70	37.8	211
15 min	15:05		11.7	2.47	0.64	6.75	38.0	86
20 min	15:10	Dry 11.5		2.47	0.64	6.75	37.6	613
25 min	15:15	let recover for 5 minutes then purge dry again						
30 min	21.30	purged down to 24.5						
35 min								
40 min		purged 4.7 gallons						
45 min	6/20/17							
50 min								
55 min	14:18	12.5	2.23	13.00	6.71	37.8		
60 min	14:20	12.1	2.22	12.37	6.70	52.6		
	14:25	12.3	2.20	5.77	6.70	67.4	35

Water Sample:
Time Collected: 14:25

Physical Appearance at Start		Physical Appearance at Sampling	
Color	Clear	Color	Clear
Odor	Musty	Odor	Musty
Turbidity (> 100 NTU)	43	Turbidity (> 100 NTU)	35
Sheen/Free Product	None	Sheen/Free Product	None

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved Metals - Cu, Cr, Ni, Zn, Fe, Mn, Na	1	125 ml Plastic	HNO3	yes
Cyanide	1	125 ml Plastic	NAOH	
Phenols	1	125 ml Plastic	H2SO4	
TOC	2	40 ml Glass	H2SO4	
TOX	1	125 ml Plastic	H2SO4	
Sulfate, Chlorides, SpC	1	500 ml Plasitc	None	

Notes:

O'Brien & Gere Engineers, Inc. — **Standard Groundwater Sampling Log**

Date: 6-19-2017
Site Name: Coldwater Road
Location: Flint, MI
Project No.: 64737
Personnel: CSY

Weather: Sunny
Well #: B 18A
Evacuation Method: WHALE PUMP / BLADDER PUMP
Sampling Method: PURGE DRY

Well Information:

Depth of Well *	43.5	ft.
Depth to Water *	24.05	ft.
Length of Water Column	~~31.45~~ 19.45	ft.
Volume of Water in Well	3.17	gal.(s)
3X Volume of Water in Well	9.51	gal.(s)

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 9 gal.(s)
Did well go dry? Yes

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration: Calibrated within range

pH	yes
ORP	yes
Conductivity	yes
DO	yes

Water parameters:

	Drawdown measured (0.3 feet or less)	Temperature Celsius (±3 percent)	Conductivity mS/cm (±0.005 (mS/cm))	Dissolved Oxygen mg/L (±10 percent)	pH (±0.1 pH units)	ORP mV (±10 millivolts)	Turbidity NTUs (±10 percent)
10:40 initial	23.95	15.8	0.101	7.33	7.23	189	8
5 min	39.15	11.2	1.04	0.80	6.76	131.5	39
10 min	40.00	11.4	0.90	1.56	6.87	80.5	54
15 min	41.00	11.4	1.29	1.49	6.90	81.5	62
20 min	41.57	12.7	1.03	1.08	6.97	79.2	62
25 min	end 42.2ft	Removed total of 9 gallons from well and sand pack.					
30 min	13:00 - pumped "Dry" one last time						
35 min	CSY						
40 min							290
45 min	38.95	23.8	1.06	2.93	7.06	128.7	69
50 min	39.50	14.0	1.06	4.73	7.02	128.8	64
55 min							
60 min							

Water Sample:
Time Collected: 1410

Physical Appearance at Start		Physical Appearance at Sampling	
Color	Slightly cloudy	Color	Slightly cloudy
Odor	NONE	Odor	NONE
Turbidity (> 100 NTU)	8	Turbidity (> 100 NTU)	64
Sheen/Free Product	NONE	Sheen/Free Product	NONE

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filter
VOCs	2	40 ml Glass	HCL	
Dissolved Metals - Cu, Cr, Ni, Zn, Fe, Mn, Na	1	125 ml Plastic	HNO3	yes
Cyanide	1	125 ml Plastic	NAOH	
Phenols	1	125 ml Plastic	H2SO4	
TOC	2	40 ml Glass	H2SO4	
TOX	1	125 ml Plastic	H2SO4	
Sulfate, Chlorides, SpC	1	500 ml Plasitc	None	

Notes:

O'Brien & Gere Engineers, Inc. — **Standard Groundwater Sampling Log**

Date: 6/19/2017 / 6/20/17
Site Name: Coldwater Rd
Location: Flint, MI
Project No.: 64737
Personnel: CSY / KBS

Weather: Cloudy, light wind, humid, Hot (85°F) to moderate
Well #: B-24c
Evacuation Method: Whale Pump / Peristaltic Pump
Sampling Method: PURGED DRY

Well Information:

Depth of Well *	30.41	ft.
Depth to Water *	14.22	ft.
Length of Water Column	16.19	ft.
Volume of Water in Well	2.6	gal.(s)
3X Volume of Water in Well	7.9	gal.(s)

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 8 gal.(s)
Did well go dry? Yes

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration: Calibrated within range

pH	Yes
ORP	Yes
Conductivity	Yes
DO	Yes

Water parameters:

	Drawdown measured (0.3 feet or less)	Temperature Celsius (±3 percent)	Conductivity mS/cm (±0.005 mS/cm)	Dissolved Oxygen mg/L (±10 percent)	pH (±0.1 pH units)	ORP mV (±10 millivolts)	Turbidity NTUs (±10 percent)
6/19/17	14.22						
initial	13:35	14.22	1.20	1.04	6.90	77.3	678
5 min	13:40	11.0	1.19	0.72	6.87	76.0	84
10 min	13:45	11.0	1.19	0.63	6.91	73.0	67
15 min	13:50	11.1	1.22	0.68	6.96	73.6	157
20 min	13:55	11.0	1.30	0.91	7.02	72.1	937
25 min	14:00	10.09	1.24	0.98	7.03	67.3	430
30 min	14:05	11.0	1.19	0.64	7.07	47.0	236
35 min	14:10	11.4	1.15	0.52	7.10	26.6	131
40 min	14:15	"Dry"	29.6'				
45 min							
50 min							
55 min		Purged 8 gallons from well					
60 min							
6/20/17	14.31	12.6	1.24	8.00	7.25	29.3	
Water Sample: Time Collected	16.19 (1055)	12.6	1.24	7.25	7.23	36.7	99

Physical Appearance at Start		Physical Appearance at Sampling	
Color	light Gray	Color	Slightly cloudy
Odor	NONE	Odor	NONE
Turbidity (> 100 NTU)	678	Turbidity (> 100 NTU)	99
Sheen/Free Product	NONE	Sheen/Free Product	NONE

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved Metals - Cu, Cr, Ni, Zn, Fe, Mn, Na	1	125 ml Plastic	HNO3	yes
Cyanide	1	125 ml Plastic	NAOH	
Phenols	1	125 ml Plastic	H2SO4	
TOC	2	40 ml Glass	H2SO4	
TOX	1	125 ml Plastic	H2SO4	
Sulfate, Chlorides, SpC	1	500 ml Plasitc	None	

Notes:

O'Brien & Gere Engineers, Inc. — **Standard Groundwater Sampling Log**

Date: 6/20/2017
Site Name: 12 RACER / Coldwater Road
Location: Flint MI
Project No.: 64737
Personnel: CSY

Weather: Mostly cloudy
Well #: B 27A
Evacuation Method: Bladder Pump
Sampling Method: Low Flow

Well Information:

Depth of Well *	87.30	ft.
Depth to Water *	75.69	ft.
Length of Water Column	11.61	ft.
Volume of Water in Well	1.89	gal.(s)
3X Volume of Water in Well	6.67	gal.(s)

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: ____ gal.(s)
Did well go dry? No

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration: Calibrated within range

pH	Yes
ORP	Yes
Conductivity	Yes
DO	Yes

Water parameters:

	Drawdown measured (0.3 feet or less)	Temperature Celsius (±3 percent)	Conductivity mS/cm (±0.005 mS/cm)	Dissolved Oxygen mg/L (±10 percent)	pH (±0.1 pH units)	ORP mV (±10 millivolts)	Turbidity NTUs (±10 percent)
905						-5.6	
910 initial	75.98	14.5	0.601	0.65	6.93	-210.2	1100
915 5 min	76.00	13.9	0.603	0.39	7.04	-40.7	1100
920 10 min	76.00	13.9	0.603	0.36	7.06	-47.7	1100
925 15 min		14.0	0.604	0.32	7.13	-57.2	1100
930 20 min		14.4	0.604	0.33	7.19	-62.9	1100
935 25 min		13.9	0.607	0.28	7.23	-67.7	1100
940 30 min		14.4	0.605	0.26	7.21	-69.0	998
945 35 min		14.7	0.606	0.27	7.28	-74.7	1100
950 40 min		14.3	0.606	0.29	7.28	-77.2	1100
955 45 min		14.3	0.606	0.26	7.27	-78.3	1027
1000 50 min		14.6	0.607	0.22	7.32	-83.4	1031
1005 55 min		14.5	0.607	0.21	7.31	-85.1	933
60 min		14.6	0.607	0.20	7.32	-86.1	991

Water Sample:
Time Collected: 1018

OVER =>

Physical Appearance at Start		Physical Appearance at Sampling	
Color	light GRY	Color	Slightly cloudy
Odor	NONE	Odor	NONE
Turbidity (> 100 NTU)	>1100	Turbidity (> 100 NTU)	98
Sheen/Free Product	NONE	Sheen/Free Product	NONE

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved Metals - Cu, Cr, Ni, Zn, Fe, Mn, Na	1	125 ml Plastic	HNO3	yes
Cyanide	1	125 ml Plastic	NAOH	
Phenols	1	125 ml Plastic	H2SO4	
TOC	2	40 ml Glass	H2SO4	
TOX	1	125 ml Plastic	H2SO4	
Sulfate, Chlorides, SpC	1	500 ml Plasitc	None	

Notes:
127 final turb after sample collector

Time	DTW	T°	Cond	DO	pH	ORP	Turbidity
10:10	—	14.7	0.606	0.18	7.33	-87.2	1100
10:15	—	14.9	0.606	0.18	7.35	-87.9	1100
10:20	—	14.9	0.607	0.17	7.36	-88.9	1100
10:25	—	15.0	0.607	0.17	7.36	-89.6	1100
10:30	—	14.5	0.606	0.18	7.30	-87.0	1100
10:35	—	13.7	0.608	0.20	7.24	-82.9	1100
10:40	—	13.6	0.605	0.20	7.23	-82.6	~~1063~~
10:45	—	13.9	0.608	0.18	7.29	-83.2	1063
10:50	—	13.9	0.608	0.18	7.33	-91.3	871
10:55	—	13.8	0.609	0.18	7.35	-93.4	795
11:00	—	13.7	0.609	0.18	7.34	-93.9	608
11:05	—	13.9	0.607	0.18	7.34	-94.5	471
11:10	—	13.4	0.606	0.19	7.33	-94.3	388
11:15	—	14.0	0.600	0.18	7.30	-93.1	322
11:20		14.0	0.602	0.18	7.36	-97.0	277
11:25	—	14.1	0.580	0.15	7.34	-96.9	250
11:30	—	13.9	0.548	0.18	7.36	-97.5	213
11:35	—	13.9	0.519	0.17	7.34	-97.2	185
11:40	—	13.9	0.516	0.16	7.34	-97.3	169
11:45	—	14.5	0.509	0.16	7.40	-101.3	173
11:50	—	14.3	0.510	0.15	7.40	-101.5	145
11:55	—	14.4	0.509	0.15	7.35	-99.0	126
12:00	—	14.0	0.443	0.15	7.38	-100.4	117
12:05	—	14.5	0.438	0.13	7.35	-99.4	121
12:10	—	14.7	0.417	0.13	7.40	-102.0	98

O'Brien & Gere Engineers, Inc. — **Standard Groundwater Sampling Log**

Date: 6/19/17 - 6/20/17
Site Name: Coldwater Rd
Location: Flint MI
Project No.: 647737
Personnel: LSH / KBS
Weather:
Well #: B-28
Evacuation Method: Whale Pump / Peristaltic Pump
Sampling Method: PURGE DRY

Well Information:

Depth of Well *	34.00	ft.
Depth to Water *	5.75	ft.
Length of Water Column	28.25	ft.
Volume of Water in Well	4.6	gal.(s)
3X Volume of Water in Well	13.8	gal.(s)

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: gal.(s)
Did well go dry? Yes

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration: Calibrated within range

pH	Yes
ORP	Yes
Conductivity	Yes
DO	Yes

Water parameters:

	Drawdown measured (0.3 feet or less)	Temperature Celsius (±3 percent)	Conductivity mS/cm (±0.005 (mS/cm))	Dissolved Oxygen mg/L (±10 percent)	pH (±0.1 pH units)	ORP mV (±10 millivolts)	Turbidity NTUs (±10 percent)
6/19/17 initial	17:05 (2000 ml/min)	11.3	0.86	0.48	6.99	-60.4	346
5 min	17:10	11.9	0.86	0.70	7.07	-76.4	145
10 min	17:15 (25.1')	12.7	0.85	1.71	7.11	-76.6	100
15 min	17:20	11.4	0.84	0.85	7.05	-72.4	584
20 min	17:25 (30.5')	Wet "Dry"					
25 min		feet recharge ~		5 minutes			
30 min							
35 min							
6/20/17 40 min	6.92	13.3	0.84	6.28	7.27	64.1	74
1218 45 min	8.03	12.9	0.83	3.71	7.23	64.3	48
1223 50 min							
55 min							
60 min							

Water Sample:
Time Collected: 1215

Physical Appearance at Start		Physical Appearance at Sampling	
Color	light Gray	Color	Slightly cloudy
Odor	NONE	Odor	NONE
Turbidity (> 100 NTU)	346	Turbidity (> 100 NTU)	48
Sheen/Free Product	NONE	Sheen/Free Product	NONE

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved Metals - Cu, Cr, Ni, Zn, Fe, Mn, Na	1	125 ml Plastic	HNO3	yes
Cyanide	1	125 ml Plastic	NAOH	
Phenols	1	125 ml Plastic	H2SO4	
TOC	2	40 ml Glass	H2SO4	
TOX	1	125 ml Plastic	H2SO4	
Sulfate, Chlorides, SpC	1	500 ml Plasitc	None	

Notes:

O'Brien & Gere Engineers, Inc. — **Standard Groundwater Sampling Log**

Date: 6/20/17
Site Name: Coldwater Rd LF
Location: Flint
Project No.:
Personnel: KBS, CSY

Weather: Mostly
Well #: OBG-MW-7
Evacuation Method: Whale Pump
Sampling Method: Purge DM

Well Information:

Depth of Well *	22.90	ft.
Depth to Water *	9.00	ft.
Length of Water Column	13.9	ft.
Volume of Water in Well	2.26	gal.(s)
3X Volume of Water in Well	6.79	gal.(s)

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: ____ gal.(s)
Did well go dry? yes

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration: Calibrated within range

pH	yes
ORP	yes
Conductivity	yes
DO	yes

Water parameters:

	Drawdown measured (0.3 feet or less)	Temperature Celsius (±3 percent)	Conductivity mS/cm (±0.005 (mS/cm))	Dissolved Oxygen mg/L (±10 percent)	pH (±0.1 pH units)	ORP mV (±10 millivolts)	Turbidity NTUs (±10 percent)
930 initial	11.20	10.1	1.01	1.68	6.89	82.5	238
935 5 min	13.75	10.9	0.99	2.11	6.95	47.6	39
940 10 min	16.27	10.3	0.99	0.22	6.94	19.1	24
945 15 min	17.02	10.1	1.00	0.16	6.95	-0.9	
950 20 min	17.52	10.1	1.00	0.41	6.96	-9.8	
955 25 min	18.00	10.1	1.00	0.42	6.97	-16.6	
1000 30 min	18.55	10.1	1.00	0.86	6.97	-20.4	
1005 35 min	19.40	10.1	1.00	1.93	6.99	-23.1	160
40 min							
45 min							
50 min							
55 min							
60 min							

Water Sample:
Time Collected: 1005

Physical Appearance at Start		Physical Appearance at Sampling	
Color	rust color	Color	Clear
Odor	None	Odor	None
Turbidity (> 100 NTU)		Turbidity (> 100 NTU)	
Sheen/Free Product	None	Sheen/Free Product	None

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved Metals - Cu, Cr, Ni, Zn, Fe, Mn, Na	1	125 ml Plastic	HNO3	yes
Cyanide	1	125 ml Plastic	NAOH	
Phenols	1	125 ml Plastic	H2SO4	
TOC	2	40 ml Glass	H2SO4	
TOX	1	125 ml Plastic	H2SO4	
Sulfate, Chlorides, SpC	1	500 ml Plasitc	None	

Notes:
Well Purged 3 well Volumes
1800 ml/per min
20 gallons

O'Brien & Gere Engineers, Inc. — **Standard Groundwater Sampling Log**

Date: 6/19/17
Site Name: Coldwater Rd
Location: Flint, MI
Project No.:
Personnel:

Weather:
Well #: DBG-MW-9 (WWTP well)
Evacuation Method: Whale Pump / Peristaltic Pump
Sampling Method: PURGE DRY

Well Information:

Depth of Well *	18.15	ft.
Depth to Water *	5.21	ft.
Length of Water Column		ft.
Volume of Water in Well		gal.(s)
3X Volume of Water in Well		gal.(s)

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 8 gal.(s)
Did well go dry? yes

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration:

	Calibrated within range
pH	yes
ORP	yes
Conductivity	yes
DO	yes

Water parameters:

	Drawdown measured (0.3 feet or less)		Temperature Celsius (±3 percent)		Conductivity mS/cm (±0.005 (mS/cm)		Dissolved Oxygen mg/L (±10 percent)		pH (±0.1 pH units)		ORP mV (±10 millivolts)		Turbidity NTUs (±10 percent)
initial	15:45	initial	13.3	initial	3.43	initial	11.43	initial	7.02	initial	-25.8	initial	331
5 min	15:50	9.15'	13.8		2.63		0.99		7.09		-67.9		273
10 min	15:55	12.1'	15.0		2.55		0.39		7.22		-103.1		135
15 min	16:00	15.45'	12.7		2.97		0.27		7.01		-85.6		34
20 min	16:04	Off	"Dry"		18.00'								
25 min			Allow	To	Recharge								
30 min	16:18		OTW	14.9'	purged	dry	to 18.00'						
35 min													
40 min					purged ~ 8 gallons								
45 min													
50 min													
6/20/17 55 min	5.09		15.3		3.90		3.23		6.95		8.9		
1150 60 min	6.35		14.4		2.88		3.60		7.12		33.0		60
1155													

Water Sample:
Time Collected: 1155

Physical Appearance at Start		Physical Appearance at Sampling	
Color		Color	
Odor		Odor	
Turbidity (> 100 NTU)		Turbidity (> 100 NTU)	
Sheen/Free Product		Sheen/Free Product	

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved Metals - Cu, Cr, Ni, Zn, Fe, Mn, Na	1	125 ml Plastic	HNO3	yes
Cyanide	1	125 ml Plastic	NAOH	
Phenols	1	125 ml Plastic	H2SO4	
TOC	2	40 ml Glass	H2SO4	
TOX	1	125 ml Plastic	H2SO4	
Sulfate, Chlorides, SpC	1	500 ml Plasitc	None	

Notes:

O'BRIEN & GERE

SUBJECT:	PAGE:	BY:	DATE:	JOB NUMBER:
coldwater Semiannual Vaults & Sumps		LBS	6/A/17	

	DTW	Temp	PH	Cond.	Time	color
SUMP A	20.95	12.9	9.43	1.67	10:40	clear
Vault A	—	11.4	6.90	1.40	1210	clear
Sump B	13.45	13.9	8.10	2.25	1300	~~clear~~ Yellow
Vault B	—	11.6	6.80	1.07	1353	clear
Sump C	17.10	13.3	8.06	4.66	14[15]	~~clear~~ Yellow
Vault C	—	12.2	6.88	1.76	14[45]	clear
Sump D	18.78	13.9	10.75	5.56	15[15]	~~clear~~ Yellow
Vault D	—	16.7	6.83	1.65	15[40]	clear
Sump E	DUP-1 20.51	20.1	8.02	0.003	16[25]	~~clear~~ Yellow
Vault E	DUP-2 — (DUP-1 PFC)	11.9	6.79	1.37	16[50]	clear
Sump F	19.32	13.2	8.51	3.59	17[15]	clear
Vault F		11.8	6.89	1.62	17[40]	clear

ATTACHMENT C

Analytical Laboratory Results

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-29302-1
Client Project/Site: PFC Analysis

For:
O'Brien & Gere Inc of North America
37000 Grand River Ave
Suite 260
Farmington Hills, Michigan 48335

Attn: Mr. Clifford Yantz

Authorized for release by:
7/31/2017 5:44:47 PM

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Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
CI	The peak identified by the data system exhibited chromatographic interference that could not be resolved. There is reason to suspect there may be a high bias.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.
H	Sample was prepped or analyzed beyond the specified holding time
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
*	LCS or LCSD is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 320-29302-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 6/21/2017 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 6.0º C.

LCMS

Method(s) 537 (modified): Due to the sporadic recovery performance for the labeled analyte 13C8-FOSA, we are temporarily increasing the reporting limit (RL) for the target analyte FOSA in order to provide better confidence in its reported value. The RL for FOSA has been increased to the same concentration as that fortified into the laboratory control sample (LCS). At this concentration, the LCS demonstrates acceptable FOSA recovery regardless of the recovery of its labeled analog, 13C8-FOSA, which is used to quantitate FOSA. Thus, indicating sufficient analytical performance to support this RL increase. Techniques to improve the recovery performance of 13C8-FOSA are currently underway.

SUMP A (320-29302-1), Vault A (320-29302-2), SUMP B (320-29302-3), Vault B (320-29302-4), SUMP C (320-29302-5), Vault C (320-29302-6), SUMP E (320-29302-7), Vault E (320-29302-8), SUMP F (320-29302-9), Vault F (320-29302-10), Vault F (320-29302-10[MS]), Vault F (320-29302-10[MSD]), DUP-1 (320-29302-11), Vault D (320-29302-12), FB-01 (320-29302-13), EB-01 (320-29302-14), OBG-MW-7 (320-29302-15), B-24r (320-29302-16), OBG-MW-9 (320-29302-17), B-28 (320-29302-18), B-27D (320-29302-19), B-18A (320-29302-20), B-9 (320-29302-21), (LCS 320-172064/2-A), (LCS 320-172104/2-A), (LCS 320-175097/2-A), (LCS 320-175739/2-A), (LCSD 320-172104/3-A), (LCSD 320-175097/3-A), (LCSD 320-175739/3-A), (MB 320-172064/1-A), (MB 320-172104/1-A), (MB 320-175097/1-A), (MB 320-175739/1-A), (320-29297-A-3-A), (320-29297-A-3-B MS) and (320-29297-A-3-C MSD)

Method(s) 537 (modified): The laboratory control sample duplicate (LCSD) for preparation batch 320-172104 and analytical batch 320-173630 recovered outside control limits for the following analytes: Perfluorotetradecanoic acid (PFTeA). These analytes were biased high in the LCSD and were detected below the reporting limit in the associated samples; therefore, the data have been reported. EB-01 (320-29302-14), OBG-MW-7 (320-29302-15), B-24r (320-29302-16), OBG-MW-9 (320-29302-17), B-28 (320-29302-18), B-27D (320-29302-19), B-18A (320-29302-20), B-9 (320-29302-21), (LCSD 320-172104/3-A), (320-29297-A-3-A), (320-29297-A-3-B MS) and (320-29297-A-3-C MSD)

Method(s) 537 (modified): The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 320-175097 and analytical batch 320-175529 recovered outside control limits for the following analyte: Perfluorotetradecanoic acid (PFTeA). This analyte was biased high in the LCS/LCSD and was detected below the reporting limit in the associated samples; therefore, the data have been reported.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for 13C2 PFDoA in the following sample: EB-01 (320-29302-14). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit for 13C8 FOSA: OBG-MW-7 (320-29302-15), B-24r (320-29302-16), OBG-MW-9 (320-29302-17), B-28 (320-29302-18), B-27D (320-29302-19), B-18A (320-29302-20), (320-29297-A-3-A), (320-29297-A-3-B MS) and (320-29297-A-3-C MSD). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit for 13C8 FOSA: SUMP A (320-29302-1), Vault A (320-29302-2), Vault B (320-29302-4), (LCS 320-172064/2-A), 13C8 FOSA: Vault C (320-29302-6), DUP-1 (320-29302-11), FB-01 (320-29302-13), Vault E (320-29302-8), Vault F (320-29302-10), Vault F (320-29302-10[MS]), Vault F (320-29302-10[MSD]) and (LCS 320-175097/2-A). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit for 13C2 PFDoA: Vault F (320-29302-10[MS]). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recoveries associated with the following samples are below the method recommended limit for several analytes: SUMP B (320-29302-3), SUMP C (320-29302-5) and SUMP F (320-29302-9). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

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Laboratory: TestAmerica Sacramento (Continued)

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit for 13C8 FOSA, 13C4 PFBA, and 13C5 PFPeA: SUMP E (320-29302-7). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit for 13C8 FOSA and 13C4 PFBA: Vault D (320-29302-12). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is far below the method recommended limit for 13C8 FOSA: Vault E (320-29302-8), Vault F (320-29302-10), Vault F (320-29302-10[MS]), Vault F (320-29302-10[MSD]) and B-9 (320-29302-21). These samples were re-extracted outside of holding time with improved IDA recoveries. Both sets of data were reported.

Method(s) 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for Perfluorotetradecanoic acid (PFTeA) inpreparation batches 320-172104 and 320-172064 and analytical batches 320-173630 and 320-174098 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 537 (modified): The following sample has chromatographic interferences that could adversely impact the identification and quantitation of target analytes: Perfluorobutanesulfonic acid (PFBS) SUMP A (320-29302-1). These interferences could cause false positive results.

Method(s) 537 (modified): The following sample has chromatographic interferences that could adversely impact the identification and quantitation of target analyte: Perfluoropentanoic acid (PFPeA) SUMP C (320-29302-5). These interferences could cause false positive results.

Method(s) 537 (modified): The following sample has chromatographic interferences that could adversely impact the identification and quantitation of target analyte: Perfluorononanoic acid (PFNA) SUMP B (320-29302-3). These interferences could cause false positive results.

Method(s) 537 (Modified): The following samples were diluted to bring the concentration of target analytes within the calibration range: SUMP A (320-29302-1), Vault A (320-29302-2), SUMP B (320-29302-3), SUMP C (320-29302-5), Vault C (320-29302-6), SUMP E (320-29302-7), Vault E (320-29302-8), SUMP F (320-29302-9) and DUP-1 (320-29302-11). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method(s) 3535: The following samples: SUMP A (320-29302-1), SUMP B (320-29302-3), Vault C (320-29302-6) and SUMP E (320-29302-7) were decanted prior to preparation due to excess sediment.

Method(s) 3535: The following samples: OBG-MW-7 (320-29302-15), B-24r (320-29302-16), OBG-MW-9 (320-29302-17), B-28 (320-29302-18), B-27D (320-29302-19), B-18A (320-29302-20) and B-9 (320-29302-21) were decanted prior to preparation due to excessive amounts of sediment.

Method(s) 3535: A murky white layer was observed at the bottom of centrifuge tube for the following samples. OBG-MW-7 (320-29302-15), B-24r (320-29302-16), B-28 (320-29302-18), B-18A (320-29302-20) and B-9 (320-29302-21)

Method(s) 3535: A deviation from the Standard Operating Procedure (SOP) occurred. The following batch 172064 was inadvertently prepped with 21 field samples.

Method(s) 3535: A deviation from the Standard Operating Procedure (SOP) occurred. All samples including the batch QC was accidentally dried for 50 minutes instead of 15 minutes.

Method(s) 3535: The following samples were re-prepared outside of preparation holding time due to low FOSA recoveries. Vault B (320-29302-4), Vault E (320-29302-8), Vault F (320-29302-10), Vault F (320-29302-10[MS]) and Vault F (320-29302-10[MSD]).

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Method(s) 3535: The following samples turned a white color after concentrating down to final volume and after adding the 400 uL of methanol. Vault B (320-29302-4), Vault E (320-29302-8), Vault F (320-29302-10), Vault F (320-29302-10[MS]) and Vault F (320-29302-10[MSD])

Method(s) 3535: Approximately 250mL of the aqueous portion of the following samples were decanted into a new polyethylene bottle prior to extraction due to an excessive amount of sediment in the sample bottles. The excessive sediment had the potential to clog the solid-phase column: B-9 (320-29302-21)

Method(s) 3535: The following sample was re-prepared outside of preparation holding time due to low FOSA recoveries: B-9 (320-29302-21).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-29302-1

Client Sample ID: SUMP A — Lab Sample ID: 320-29302-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	260		1.9	0.96	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	110		1.9	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	54		1.9	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	310	CI	1.9	0.89	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	150		1.9	0.69	ng/L	1		537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	4.3		1.9	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA)	8.1	J B	39	0.62	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA) - DL	220	B	97	22	ng/L	50		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	410		97	42	ng/L	50		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	13000		97	62	ng/L	50		537 (modified)	Total/NA

Client Sample ID: Vault A — Lab Sample ID: 320-29302-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	18	B	1.9	0.45	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.9		1.9	0.96	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.9		1.9	0.76	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.4		1.9	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	16		1.9	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	9.3		1.9	0.89	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	32		1.9	0.85	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	7.2		1.9	0.69	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	450		9.7	6.2	ng/L	5		537 (modified)	Total/NA

Client Sample ID: SUMP B — Lab Sample ID: 320-29302-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	17		2.0	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	230		2.0	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	29	CI	2.0	0.64	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.37	J B	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	140		2.0	0.70	ng/L	1		537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	2.6		2.0	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA)	6.1	J B	39	0.63	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA) - DL	480	B	200	45	ng/L	100		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	410		200	97	ng/L	100		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	280		200	77	ng/L	100		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	190	J	200	90	ng/L	100		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	650		200	85	ng/L	100		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	9600		200	130	ng/L	100		537 (modified)	Total/NA

Client Sample ID: Vault B — Lab Sample ID: 320-29302-4

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-29302-1

Client Sample ID: Vault B (Continued) — Lab Sample ID: 320-29302-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.6	B	2.0	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.79	J	2.0	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.1		2.0	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.1		2.0	0.91	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	12		2.0	0.86	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	2.4		2.0	0.71	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	150		2.0	1.3	ng/L	1		537 (modified)	Total/NA

Client Sample ID: SUMP C — Lab Sample ID: 320-29302-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	80		1.9	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	230		1.9	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	18		1.9	0.64	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	200		1.9	0.69	ng/L	1		537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	1.9		1.9	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA)	8.2	J B	39	0.62	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA) - DL	490	B	190	45	ng/L	100		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	1100	CI	190	96	ng/L	100		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	390		190	76	ng/L	100		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	410		190	89	ng/L	100		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	1200		190	85	ng/L	100		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	12000		190	120	ng/L	100		537 (modified)	Total/NA

Client Sample ID: Vault C — Lab Sample ID: 320-29302-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	19	B	1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	6.0		1.9	0.75	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.3		1.9	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	12		1.9	0.71	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.21	J B	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	12		1.9	0.88	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	24		1.9	0.83	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	5.8		1.9	0.68	ng/L	1		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA)	2.0	J B	38	0.61	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	440		9.5	6.1	ng/L	5		537 (modified)	Total/NA

Client Sample ID: SUMP E — Lab Sample ID: 320-29302-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	48	B	1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	86		1.9	0.96	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	65		1.9	0.76	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	77		1.9	0.78	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SUMP E (Continued) — Lab Sample ID: 320-29302-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	95		1.9	0.72	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	21		1.9	0.63	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.6	J	1.9	0.43	ng/L	1		537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.7	J	1.9	0.72	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.21	J B	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	57		1.9	0.89	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	170		1.9	0.84	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	55		1.9	0.69	ng/L	1		537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	1.2	J	1.9	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA)	4.7	J B	39	0.62	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	3400		39	25	ng/L	20		537 (modified)	Total/NA

Client Sample ID: Vault E — Lab Sample ID: 320-29302-8

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.6	B	1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	5.5		1.9	0.96	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	6.5		1.9	0.76	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.5		1.9	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	24		1.9	0.72	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	13		1.9	0.89	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	65		1.9	0.84	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	15		1.9	0.69	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	730		9.7	6.2	ng/L	5		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA) - RE	3.5	J H	40	0.64	ng/L	1		537 (modified)	Total/NA

Client Sample ID: SUMP F — Lab Sample ID: 320-29302-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	260	B	2.0	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	150		2.0	0.77	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	67		2.0	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	80		2.0	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	9.7		2.0	0.64	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.0	J	2.0	0.43	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	82		2.0	0.70	ng/L	1		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA)	6.1	J B	39	0.63	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	330		98	49	ng/L	50		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	100		98	45	ng/L	50		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	390		98	43	ng/L	50		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	5400		98	63	ng/L	50		537 (modified)	Total/NA

Client Sample ID: Vault F — Lab Sample ID: 320-29302-10

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-29302-1

Client Sample ID: Vault F (Continued) — Lab Sample ID: 320-29302-10

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	6.8	B	1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	15		1.9	0.94	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	13		1.9	0.75	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	12		1.9	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	57		1.9	0.71	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.2	J	1.9	0.62	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	12		1.9	0.88	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	35		1.9	0.83	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	7.3		1.9	0.68	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	300		1.9	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA) - RE	22	J H	39	0.62	ng/L	1		537 (modified)	Total/NA

Client Sample ID: DUP-1 — Lab Sample ID: 320-29302-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.0	B	2.0	0.45	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.7		2.0	0.97	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	6.3		2.0	0.77	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.3		2.0	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	25		2.0	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.64	J	2.0	0.64	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.43	J B	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	12		2.0	0.90	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	63		2.0	0.86	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	15		2.0	0.70	ng/L	1		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA)	16	J B	39	0.63	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	730		9.8	6.3	ng/L	5		537 (modified)	Total/NA

Client Sample ID: Vault D — Lab Sample ID: 320-29302-12

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	5.3	B	2.0	0.47	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	6.5		2.0	1.0	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.96	J	2.0	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	9.9		2.0	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.25	J B	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	11		2.0	0.93	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	33		2.0	0.88	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	8.4		2.0	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	350		2.0	1.3	ng/L	1		537 (modified)	Total/NA

Client Sample ID: FB-01 — Lab Sample ID: 320-29302-13

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.92	J B	1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.4	J	1.9	1.2	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-29302-1

Client Sample ID: EB-01 — Lab Sample ID: 320-29302-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.59	J B	2.0	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.89	J B *	2.0	0.20	ng/L	1		537 (modified)	Total/NA

Client Sample ID: OBG-MW-7 — Lab Sample ID: 320-29302-15

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.0	B	1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.0	J	1.9	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.0	J B *	1.9	0.19	ng/L	1		537 (modified)	Total/NA

Client Sample ID: B-24r — Lab Sample ID: 320-29302-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	14	B	1.9	0.43	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.9		1.9	0.74	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.7	J	1.9	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.9		1.9	0.70	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.7		1.9	0.86	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.4		1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.0		1.9	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA)	0.66	J	38	0.60	ng/L	1		537 (modified)	Total/NA

Client Sample ID: OBG-MW-9 — Lab Sample ID: 320-29302-17

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.4	J B	1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.1	J	1.9	0.71	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.0		1.9	0.87	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.0		1.9	0.83	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.9		1.9	1.2	ng/L	1		537 (modified)	Total/NA

Client Sample ID: B-28 — Lab Sample ID: 320-29302-18

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.9	B	1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.92	J	1.9	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	0.79	J	1.9	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.7	J	1.9	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA)	1.2	J	39	0.62	ng/L	1		537 (modified)	Total/NA

Client Sample ID: B-27D — Lab Sample ID: 320-29302-19

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.0	B	1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.4	J	1.9	0.72	ng/L	1		537 (modified)	Total/NA

Client Sample ID: B-18A — Lab Sample ID: 320-29302-20

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.2	B	1.9	0.44	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: B-18A (Continued) — Lab Sample ID: 320-29302-20

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	1.2	J	1.9	0.71	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.3	J	1.9	1.2	ng/L	1		537 (modified)	Total/NA

Client Sample ID: B-9 — Lab Sample ID: 320-29302-21

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	14	B	1.9	0.45	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.2		1.9	0.96	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	9.3		1.9	0.77	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.2		1.9	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	15		1.9	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.2	J B *	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.3		1.9	0.89	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.9		1.9	0.85	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.70	J	1.9	0.69	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	13		1.9	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA) - RE	3.3	J H	39	0.62	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SUMP A

Date Collected: 06/19/17 11:40
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-1

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	**260**		1.9	0.96	ng/L		07/01/17 15:26	07/13/17 07:16	1
Perfluorohexanoic acid (PFHxA)	**110**		1.9	0.76	ng/L		07/01/17 15:26	07/13/17 07:16	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.78	ng/L		07/01/17 15:26	07/13/17 07:16	1
Perfluorooctanoic acid (PFOA)	**54**		1.9	0.73	ng/L		07/01/17 15:26	07/13/17 07:16	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.64	ng/L		07/01/17 15:26	07/13/17 07:16	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.43	ng/L		07/01/17 15:26	07/13/17 07:16	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.73	ng/L		07/01/17 15:26	07/13/17 07:16	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.57	ng/L		07/01/17 15:26	07/13/17 07:16	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.54	ng/L		07/01/17 15:26	07/13/17 07:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.19	ng/L		07/01/17 15:26	07/13/17 07:16	1
Perfluorobutanesulfonic acid (PFBS)	**310**	**CI**	1.9	0.89	ng/L		07/01/17 15:26	07/13/17 07:16	1
Perfluoroheptanesulfonic Acid (PFHpS)	**150**		1.9	0.69	ng/L		07/01/17 15:26	07/13/17 07:16	1
Perfluorodecanesulfonic acid (PFDS)	**4.3**		1.9	1.2	ng/L		07/01/17 15:26	07/13/17 07:16	1
Perfluorooctane Sulfonamide (FOSA)	**8.1**	**J B**	39	0.62	ng/L		07/01/17 15:26	07/13/17 07:16	1
6:2FTS	ND		19	3.7	ng/L		07/01/17 15:26	07/13/17 07:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*13*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:16*	*1*
13C2 PFHxA	*19*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:16*	*1*
13C4 PFOA	*24*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:16*	*1*
13C5 PFNA	*28*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:16*	*1*
13C2 PFDA	*51*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:16*	*1*
13C2 PFUnA	*56*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:16*	*1*
13C2 PFDoA	*53*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:16*	*1*
18O2 PFHxS	*53*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:16*	*1*
13C4 PFOS	*43*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:16*	*1*
13C4-PFHpA	*24*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:16*	*1*
13C5 PFPeA	*16*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:16*	*1*
M2-6:2FTS	*37*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:16*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**220**	**B**	97	22	ng/L		07/01/17 15:26	07/17/17 12:15	50
Perfluorohexanesulfonic acid (PFHxS)	**410**		97	42	ng/L		07/01/17 15:26	07/17/17 12:15	50
Perfluorooctanesulfonic acid (PFOS)	**13000**		97	62	ng/L		07/01/17 15:26	07/17/17 12:15	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*47*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:15*	*50*
18O2 PFHxS	*83*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:15*	*50*
13C4 PFOS	*91*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:15*	*50*

Client Sample ID: Vault A

Date Collected: 06/19/17 12:10
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-2
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**18**	**B**	1.9	0.45	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluoropentanoic acid (PFPeA)	**1.9**		1.9	0.96	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluorohexanoic acid (PFHxA)	**4.9**		1.9	0.76	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluoroheptanoic acid (PFHpA)	**4.4**		1.9	0.78	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluorooctanoic acid (PFOA)	**16**		1.9	0.73	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.64	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.43	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.73	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.57	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.54	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.19	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluorobutanesulfonic acid (PFBS)	**9.3**		1.9	0.89	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluorohexanesulfonic acid (PFHxS)	**32**		1.9	0.85	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluoroheptanesulfonic Acid (PFHpS)	**7.2**		1.9	0.69	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.2	ng/L		07/01/17 15:26	07/13/17 07:23	1
Perfluorooctane Sulfonamide (FOSA)	ND		39	0.62	ng/L		07/01/17 15:26	07/13/17 07:23	1
6:2FTS	ND		19	3.7	ng/L		07/01/17 15:26	07/13/17 07:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*1*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:23*	*1*
13C4 PFBA	*31*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:23*	*1*
13C2 PFHxA	*58*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:23*	*1*
13C4 PFOA	*66*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:23*	*1*
13C5 PFNA	*68*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:23*	*1*
13C2 PFDA	*67*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:23*	*1*
13C2 PFUnA	*42*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:23*	*1*
13C2 PFDoA	*34*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:23*	*1*
18O2 PFHxS	*89*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:23*	*1*
13C4 PFOS	*92*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:23*	*1*
13C4-PFHpA	*72*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:23*	*1*
13C5 PFPeA	*51*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:23*	*1*
M2-6:2FTS	*68*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:23*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**450**		9.7	6.2	ng/L		07/01/17 15:26	07/17/17 12:43	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*108*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:43*	*5*

Client Sample ID: SUMP B

Date Collected: 06/19/17 13:00
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-3
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	**17**		2.0	0.79	ng/L		07/01/17 15:26	07/13/17 07:37	1
Perfluorooctanoic acid (PFOA)	**230**		2.0	0.73	ng/L		07/01/17 15:26	07/13/17 07:37	1

Client Sample ID: SUMP B
Date Collected: 06/19/17 13:00
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-3
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	**29**	**CI**	2.0	0.64	ng/L		07/01/17 15:26	07/13/17 07:37	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.43	ng/L		07/01/17 15:26	07/13/17 07:37	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.73	ng/L		07/01/17 15:26	07/13/17 07:37	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.57	ng/L		07/01/17 15:26	07/13/17 07:37	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	0.54	ng/L		07/01/17 15:26	07/13/17 07:37	1
Perfluorotetradecanoic acid (PFTeA)	**0.37**	**J B**	2.0	0.20	ng/L		07/01/17 15:26	07/13/17 07:37	1
Perfluoroheptanesulfonic Acid (PFHpS)	**140**		2.0	0.70	ng/L		07/01/17 15:26	07/13/17 07:37	1
Perfluorodecanesulfonic acid (PFDS)	**2.6**		2.0	1.2	ng/L		07/01/17 15:26	07/13/17 07:37	1
Perfluorooctane Sulfonamide (FOSA)	**6.1**	**J B**	39	0.63	ng/L		07/01/17 15:26	07/13/17 07:37	1
6:2FTS	ND		20	3.7	ng/L		07/01/17 15:26	07/13/17 07:37	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*10*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:37*	*1*
13C4 PFBA	*3*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:37*	*1*
13C2 PFHxA	*8*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:37*	*1*
13C4 PFOA	*19*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:37*	*1*
13C5 PFNA	*27*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:37*	*1*
13C2 PFDA	*43*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:37*	*1*
13C2 PFUnA	*50*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:37*	*1*
13C2 PFDoA	*48*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:37*	*1*
18O2 PFHxS	*44*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:37*	*1*
13C4 PFOS	*40*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:37*	*1*
13C4-PFHpA	*14*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:37*	*1*
13C5 PFPeA	*9*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:37*	*1*
M2-6:2FTS	*43*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:37*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**480**	**B**	200	45	ng/L		07/01/17 15:26	07/17/17 12:01	100
Perfluoropentanoic acid (PFPeA)	**410**		200	97	ng/L		07/01/17 15:26	07/17/17 12:01	100
Perfluorohexanoic acid (PFHxA)	**280**		200	77	ng/L		07/01/17 15:26	07/17/17 12:01	100
Perfluorobutanesulfonic acid (PFBS)	**190**	**J**	200	90	ng/L		07/01/17 15:26	07/17/17 12:01	100
Perfluorohexanesulfonic acid (PFHxS)	**650**		200	85	ng/L		07/01/17 15:26	07/17/17 12:01	100
Perfluorooctanesulfonic acid (PFOS)	**9600**		200	130	ng/L		07/01/17 15:26	07/17/17 12:01	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*58*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:01*	*100*
13C2 PFHxA	*72*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:01*	*100*
18O2 PFHxS	*93*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:01*	*100*
13C4 PFOS	*102*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:01*	*100*
13C5 PFPeA	*78*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:01*	*100*

Client Sample ID: Vault B

Date Collected: 06/19/17 13:55
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-4
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**4.6**	**B**	2.0	0.45	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.98	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluorohexanoic acid (PFHxA)	**0.79**	**J**	2.0	0.78	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.79	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluorooctanoic acid (PFOA)	**4.1**		2.0	0.74	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.44	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.74	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.58	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	0.55	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.20	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluorobutanesulfonic acid (PFBS)	**4.1**		2.0	0.91	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluorohexanesulfonic acid (PFHxS)	**12**		2.0	0.86	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluoroheptanesulfonic Acid (PFHpS)	**2.4**		2.0	0.71	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	1.2	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluorooctanesulfonic acid (PFOS)	**150**		2.0	1.3	ng/L		07/01/17 15:26	07/17/17 16:05	1
Perfluorooctane Sulfonamide (FOSA)	ND		40	0.63	ng/L		07/01/17 15:26	07/17/17 16:05	1
6:2FTS	ND		20	3.8	ng/L		07/01/17 15:26	07/17/17 16:05	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*0.8*	*	*25 - 150*	*07/01/17 15:26*	*07/17/17 16:05*	*1*
13C4 PFBA	*49*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:05*	*1*
13C2 PFHxA	*80*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:05*	*1*
13C4 PFOA	*96*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:05*	*1*
13C5 PFNA	*85*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:05*	*1*
13C2 PFDA	*80*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:05*	*1*
13C2 PFUnA	*63*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:05*	*1*
13C2 PFDoA	*57*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:05*	*1*
18O2 PFHxS	*94*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:05*	*1*
13C4 PFOS	*99*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:05*	*1*
13C4-PFHpA	*100*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:05*	*1*
13C5 PFPeA	*75*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:05*	*1*
M2-6:2FTS	*92*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:05*	*1*

Client Sample ID: SUMP C

Date Collected: 06/19/17 14:15
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-5
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	**80**		1.9	0.78	ng/L		07/01/17 15:26	07/13/17 07:51	1
Perfluorooctanoic acid (PFOA)	**230**		1.9	0.73	ng/L		07/01/17 15:26	07/13/17 07:51	1
Perfluorononanoic acid (PFNA)	**18**		1.9	0.64	ng/L		07/01/17 15:26	07/13/17 07:51	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.43	ng/L		07/01/17 15:26	07/13/17 07:51	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.73	ng/L		07/01/17 15:26	07/13/17 07:51	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.57	ng/L		07/01/17 15:26	07/13/17 07:51	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.54	ng/L		07/01/17 15:26	07/13/17 07:51	1

Client Sample ID: SUMP C

Date Collected: 06/19/17 14:15
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-5
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.19	ng/L		07/01/17 15:26	07/13/17 07:51	1
Perfluoroheptanesulfonic Acid (PFHpS)	**200**		1.9	0.69	ng/L		07/01/17 15:26	07/13/17 07:51	1
Perfluorodecanesulfonic acid (PFDS)	**1.9**		1.9	1.2	ng/L		07/01/17 15:26	07/13/17 07:51	1
Perfluorooctane Sulfonamide (FOSA)	**8.2**	**J B**	39	0.62	ng/L		07/01/17 15:26	07/13/17 07:51	1
6:2FTS	ND		19	3.7	ng/L		07/01/17 15:26	07/13/17 07:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*8*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:51*	*1*
13C4 PFOA	*16*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:51*	*1*
13C5 PFNA	*24*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:51*	*1*
13C2 PFDA	*38*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:51*	*1*
13C2 PFUnA	*44*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:51*	*1*
13C2 PFDoA	*46*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:51*	*1*
13C4 PFOS	*36*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:51*	*1*
13C4-PFHpA	*14*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:51*	*1*
M2-6:2FTS	*34*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:51*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**490**	**B**	190	45	ng/L		07/01/17 15:26	07/17/17 12:08	100
Perfluoropentanoic acid (PFPeA)	**1100**	**CI**	190	96	ng/L		07/01/17 15:26	07/17/17 12:08	100
Perfluorohexanoic acid (PFHxA)	**390**		190	76	ng/L		07/01/17 15:26	07/17/17 12:08	100
Perfluorobutanesulfonic acid (PFBS)	**410**		190	89	ng/L		07/01/17 15:26	07/17/17 12:08	100
Perfluorohexanesulfonic acid (PFHxS)	**1200**		190	85	ng/L		07/01/17 15:26	07/17/17 12:08	100
Perfluorooctanesulfonic acid (PFOS)	**12000**		190	120	ng/L		07/01/17 15:26	07/17/17 12:08	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*45*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:08*	*100*
13C2 PFHxA	*75*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:08*	*100*
18O2 PFHxS	*85*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:08*	*100*
13C4 PFOS	*98*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:08*	*100*
13C5 PFPeA	*77*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:08*	*100*

Client Sample ID: Vault C

Date Collected: 06/19/17 14:45
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-6
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**19**	**B**	1.9	0.44	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.94	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluorohexanoic acid (PFHxA)	**6.0**		1.9	0.75	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluoroheptanoic acid (PFHpA)	**3.3**		1.9	0.77	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluorooctanoic acid (PFOA)	**12**		1.9	0.71	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.62	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.42	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.71	ng/L		07/01/17 15:26	07/13/17 07:58	1

Client Sample ID: Vault C

Date Collected: 06/19/17 14:45
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-6

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.56	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.53	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluorotetradecanoic acid (PFTeA)	**0.21**	**J B**	1.9	0.19	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluorobutanesulfonic acid (PFBS)	**12**		1.9	0.88	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluorohexanesulfonic acid (PFHxS)	**24**		1.9	0.83	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluoroheptanesulfonic Acid (PFHpS)	**5.8**		1.9	0.68	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.2	ng/L		07/01/17 15:26	07/13/17 07:58	1
Perfluorooctane Sulfonamide (FOSA)	**2.0**	**J B**	38	0.61	ng/L		07/01/17 15:26	07/13/17 07:58	1
6:2FTS	ND		19	3.6	ng/L		07/01/17 15:26	07/13/17 07:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*20*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 07:58*	*1*
13C4 PFBA	*28*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:58*	*1*
13C2 PFHxA	*66*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:58*	*1*
13C4 PFOA	*89*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:58*	*1*
13C5 PFNA	*84*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:58*	*1*
13C2 PFDA	*94*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:58*	*1*
13C2 PFUnA	*91*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:58*	*1*
13C2 PFDoA	*89*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:58*	*1*
18O2 PFHxS	*99*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:58*	*1*
13C4 PFOS	*116*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:58*	*1*
13C4-PFHpA	*84*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:58*	*1*
13C5 PFPeA	*56*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:58*	*1*
M2-6:2FTS	*94*		*25 - 150*	*07/01/17 15:26*	*07/13/17 07:58*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**440**		9.5	6.1	ng/L		07/01/17 15:26	07/17/17 12:49	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*111*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:49*	*5*

Client Sample ID: SUMP E

Date Collected: 06/19/17 16:25
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-7

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**48**	**B**	1.9	0.44	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluoropentanoic acid (PFPeA)	**86**		1.9	0.96	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluorohexanoic acid (PFHxA)	**65**		1.9	0.76	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluoroheptanoic acid (PFHpA)	**77**		1.9	0.78	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluorooctanoic acid (PFOA)	**95**		1.9	0.72	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluorononanoic acid (PFNA)	**21**		1.9	0.63	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluorodecanoic acid (PFDA)	**1.6**	**J**	1.9	0.43	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluoroundecanoic acid (PFUnA)	**1.7**	**J**	1.9	0.72	ng/L		07/01/17 15:26	07/13/17 08:05	1

Client Sample ID: SUMP E

Date Collected: 06/19/17 16:25
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-7
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.57	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.53	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluorotetradecanoic acid (PFTeA)	**0.21**	**J B**	1.9	0.19	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluorobutanesulfonic acid (PFBS)	**57**		1.9	0.89	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluorohexanesulfonic acid (PFHxS)	**170**		1.9	0.84	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluoroheptanesulfonic Acid (PFHpS)	**55**		1.9	0.69	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluorodecanesulfonic acid (PFDS)	**1.2**	**J**	1.9	1.2	ng/L		07/01/17 15:26	07/13/17 08:05	1
Perfluorooctane Sulfonamide (FOSA)	**4.7**	**J B**	39	0.62	ng/L		07/01/17 15:26	07/13/17 08:05	1
6:2FTS	ND		19	3.7	ng/L		07/01/17 15:26	07/13/17 08:05	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*4*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 08:05*	*1*
13C4 PFBA	*11*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 08:05*	*1*
13C2 PFHxA	*33*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:05*	*1*
13C4 PFOA	*45*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:05*	*1*
13C5 PFNA	*50*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:05*	*1*
13C2 PFDA	*66*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:05*	*1*
13C2 PFUnA	*68*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:05*	*1*
13C2 PFDoA	*54*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:05*	*1*
18O2 PFHxS	*68*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:05*	*1*
13C4 PFOS	*58*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:05*	*1*
13C4-PFHpA	*43*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:05*	*1*
13C5 PFPeA	*23*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 08:05*	*1*
M2-6:2FTS	*54*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:05*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**3400**		39	25	ng/L		07/01/17 15:26	07/17/17 12:29	20

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*106*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:29*	*20*

Client Sample ID: Vault E

Date Collected: 06/19/17 16:50
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-8
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.6**	**B**	1.9	0.44	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluoropentanoic acid (PFPeA)	**5.5**		1.9	0.96	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluorohexanoic acid (PFHxA)	**6.5**		1.9	0.76	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluoroheptanoic acid (PFHpA)	**5.5**		1.9	0.78	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluorooctanoic acid (PFOA)	**24**		1.9	0.72	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.63	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.43	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.72	ng/L		07/01/17 15:26	07/13/17 08:12	1

Client Sample ID: Vault E

Date Collected: 06/19/17 16:50
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-8
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.56	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.53	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.19	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluorobutanesulfonic acid (PFBS)	**13**		1.9	0.89	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluorohexanesulfonic acid (PFHxS)	**65**		1.9	0.84	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluoroheptanesulfonic Acid (PFHpS)	**15**		1.9	0.69	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.2	ng/L		07/01/17 15:26	07/13/17 08:12	1
Perfluorooctane Sulfonamide (FOSA)	ND		39	0.62	ng/L		07/01/17 15:26	07/13/17 08:12	1
6:2FTS	ND		19	3.7	ng/L		07/01/17 15:26	07/13/17 08:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*0.5*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 08:12*	*1*
13C4 PFBA	*46*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:12*	*1*
13C2 PFHxA	*78*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:12*	*1*
13C4 PFOA	*71*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:12*	*1*
13C5 PFNA	*65*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:12*	*1*
13C2 PFDA	*82*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:12*	*1*
13C2 PFUnA	*62*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:12*	*1*
13C2 PFDoA	*57*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:12*	*1*
18O2 PFHxS	*105*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:12*	*1*
13C4 PFOS	*107*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:12*	*1*
13C4-PFHpA	*89*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:12*	*1*
13C5 PFPeA	*70*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:12*	*1*
M2-6:2FTS	*75*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:12*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**730**		9.7	6.2	ng/L		07/01/17 15:26	07/17/17 14:28	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*104*		*25 - 150*	*07/01/17 15:26*	*07/17/17 14:28*	*5*

Method: 537 (modified) - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctane Sulfonamide (FOSA)	**3.5**	**J H**	40	0.64	ng/L		07/20/17 10:13	07/23/17 16:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*1*	*	*25 - 150*	*07/20/17 10:13*	*07/23/17 16:44*	*1*

Client Sample ID: SUMP F

Date Collected: 06/19/17 17:15
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-9
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**260**	**B**	2.0	0.45	ng/L		07/01/17 15:26	07/13/17 08:19	1
Perfluorohexanoic acid (PFHxA)	**150**		2.0	0.77	ng/L		07/01/17 15:26	07/13/17 08:19	1
Perfluoroheptanoic acid (PFHpA)	**67**		2.0	0.79	ng/L		07/01/17 15:26	07/13/17 08:19	1
Perfluorooctanoic acid (PFOA)	**80**		2.0	0.74	ng/L		07/01/17 15:26	07/13/17 08:19	1

Client Sample ID: SUMP F

Date Collected: 06/19/17 17:15
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-9

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	9.7		2.0	0.64	ng/L		07/01/17 15:26	07/13/17 08:19	1
Perfluorodecanoic acid (PFDA)	1.0	J	2.0	0.43	ng/L		07/01/17 15:26	07/13/17 08:19	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.74	ng/L		07/01/17 15:26	07/13/17 08:19	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.57	ng/L		07/01/17 15:26	07/13/17 08:19	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	0.54	ng/L		07/01/17 15:26	07/13/17 08:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.20	ng/L		07/01/17 15:26	07/13/17 08:19	1
Perfluoroheptanesulfonic Acid (PFHpS)	82		2.0	0.70	ng/L		07/01/17 15:26	07/13/17 08:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	1.2	ng/L		07/01/17 15:26	07/13/17 08:19	1
Perfluorooctane Sulfonamide (FOSA)	6.1	J B	39	0.63	ng/L		07/01/17 15:26	07/13/17 08:19	1
6:2FTS	ND		20	3.8	ng/L		07/01/17 15:26	07/13/17 08:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*4*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 08:19*	*1*
13C4 PFBA	*4*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 08:19*	*1*
13C2 PFHxA	*15*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 08:19*	*1*
13C4 PFOA	*29*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:19*	*1*
13C5 PFNA	*39*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:19*	*1*
13C2 PFDA	*55*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:19*	*1*
13C2 PFUnA	*66*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:19*	*1*
13C2 PFDoA	*59*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:19*	*1*
18O2 PFHxS	*52*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:19*	*1*
13C4 PFOS	*50*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:19*	*1*
13C4-PFHpA	*23*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 08:19*	*1*
13C5 PFPeA	*11*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 08:19*	*1*
M2-6:2FTS	*44*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:19*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	330		98	49	ng/L		07/01/17 15:26	07/17/17 12:22	50
Perfluorobutanesulfonic acid (PFBS)	100		98	45	ng/L		07/01/17 15:26	07/17/17 12:22	50
Perfluorohexanesulfonic acid (PFHxS)	390		98	43	ng/L		07/01/17 15:26	07/17/17 12:22	50
Perfluorooctanesulfonic acid (PFOS)	5400		98	63	ng/L		07/01/17 15:26	07/17/17 12:22	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*92*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:22*	*50*
13C4 PFOS	*106*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:22*	*50*
13C5 PFPeA	*80*		*25 - 150*	*07/01/17 15:26*	*07/17/17 12:22*	*50*

Client Sample ID: Vault F

Date Collected: 06/19/17 17:40
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-10

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	6.8	B	1.9	0.44	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluoropentanoic acid (PFPeA)	15		1.9	0.94	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluorohexanoic acid (PFHxA)	13		1.9	0.75	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluoroheptanoic acid (PFHpA)	12		1.9	0.76	ng/L		07/01/17 15:26	07/13/17 08:25	1

Client Sample ID: Vault F

Date Collected: 06/19/17 17:40
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-10
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	**57**		1.9	0.71	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluorononanoic acid (PFNA)	**1.2**	**J**	1.9	0.62	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.42	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.71	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.56	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.53	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluorotetradecanoic acid (PFTeA)	ND	F1	1.9	0.19	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluorobutanesulfonic acid (PFBS)	**12**		1.9	0.88	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluorohexanesulfonic acid (PFHxS)	**35**		1.9	0.83	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluoroheptanesulfonic Acid (PFHpS)	**7.3**		1.9	0.68	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.2	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluorooctanesulfonic acid (PFOS)	**300**		1.9	1.2	ng/L		07/01/17 15:26	07/13/17 08:25	1
Perfluorooctane Sulfonamide (FOSA)	ND		38	0.61	ng/L		07/01/17 15:26	07/13/17 08:25	1
6:2FTS	ND		19	3.6	ng/L		07/01/17 15:26	07/13/17 08:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*0.5*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 08:25*	*1*
13C4 PFBA	*52*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:25*	*1*
13C2 PFHxA	*96*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:25*	*1*
13C4 PFOA	*111*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:25*	*1*
13C5 PFNA	*91*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:25*	*1*
13C2 PFDA	*96*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:25*	*1*
13C2 PFUnA	*75*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:25*	*1*
13C2 PFDoA	*63*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:25*	*1*
18O2 PFHxS	*127*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:25*	*1*
13C4 PFOS	*127*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:25*	*1*
13C4-PFHpA	*114*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:25*	*1*
13C5 PFPeA	*87*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:25*	*1*
M2-6:2FTS	*113*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:25*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctane Sulfonamide (FOSA)	**22**	**J H**	39	0.62	ng/L		07/20/17 10:13	07/23/17 16:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*1*	*	*25 - 150*	*07/20/17 10:13*	*07/23/17 16:57*	*1*

Client Sample ID: DUP-1

Date Collected: 06/19/17 00:00
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-11
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.0**	**B**	2.0	0.45	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluoropentanoic acid (PFPeA)	**4.7**		2.0	0.97	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluorohexanoic acid (PFHxA)	**6.3**		2.0	0.77	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluoroheptanoic acid (PFHpA)	**5.3**		2.0	0.79	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluorooctanoic acid (PFOA)	**25**		2.0	0.74	ng/L		07/01/17 15:26	07/13/17 08:53	1

Client Sample ID: DUP-1

Date Collected: 06/19/17 00:00
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-11

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	**0.64**	**J**	2.0	0.64	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.43	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.74	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.57	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	0.54	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluorotetradecanoic acid (PFTeA)	**0.43**	**J B**	2.0	0.20	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluorobutanesulfonic acid (PFBS)	**12**		2.0	0.90	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluorohexanesulfonic acid (PFHxS)	**63**		2.0	0.86	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluoroheptanesulfonic Acid (PFHpS)	**15**		2.0	0.70	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	1.2	ng/L		07/01/17 15:26	07/13/17 08:53	1
Perfluorooctane Sulfonamide (FOSA)	**16**	**J B**	39	0.63	ng/L		07/01/17 15:26	07/13/17 08:53	1
6:2FTS	ND		20	3.8	ng/L		07/01/17 15:26	07/13/17 08:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*1*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 08:53*	*1*
13C4 PFBA	*53*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:53*	*1*
13C2 PFHxA	*88*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:53*	*1*
13C4 PFOA	*87*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:53*	*1*
13C5 PFNA	*88*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:53*	*1*
13C2 PFDA	*103*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:53*	*1*
13C2 PFUnA	*77*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:53*	*1*
13C2 PFDoA	*67*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:53*	*1*
18O2 PFHxS	*117*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:53*	*1*
13C4 PFOS	*116*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:53*	*1*
13C4-PFHpA	*107*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:53*	*1*
13C5 PFPeA	*82*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:53*	*1*
M2-6:2FTS	*78*		*25 - 150*	*07/01/17 15:26*	*07/13/17 08:53*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**730**		9.8	6.3	ng/L		07/01/17 15:26	07/17/17 14:35	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*111*		*25 - 150*	*07/01/17 15:26*	*07/17/17 14:35*	*5*

Client Sample ID: Vault D

Date Collected: 06/19/17 18:20
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-12

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**5.3**	**B**	2.0	0.47	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluoropentanoic acid (PFPeA)	**6.5**		2.0	1.0	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.80	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluoroheptanoic acid (PFHpA)	**0.96**	**J**	2.0	0.82	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluorooctanoic acid (PFOA)	**9.9**		2.0	0.76	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.67	ng/L		07/01/17 15:26	07/17/17 16:32	1

Client Sample ID: Vault D

Date Collected: 06/19/17 18:20
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-12

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	ND		2.0	0.45	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.76	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.59	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	0.56	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluorotetradecanoic acid (PFTeA)	**0.25**	**J B**	2.0	0.20	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluorobutanesulfonic acid (PFBS)	**11**		2.0	0.93	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluorohexanesulfonic acid (PFHxS)	**33**		2.0	0.88	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluoroheptanesulfonic Acid (PFHpS)	**8.4**		2.0	0.73	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	1.2	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluorooctanesulfonic acid (PFOS)	**350**		2.0	1.3	ng/L		07/01/17 15:26	07/17/17 16:32	1
Perfluorooctane Sulfonamide (FOSA)	ND		41	0.65	ng/L		07/01/17 15:26	07/17/17 16:32	1
6:2FTS	ND		20	3.9	ng/L		07/01/17 15:26	07/17/17 16:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*1*	*	*25 - 150*	*07/01/17 15:26*	*07/17/17 16:32*	*1*
13C4 PFBA	*19*	*	*25 - 150*	*07/01/17 15:26*	*07/17/17 16:32*	*1*
13C2 PFHxA	*63*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:32*	*1*
13C4 PFOA	*90*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:32*	*1*
13C5 PFNA	*88*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:32*	*1*
13C2 PFDA	*104*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:32*	*1*
13C2 PFUnA	*81*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:32*	*1*
13C2 PFDoA	*76*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:32*	*1*
18O2 PFHxS	*83*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:32*	*1*
13C4 PFOS	*101*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:32*	*1*
13C4-PFHpA	*68*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:32*	*1*
13C5 PFPeA	*47*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:32*	*1*
M2-6:2FTS	*79*		*25 - 150*	*07/01/17 15:26*	*07/17/17 16:32*	*1*

Client Sample ID: FB-01

Date Collected: 06/19/17 18:25
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-13

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.92**	**J B**	1.9	0.44	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.95	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.76	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.77	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.72	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.63	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.42	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.72	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.56	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.53	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.19	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.89	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.84	ng/L		07/01/17 15:26	07/13/17 09:07	1

Client Sample ID: FB-01

Date Collected: 06/19/17 18:25
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-13
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.69	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.2	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluorooctanesulfonic acid (PFOS)	**1.4**	**J**	1.9	1.2	ng/L		07/01/17 15:26	07/13/17 09:07	1
Perfluorooctane Sulfonamide (FOSA)	ND		39	0.62	ng/L		07/01/17 15:26	07/13/17 09:07	1
6:2FTS	ND		19	3.7	ng/L		07/01/17 15:26	07/13/17 09:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*3*	*	*25 - 150*	*07/01/17 15:26*	*07/13/17 09:07*	*1*
13C4 PFBA	*100*		*25 - 150*	*07/01/17 15:26*	*07/13/17 09:07*	*1*
13C2 PFHxA	*97*		*25 - 150*	*07/01/17 15:26*	*07/13/17 09:07*	*1*
13C4 PFOA	*107*		*25 - 150*	*07/01/17 15:26*	*07/13/17 09:07*	*1*
13C5 PFNA	*108*		*25 - 150*	*07/01/17 15:26*	*07/13/17 09:07*	*1*
13C2 PFDA	*118*		*25 - 150*	*07/01/17 15:26*	*07/13/17 09:07*	*1*
13C2 PFUnA	*102*		*25 - 150*	*07/01/17 15:26*	*07/13/17 09:07*	*1*
13C2 PFDoA	*96*		*25 - 150*	*07/01/17 15:26*	*07/13/17 09:07*	*1*
18O2 PFHxS	*114*		*25 - 150*	*07/01/17 15:26*	*07/13/17 09:07*	*1*
13C4 PFOS	*111*		*25 - 150*	*07/01/17 15:26*	*07/13/17 09:07*	*1*
13C4-PFHpA	*111*		*25 - 150*	*07/01/17 15:26*	*07/13/17 09:07*	*1*
13C5 PFPeA	*99*		*25 - 150*	*07/01/17 15:26*	*07/13/17 09:07*	*1*
M2-6:2FTS	*109*		*25 - 150*	*07/01/17 15:26*	*07/13/17 09:07*	*1*

Client Sample ID: EB-01

Date Collected: 06/20/17 16:25
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-14
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.59**	**J B**	2.0	0.45	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.98	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.78	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.79	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.74	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.43	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.74	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.58	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	0.54	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluorotetradecanoic acid (PFTeA)	**0.89**	**J B ***	2.0	0.20	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.91	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.86	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.70	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	1.2	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		07/03/17 08:48	07/12/17 02:31	1
Perfluorooctane Sulfonamide (FOSA)	ND		39	0.63	ng/L		07/03/17 08:48	07/12/17 02:31	1
6:2FTS	ND		20	3.8	ng/L		07/03/17 08:48	07/12/17 02:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*29*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:31*	*1*

Client Sample ID: EB-01

Date Collected: 06/20/17 16:25
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-14

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*110*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:31*	*1*
13C2 PFHxA	*118*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:31*	*1*
13C4 PFOA	*129*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:31*	*1*
13C5 PFNA	*123*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:31*	*1*
13C2 PFDA	*137*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:31*	*1*
13C2 PFUnA	*133*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:31*	*1*
13C2 PFDoA	*151*	*	*25 - 150*	*07/03/17 08:48*	*07/12/17 02:31*	*1*
18O2 PFHxS	*116*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:31*	*1*
13C4 PFOS	*115*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:31*	*1*
13C4-PFHpA	*128*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:31*	*1*
13C5 PFPeA	*108*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:31*	*1*
M2-6:2FTS	*131*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:31*	*1*

Client Sample ID: OBG-MW-7

Date Collected: 06/20/17 10:05
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-15

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.0**	**B**	1.9	0.44	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.96	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluorohexanoic acid (PFHxA)	**1.0**	**J**	1.9	0.76	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.78	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.72	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.63	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.43	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.72	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.57	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.53	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluorotetradecanoic acid (PFTeA)	**1.0**	**J B ***	1.9	0.19	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.89	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.84	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.69	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.2	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.2	ng/L		07/03/17 08:48	07/12/17 02:38	1
Perfluorooctane Sulfonamide (FOSA)	ND		39	0.62	ng/L		07/03/17 08:48	07/12/17 02:38	1
6:2FTS	ND		19	3.7	ng/L		07/03/17 08:48	07/12/17 02:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*10*	*	*25 - 150*	*07/03/17 08:48*	*07/12/17 02:38*	*1*
13C4 PFBA	*54*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:38*	*1*
13C2 PFHxA	*99*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:38*	*1*
13C4 PFOA	*121*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:38*	*1*
13C5 PFNA	*114*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:38*	*1*
13C2 PFDA	*127*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:38*	*1*
13C2 PFUnA	*102*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:38*	*1*
13C2 PFDoA	*106*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:38*	*1*
18O2 PFHxS	*122*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:38*	*1*
13C4 PFOS	*126*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:38*	*1*

Client Sample ID: OBG-MW-7

Lab Sample ID: 320-29302-15

Date Collected: 06/20/17 10:05

Matrix: Water

Date Received: 06/21/17 09:10

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4-PFHpA	129		25 - 150	07/03/17 08:48	07/12/17 02:38	1
13C5 PFPeA	85		25 - 150	07/03/17 08:48	07/12/17 02:38	1
M2-6:2FTS	134		25 - 150	07/03/17 08:48	07/12/17 02:38	1

Client Sample ID: B-24r

Lab Sample ID: 320-29302-16

Date Collected: 06/20/17 10:55

Matrix: Water

Date Received: 06/21/17 09:10

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**14**	**B**	1.9	0.43	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.93	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluorohexanoic acid (PFHxA)	**3.9**		1.9	0.74	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluoroheptanoic acid (PFHpA)	**1.7**	**J**	1.9	0.76	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluorooctanoic acid (PFOA)	**3.9**		1.9	0.70	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.62	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.41	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.70	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.55	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.52	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluorotetradecanoic acid (PFTeA)	ND	*	1.9	0.19	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluorobutanesulfonic acid (PFBS)	**3.7**		1.9	0.86	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluorohexanesulfonic acid (PFHxS)	**5.4**		1.9	0.82	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.67	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.1	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluorooctanesulfonic acid (PFOS)	**5.0**		1.9	1.2	ng/L		07/03/17 08:48	07/12/17 02:45	1
Perfluorooctane Sulfonamide (FOSA)	**0.66**	**J**	38	0.60	ng/L		07/03/17 08:48	07/12/17 02:45	1
6:2FTS	ND		19	3.6	ng/L		07/03/17 08:48	07/12/17 02:45	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	11	*	25 - 150	07/03/17 08:48	07/12/17 02:45	1
13C4 PFBA	36		25 - 150	07/03/17 08:48	07/12/17 02:45	1
13C2 PFHxA	78		25 - 150	07/03/17 08:48	07/12/17 02:45	1
13C4 PFOA	97		25 - 150	07/03/17 08:48	07/12/17 02:45	1
13C5 PFNA	88		25 - 150	07/03/17 08:48	07/12/17 02:45	1
13C2 PFDA	86		25 - 150	07/03/17 08:48	07/12/17 02:45	1
13C2 PFUnA	72		25 - 150	07/03/17 08:48	07/12/17 02:45	1
13C2 PFDoA	77		25 - 150	07/03/17 08:48	07/12/17 02:45	1
18O2 PFHxS	107		25 - 150	07/03/17 08:48	07/12/17 02:45	1
13C4 PFOS	113		25 - 150	07/03/17 08:48	07/12/17 02:45	1
13C4-PFHpA	105		25 - 150	07/03/17 08:48	07/12/17 02:45	1
13C5 PFPeA	70		25 - 150	07/03/17 08:48	07/12/17 02:45	1
M2-6:2FTS	98		25 - 150	07/03/17 08:48	07/12/17 02:45	1

Client Sample ID: OBG-MW-9

Lab Sample ID: 320-29302-17

Date Collected: 06/20/17 11:55

Matrix: Water

Date Received: 06/21/17 09:10

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.4**	**J B**	1.9	0.44	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.94	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.75	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.76	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluorooctanoic acid (PFOA)	**1.1**	**J**	1.9	0.71	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.62	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.42	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.71	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.55	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.52	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluorotetradecanoic acid (PFTeA)	ND	*	1.9	0.19	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluorobutanesulfonic acid (PFBS)	**2.0**		1.9	0.87	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluorohexanesulfonic acid (PFHxS)	**5.0**		1.9	0.83	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.68	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.1	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluorooctanesulfonic acid (PFOS)	**2.9**		1.9	1.2	ng/L		07/03/17 08:48	07/12/17 02:52	1
Perfluorooctane Sulfonamide (FOSA)	ND		38	0.61	ng/L		07/03/17 08:48	07/12/17 02:52	1
6:2FTS	ND		19	3.6	ng/L		07/03/17 08:48	07/12/17 02:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*6*	*	*25 - 150*	*07/03/17 08:48*	*07/12/17 02:52*	*1*
13C4 PFBA	*32*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:52*	*1*
13C2 PFHxA	*78*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:52*	*1*
13C4 PFOA	*110*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:52*	*1*
13C5 PFNA	*104*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:52*	*1*
13C2 PFDA	*101*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:52*	*1*
13C2 PFUnA	*84*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:52*	*1*
13C2 PFDoA	*83*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:52*	*1*
18O2 PFHxS	*109*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:52*	*1*
13C4 PFOS	*127*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:52*	*1*
13C4-PFHpA	*107*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:52*	*1*
13C5 PFPeA	*58*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:52*	*1*
M2-6:2FTS	*127*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:52*	*1*

Client Sample ID: B-28

Lab Sample ID: 320-29302-18

Date Collected: 06/20/17 12:15

Matrix: Water

Date Received: 06/21/17 09:10

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.9**	**B**	1.9	0.44	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.96	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluorohexanoic acid (PFHxA)	**0.92**	**J**	1.9	0.76	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.78	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluorooctanoic acid (PFOA)	**0.79**	**J**	1.9	0.73	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.63	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.43	ng/L		07/03/17 08:48	07/12/17 02:59	1

Client Sample ID: B-28

Lab Sample ID: 320-29302-18

Date Collected: 06/20/17 12:15

Matrix: Water

Date Received: 06/21/17 09:10

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.73	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.57	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.53	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluorotetradecanoic acid (PFTeA)	ND	*	1.9	0.19	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.89	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.84	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.69	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.2	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluorooctanesulfonic acid (PFOS)	**1.7**	**J**	1.9	1.2	ng/L		07/03/17 08:48	07/12/17 02:59	1
Perfluorooctane Sulfonamide (FOSA)	**1.2**	**J**	39	0.62	ng/L		07/03/17 08:48	07/12/17 02:59	1
6:2FTS	ND		19	3.7	ng/L		07/03/17 08:48	07/12/17 02:59	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*7*	*	*25 - 150*	*07/03/17 08:48*	*07/12/17 02:59*	*1*
13C4 PFBA	*72*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:59*	*1*
13C2 PFHxA	*108*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:59*	*1*
13C4 PFOA	*122*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:59*	*1*
13C5 PFNA	*101*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:59*	*1*
13C2 PFDA	*101*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:59*	*1*
13C2 PFUnA	*82*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:59*	*1*
13C2 PFDoA	*89*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:59*	*1*
18O2 PFHxS	*123*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:59*	*1*
13C4 PFOS	*126*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:59*	*1*
13C4-PFHpA	*126*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:59*	*1*
13C5 PFPeA	*98*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:59*	*1*
M2-6:2FTS	*146*		*25 - 150*	*07/03/17 08:48*	*07/12/17 02:59*	*1*

Client Sample ID: B-27D

Lab Sample ID: 320-29302-19

Date Collected: 06/20/17 12:18

Matrix: Water

Date Received: 06/21/17 09:10

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.0**	**B**	1.9	0.44	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.95	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.75	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.77	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.72	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.63	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.42	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluoroundecanoic acid (PFUnA)	**1.4**	**J**	1.9	0.72	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.56	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.53	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluorotetradecanoic acid (PFTeA)	ND	*	1.9	0.19	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.88	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.83	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.68	ng/L		07/03/17 08:48	07/12/17 03:06	1

Client Sample ID: B-27D

Date Collected: 06/20/17 12:18
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-19

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.2	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.2	ng/L		07/03/17 08:48	07/12/17 03:06	1
Perfluorooctane Sulfonamide (FOSA)	ND		38	0.61	ng/L		07/03/17 08:48	07/12/17 03:06	1
6:2FTS	ND		19	3.7	ng/L		07/03/17 08:48	07/12/17 03:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*1*	*	*25 - 150*	*07/03/17 08:48*	*07/12/17 03:06*	*1*
13C4 PFBA	*74*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:06*	*1*
13C2 PFHxA	*97*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:06*	*1*
13C4 PFOA	*113*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:06*	*1*
13C5 PFNA	*109*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:06*	*1*
13C2 PFDA	*119*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:06*	*1*
13C2 PFUnA	*104*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:06*	*1*
13C2 PFDoA	*97*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:06*	*1*
18O2 PFHxS	*116*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:06*	*1*
13C4 PFOS	*112*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:06*	*1*
13C4-PFHpA	*115*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:06*	*1*
13C5 PFPeA	*93*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:06*	*1*
M2-6:2FTS	*127*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:06*	*1*

Client Sample ID: B-18A

Date Collected: 06/20/17 14:10
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-20

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**4.2**	**B**	1.9	0.44	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.94	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.75	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.76	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluorooctanoic acid (PFOA)	**1.2**	**J**	1.9	0.71	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.62	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.42	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.71	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.56	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.52	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluorotetradecanoic acid (PFTeA)	ND	*	1.9	0.19	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.87	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.83	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.68	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.2	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluorooctanesulfonic acid (PFOS)	**1.3**	**J**	1.9	1.2	ng/L		07/03/17 08:48	07/12/17 03:13	1
Perfluorooctane Sulfonamide (FOSA)	ND		38	0.61	ng/L		07/03/17 08:48	07/12/17 03:13	1
6:2FTS	ND		19	3.6	ng/L		07/03/17 08:48	07/12/17 03:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*1*	*	*25 - 150*	*07/03/17 08:48*	*07/12/17 03:13*	*1*
13C4 PFBA	*76*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:13*	*1*
13C2 PFHxA	*105*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:13*	*1*
13C4 PFOA	*100*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:13*	*1*

Client Sample ID: B-18A

Date Collected: 06/20/17 14:10
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-20

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	80		25 - 150	07/03/17 08:48	07/12/17 03:13	1
13C2 PFDA	79		25 - 150	07/03/17 08:48	07/12/17 03:13	1
13C2 PFUnA	72		25 - 150	07/03/17 08:48	07/12/17 03:13	1
13C2 PFDoA	90		25 - 150	07/03/17 08:48	07/12/17 03:13	1
18O2 PFHxS	124		25 - 150	07/03/17 08:48	07/12/17 03:13	1
13C4 PFOS	118		25 - 150	07/03/17 08:48	07/12/17 03:13	1
13C4-PFHpA	115		25 - 150	07/03/17 08:48	07/12/17 03:13	1
13C5 PFPeA	98		25 - 150	07/03/17 08:48	07/12/17 03:13	1
M2-6:2FTS	128		25 - 150	07/03/17 08:48	07/12/17 03:13	1

Client Sample ID: B-9

Date Collected: 06/20/17 14:25
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-21

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**14**	**B**	1.9	0.45	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluoropentanoic acid (PFPeA)	**2.2**		1.9	0.96	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluorohexanoic acid (PFHxA)	**9.3**		1.9	0.77	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluoroheptanoic acid (PFHpA)	**4.2**		1.9	0.78	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluorooctanoic acid (PFOA)	**15**		1.9	0.73	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.64	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.43	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.73	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.57	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	0.54	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluorotetradecanoic acid (PFTeA)	**1.2**	**J B ***	1.9	0.19	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluorobutanesulfonic acid (PFBS)	**2.3**		1.9	0.89	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluorohexanesulfonic acid (PFHxS)	**6.9**		1.9	0.85	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.70**	**J**	1.9	0.69	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.2	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluorooctanesulfonic acid (PFOS)	**13**		1.9	1.2	ng/L		07/03/17 08:48	07/12/17 03:26	1
Perfluorooctane Sulfonamide (FOSA)	ND		39	0.62	ng/L		07/03/17 08:48	07/12/17 03:26	1
6:2FTS	ND		19	3.7	ng/L		07/03/17 08:48	07/12/17 03:26	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	0.6	*	25 - 150	07/03/17 08:48	07/12/17 03:26	1
13C4 PFBA	61		25 - 150	07/03/17 08:48	07/12/17 03:26	1
13C2 PFHxA	90		25 - 150	07/03/17 08:48	07/12/17 03:26	1
13C4 PFOA	106		25 - 150	07/03/17 08:48	07/12/17 03:26	1
13C5 PFNA	103		25 - 150	07/03/17 08:48	07/12/17 03:26	1
13C2 PFDA	99		25 - 150	07/03/17 08:48	07/12/17 03:26	1
13C2 PFUnA	80		25 - 150	07/03/17 08:48	07/12/17 03:26	1
13C2 PFDoA	85		25 - 150	07/03/17 08:48	07/12/17 03:26	1
18O2 PFHxS	105		25 - 150	07/03/17 08:48	07/12/17 03:26	1
13C4 PFOS	108		25 - 150	07/03/17 08:48	07/12/17 03:26	1
13C4-PFHpA	108		25 - 150	07/03/17 08:48	07/12/17 03:26	1

Client Sample ID: B-9
Date Collected: 06/20/17 14:25
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-21
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFPeA	*80*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:26*	*1*
M2-6:2FTS	*112*		*25 - 150*	*07/03/17 08:48*	*07/12/17 03:26*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctane Sulfonamide (FOSA)	3.3	J H	39	0.62	ng/L		07/25/17 08:56	07/27/17 15:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*3*	*	*25 - 150*	*07/25/17 08:56*	*07/27/17 15:58*	*1*

Isotope Dilution Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-29302-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	3C8 FOSA (25-150)	3C4 PFBA (25-150)	3C2 PFHx (25-150)	3C4 PFOA (25-150)	3C5 PFNA (25-150)	3C2 PFDA (25-150)	3C2 PFUn (25-150)	3C2 PFDo (25-150)
320-29302-1	SUMP A	13 *		19 *	24 *	28	51	56	53
320-29302-1 - DL	SUMP A		47						
320-29302-2	Vault A	1 *	31	58	66	68	67	42	34
320-29302-2 - DL	Vault A								
320-29302-3	SUMP B	10 *	3 *	8 *	19 *	27	43	50	48
320-29302-3 - DL	SUMP B		58	72					
320-29302-4	Vault B	0.8 *	49	80	96	85	80	63	57
320-29302-5	SUMP C	8 *			16 *	24 *	38	44	46
320-29302-5 - DL	SUMP C		45	75					
320-29302-6	Vault C	20 *	28	66	89	84	94	91	89
320-29302-6 - DL	Vault C								
320-29302-7	SUMP E	4 *	11 *	33	45	50	66	68	54
320-29302-7 - DL	SUMP E								
320-29302-8	Vault E	0.5 *	46	78	71	65	82	62	57
320-29302-8 - DL	Vault E								
320-29302-8 - RE	Vault E	1 *							
320-29302-9	SUMP F	4 *	4 *	15 *	29	39	55	66	59
320-29302-9 - DL	SUMP F								
320-29302-10	Vault F	0.5 *	52	96	111	91	96	75	63
320-29302-10 - RE	Vault F	1 *							
320-29302-10 MS	Vault F	0.8 *	47	73	73	61	50	27	20 *
320-29302-10 MS - RE	Vault F	1 *							
320-29302-10 MSD	Vault F	8 *	55	88	101	87	84	54	50
320-29302-10 MSD - RE	Vault F	2 *							
320-29302-11	DUP-1	1 *	53	88	87	88	103	77	67
320-29302-11 - DL	DUP-1								
320-29302-12	Vault D	1 *	19 *	63	90	88	104	81	76
320-29302-13	FB-01	3 *	100	97	107	108	118	102	96
320-29302-14	EB-01	29	110	118	129	123	137	133	151 *
320-29302-15	OBG-MW-7	10 *	54	99	121	114	127	102	106
320-29302-16	B-24r	11 *	36	78	97	88	86	72	77
320-29302-17	OBG-MW-9	6 *	32	78	110	104	101	84	83
320-29302-18	B-28	7 *	72	108	122	101	101	82	89
320-29302-19	B-27D	1 *	74	97	113	109	119	104	97
320-29302-20	B-18A	1 *	76	105	100	80	79	72	90
320-29302-21	B-9	0.6 *	61	90	106	103	99	80	85
320-29302-21 - RE	B-9	3 *							
LCS 320-172064/2-A	Lab Control Sample	24 *	98	93	107	102	110	98	89
LCS 320-172104/2-A	Lab Control Sample	78	112	109	116	110	125	108	110
LCS 320-175097/2-A	Lab Control Sample	7 *							
LCS 320-175739/2-A	Lab Control Sample	75							
LCSD 320-172104/3-A	Lab Control Sample Dup	82	108	108	115	111	122	105	109
LCSD 320-175097/3-A	Lab Control Sample Dup	25							
LCSD 320-175739/3-A	Lab Control Sample Dup	43							
MB 320-172064/1-A	Method Blank	27	96	99	107	97	112	101	90
MB 320-172104/1-A	Method Blank	75	110	105	116	116	129	114	110
MB 320-175097/1-A	Method Blank	51							
MB 320-175739/1-A	Method Blank	55							

Isotope Dilution Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-29302-1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	3O2 PFHx (25-150)	3C4 PFOS (25-150)	3C4-PFHp (25-150)	3C5 PFPe (25-150)	M2-6:2FTS (25-150)			
320-29302-1	SUMP A	53	43	24 *	16 *	37			
320-29302-1 - DL	SUMP A	83	91						
320-29302-2	Vault A	89	92	72	51	68			
320-29302-2 - DL	Vault A		108						
320-29302-3	SUMP B	44	40	14 *	9 *	43			
320-29302-3 - DL	SUMP B	93	102		78				
320-29302-4	Vault B	94	99	100	75	92			
320-29302-5	SUMP C		36	14 *		34			
320-29302-5 - DL	SUMP C	85	98		77				
320-29302-6	Vault C	99	116	84	56	94			
320-29302-6 - DL	Vault C		111						
320-29302-7	SUMP E	68	58	43	23 *	54			
320-29302-7 - DL	SUMP E		106						
320-29302-8	Vault E	105	107	89	70	75			
320-29302-8 - DL	Vault E		104						
320-29302-8 - RE	Vault E								
320-29302-9	SUMP F	52	50	23 *	11 *	44			
320-29302-9 - DL	SUMP F	92	106		80				
320-29302-10	Vault F	127	127	114	87	113			
320-29302-10 - RE	Vault F								
320-29302-10 MS	Vault F	98	97	81	69	84			
320-29302-10 MS - RE	Vault F								
320-29302-10 MSD	Vault F	132	127	112	83	117			
320-29302-10 MSD - RE	Vault F								
320-29302-11	DUP-1	117	116	107	82	78			
320-29302-11 - DL	DUP-1		111						
320-29302-12	Vault D	83	101	68	47	79			
320-29302-13	FB-01	114	111	111	99	109			
320-29302-14	EB-01	116	115	128	108	131			
320-29302-15	OBG-MW-7	122	126	129	85	134			
320-29302-16	B-24r	107	113	105	70	98			
320-29302-17	OBG-MW-9	109	127	107	58	127			
320-29302-18	B-28	123	126	126	98	146			
320-29302-19	B-27D	116	112	115	93	127			
320-29302-20	B-18A	124	118	115	98	128			
320-29302-21	B-9	105	108	108	80	112			
320-29302-21 - RE	B-9								
LCS 320-172064/2-A	Lab Control Sample	110	108	110	97	114			
LCS 320-172104/2-A	Lab Control Sample	119	113	115	102	122			
LCS 320-175097/2-A	Lab Control Sample								
LCS 320-175739/2-A	Lab Control Sample								
LCSD 320-172104/3-A	Lab Control Sample Dup	111	113	118	104	130			
LCSD 320-175097/3-A	Lab Control Sample Dup								
LCSD 320-175739/3-A	Lab Control Sample Dup								
MB 320-172064/1-A	Method Blank	111	103	104	95	106			
MB 320-172104/1-A	Method Blank	116	117	121	110	134			
MB 320-175097/1-A	Method Blank								
MB 320-175739/1-A	Method Blank								

Isotope Dilution Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-29302-1

Surrogate Legend

13C8 FOSA = 13C8 FOSA
13C4 PFBA = 13C4 PFBA
13C2 PFHxA = 13C2 PFHxA
13C4 PFOA = 13C4 PFOA
13C5 PFNA = 13C5 PFNA
13C2 PFDA = 13C2 PFDA
13C2 PFUnA = 13C2 PFUnA
13C2 PFDoA = 13C2 PFDoA
18O2 PFHxS = 18O2 PFHxS
13C4 PFOS = 13C4 PFOS
13C4-PFHpA = 13C4-PFHpA
13C5 PFPeA = 13C5 PFPeA
M2-6:2FTS = M2-6:2FTS

Method: 537 (modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-172064/1-A
Matrix: Water
Analysis Batch: 173915

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 172064

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.15	J	2.0	0.46	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.99	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.79	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.80	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.75	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.44	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.75	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.58	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluorotridecanoic Acid (PFTriA)	0.627	J	2.0	0.55	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluorotetradecanoic acid (PFTeA)	0.890	J	2.0	0.20	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.71	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	1.2	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		07/01/17 15:26	07/13/17 06:21	1
Perfluorooctane Sulfonamide (FOSA)	0.825	J	40	0.64	ng/L		07/01/17 15:26	07/13/17 06:21	1
6:2FTS	ND		20	3.8	ng/L		07/01/17 15:26	07/13/17 06:21	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*27*		*25 - 150*	*07/01/17 15:26*	*07/13/17 06:21*	*1*
13C4 PFBA	*96*		*25 - 150*	*07/01/17 15:26*	*07/13/17 06:21*	*1*
13C2 PFHxA	*99*		*25 - 150*	*07/01/17 15:26*	*07/13/17 06:21*	*1*
13C4 PFOA	*107*		*25 - 150*	*07/01/17 15:26*	*07/13/17 06:21*	*1*
13C5 PFNA	*97*		*25 - 150*	*07/01/17 15:26*	*07/13/17 06:21*	*1*
13C2 PFDA	*112*		*25 - 150*	*07/01/17 15:26*	*07/13/17 06:21*	*1*
13C2 PFUnA	*101*		*25 - 150*	*07/01/17 15:26*	*07/13/17 06:21*	*1*
13C2 PFDoA	*90*		*25 - 150*	*07/01/17 15:26*	*07/13/17 06:21*	*1*
18O2 PFHxS	*111*		*25 - 150*	*07/01/17 15:26*	*07/13/17 06:21*	*1*
13C4 PFOS	*103*		*25 - 150*	*07/01/17 15:26*	*07/13/17 06:21*	*1*
13C4-PFHpA	*104*		*25 - 150*	*07/01/17 15:26*	*07/13/17 06:21*	*1*
13C5 PFPeA	*95*		*25 - 150*	*07/01/17 15:26*	*07/13/17 06:21*	*1*
M2-6:2FTS	*106*		*25 - 150*	*07/01/17 15:26*	*07/13/17 06:21*	*1*

Lab Sample ID: LCS 320-172064/2-A
Matrix: Water
Analysis Batch: 173915

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 172064

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	45.8		ng/L		114	74 - 138
Perfluoropentanoic acid (PFPeA)	40.0	40.1		ng/L		100	69 - 134
Perfluorohexanoic acid (PFHxA)	40.0	42.8		ng/L		107	70 - 136
Perfluoroheptanoic acid (PFHpA)	40.0	43.5		ng/L		109	63 - 135
Perfluorooctanoic acid (PFOA)	40.0	37.2		ng/L		93	63 - 141
Perfluorononanoic acid (PFNA)	40.0	42.2		ng/L		105	71 - 140
Perfluorodecanoic acid (PFDA)	40.0	41.7		ng/L		104	66 - 141
Perfluoroundecanoic acid (PFUnA)	40.0	41.2		ng/L		103	68 - 139

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 320-172064/2-A
Matrix: Water
Analysis Batch: 173915

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 172064

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorododecanoic acid (PFDoA)	40.0	41.6		ng/L		104	71 - 139
Perfluorotridecanoic Acid (PFTriA)	40.0	44.7		ng/L		112	51 - 139
Perfluorotetradecanoic acid (PFTeA)	40.0	49.5		ng/L		124	47 - 130
Perfluorobutanesulfonic acid (PFBS)	35.4	34.9		ng/L		99	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	36.4	38.9		ng/L		107	58 - 138
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	45.8		ng/L		120	32 - 170
Perfluorodecanesulfonic acid (PFDS)	38.6	37.2		ng/L		97	35 - 157
Perfluorooctanesulfonic acid (PFOS)	37.1	38.3		ng/L		103	47 - 162
Perfluorooctane Sulfonamide (FOSA)	40.0	42.6		ng/L		106	59 - 163
6:2FTS	37.9	45.4		ng/L		120	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*24*	*	*25 - 150*
13C4 PFBA	*98*		*25 - 150*
13C2 PFHxA	*93*		*25 - 150*
13C4 PFOA	*107*		*25 - 150*
13C5 PFNA	*102*		*25 - 150*
13C2 PFDA	*110*		*25 - 150*
13C2 PFUnA	*98*		*25 - 150*
13C2 PFDoA	*89*		*25 - 150*
18O2 PFHxS	*110*		*25 - 150*
13C4 PFOS	*108*		*25 - 150*
13C4-PFHpA	*110*		*25 - 150*
13C5 PFPeA	*97*		*25 - 150*
M2-6:2FTS	*114*		*25 - 150*

Lab Sample ID: 320-29302-10 MS
Matrix: Water
Analysis Batch: 174098

Client Sample ID: Vault F
Prep Type: Total/NA
Prep Batch: 172064

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	6.8	B	38.9	47.5		ng/L		105	74 - 138
Perfluoropentanoic acid (PFPeA)	15		38.9	53.6		ng/L		98	69 - 134
Perfluorohexanoic acid (PFHxA)	13		38.9	50.4		ng/L		95	70 - 136
Perfluoroheptanoic acid (PFHpA)	12		38.9	53.2		ng/L		106	63 - 135
Perfluorooctanoic acid (PFOA)	57		38.9	98.7		ng/L		106	63 - 141
Perfluorononanoic acid (PFNA)	1.2	J	38.9	42.7		ng/L		107	71 - 140
Perfluorodecanoic acid (PFDA)	ND		38.9	41.5		ng/L		107	66 - 141
Perfluoroundecanoic acid (PFUnA)	ND		38.9	45.1		ng/L		116	68 - 139
Perfluorododecanoic acid (PFDoA)	ND		38.9	39.1		ng/L		101	71 - 139

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: 320-29302-10 MS
Matrix: Water
Analysis Batch: 174098

Client Sample ID: Vault F
Prep Type: Total/NA
Prep Batch: 172064

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorotridecanoic Acid (PFTriA)	ND		38.9	43.3		ng/L		111	51 - 139
Perfluorotetradecanoic acid (PFTeA)	ND	F1	38.9	70.0	F1	ng/L		180	47 - 130
Perfluorobutanesulfonic acid (PFBS)	12		34.4	42.2		ng/L		87	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	35		35.4	75.3		ng/L		115	58 - 138
Perfluoroheptanesulfonic Acid (PFHpS)	7.3		37.0	51.8		ng/L		120	32 - 170
Perfluorodecanesulfonic acid (PFDS)	ND		37.5	37.3		ng/L		100	35 - 157
Perfluorooctanesulfonic acid (PFOS)	300		36.1	334	4	ng/L		100	47 - 162
Perfluorooctane Sulfonamide (FOSA)	ND		38.9	51.6		ng/L		133	59 - 163
6:2FTS	ND		36.9	45.0		ng/L		122	60 - 140

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C8 FOSA	*0.8*	*	*25 - 150*
13C4 PFBA	*47*		*25 - 150*
13C2 PFHxA	*73*		*25 - 150*
13C4 PFOA	*73*		*25 - 150*
13C5 PFNA	*61*		*25 - 150*
13C2 PFDA	*50*		*25 - 150*
13C2 PFUnA	*27*		*25 - 150*
13C2 PFDoA	*20*	*	*25 - 150*
18O2 PFHxS	*98*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
13C4-PFHpA	*81*		*25 - 150*
13C5 PFPeA	*69*		*25 - 150*
M2-6:2FTS	*84*		*25 - 150*

Lab Sample ID: 320-29302-10 MSD
Matrix: Water
Analysis Batch: 174098

Client Sample ID: Vault F
Prep Type: Total/NA
Prep Batch: 172064

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	6.8	B	39.0	47.8		ng/L		105	74 - 138	1	30
Perfluoropentanoic acid (PFPeA)	15		39.0	56.0		ng/L		104	69 - 134	4	30
Perfluorohexanoic acid (PFHxA)	13		39.0	55.8		ng/L		109	70 - 136	10	30
Perfluoroheptanoic acid (PFHpA)	12		39.0	53.6		ng/L		107	63 - 135	1	30
Perfluorooctanoic acid (PFOA)	57		39.0	98.1		ng/L		104	63 - 141	1	30
Perfluorononanoic acid (PFNA)	1.2	J	39.0	42.7		ng/L		107	71 - 140	0	30
Perfluorodecanoic acid (PFDA)	ND		39.0	39.6		ng/L		102	66 - 141	5	30
Perfluoroundecanoic acid (PFUnA)	ND		39.0	43.1		ng/L		111	68 - 139	5	30
Perfluorododecanoic acid (PFDoA)	ND		39.0	40.0		ng/L		103	71 - 139	2	30
Perfluorotridecanoic Acid (PFTriA)	ND		39.0	46.8		ng/L		120	51 - 139	8	30

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: 320-29302-10 MSD
Matrix: Water
Analysis Batch: 174098

Client Sample ID: Vault F
Prep Type: Total/NA
Prep Batch: 172064

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorotetradecanoic acid (PFTeA)	ND	F1	39.0	61.8	F1	ng/L		158	47 - 130	13	30
Perfluorobutanesulfonic acid (PFBS)	12		34.5	41.4		ng/L		84	55 - 147	2	30
Perfluorohexanesulfonic acid (PFHxS)	35		35.5	68.5		ng/L		95	58 - 138	9	30
Perfluoroheptanesulfonic Acid (PFHpS)	7.3		37.1	52.8		ng/L		123	32 - 170	2	30
Perfluorodecanesulfonic acid (PFDS)	ND		37.6	39.1		ng/L		104	35 - 157	5	30
Perfluorooctanesulfonic acid (PFOS)	300		36.2	343	4	ng/L		125	47 - 162	3	30
Perfluorooctane Sulfonamide (FOSA)	ND		39.0	48.5		ng/L		125	59 - 163	6	30
6:2FTS	ND		36.9	42.6		ng/L		115	60 - 140	6	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C8 FOSA	*8*	*	*25 - 150*
13C4 PFBA	*55*		*25 - 150*
13C2 PFHxA	*88*		*25 - 150*
13C4 PFOA	*101*		*25 - 150*
13C5 PFNA	*87*		*25 - 150*
13C2 PFDA	*84*		*25 - 150*
13C2 PFUnA	*54*		*25 - 150*
13C2 PFDoA	*50*		*25 - 150*
18O2 PFHxS	*132*		*25 - 150*
13C4 PFOS	*127*		*25 - 150*
13C4-PFHpA	*112*		*25 - 150*
13C5 PFPeA	*83*		*25 - 150*
M2-6:2FTS	*117*		*25 - 150*

Lab Sample ID: MB 320-172104/1-A
Matrix: Water
Analysis Batch: 173630

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 172104

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.644	J	2.0	0.46	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.99	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.79	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.80	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.75	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.44	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.75	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.58	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	0.55	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluorotetradecanoic acid (PFTeA)	0.720	J	2.0	0.20	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		07/03/17 08:48	07/12/17 00:55	1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: MB 320-172104/1-A
Matrix: Water
Analysis Batch: 173630

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 172104

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.71	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	1.2	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		07/03/17 08:48	07/12/17 00:55	1
Perfluorooctane Sulfonamide (FOSA)	ND		40	0.64	ng/L		07/03/17 08:48	07/12/17 00:55	1
6:2FTS	ND		20	3.8	ng/L		07/03/17 08:48	07/12/17 00:55	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*75*		*25 - 150*	*07/03/17 08:48*	*07/12/17 00:55*	*1*
13C4 PFBA	*110*		*25 - 150*	*07/03/17 08:48*	*07/12/17 00:55*	*1*
13C2 PFHxA	*105*		*25 - 150*	*07/03/17 08:48*	*07/12/17 00:55*	*1*
13C4 PFOA	*116*		*25 - 150*	*07/03/17 08:48*	*07/12/17 00:55*	*1*
13C5 PFNA	*116*		*25 - 150*	*07/03/17 08:48*	*07/12/17 00:55*	*1*
13C2 PFDA	*129*		*25 - 150*	*07/03/17 08:48*	*07/12/17 00:55*	*1*
13C2 PFUnA	*114*		*25 - 150*	*07/03/17 08:48*	*07/12/17 00:55*	*1*
13C2 PFDoA	*110*		*25 - 150*	*07/03/17 08:48*	*07/12/17 00:55*	*1*
18O2 PFHxS	*116*		*25 - 150*	*07/03/17 08:48*	*07/12/17 00:55*	*1*
13C4 PFOS	*117*		*25 - 150*	*07/03/17 08:48*	*07/12/17 00:55*	*1*
13C4-PFHpA	*121*		*25 - 150*	*07/03/17 08:48*	*07/12/17 00:55*	*1*
13C5 PFPeA	*110*		*25 - 150*	*07/03/17 08:48*	*07/12/17 00:55*	*1*
M2-6:2FTS	*134*		*25 - 150*	*07/03/17 08:48*	*07/12/17 00:55*	*1*

Lab Sample ID: LCS 320-172104/2-A
Matrix: Water
Analysis Batch: 173630

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 172104

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	43.1		ng/L		108	74 - 138
Perfluoropentanoic acid (PFPeA)	40.0	41.8		ng/L		104	69 - 134
Perfluorohexanoic acid (PFHxA)	40.0	41.9		ng/L		105	70 - 136
Perfluoroheptanoic acid (PFHpA)	40.0	42.8		ng/L		107	63 - 135
Perfluorooctanoic acid (PFOA)	40.0	39.0		ng/L		97	63 - 141
Perfluorononanoic acid (PFNA)	40.0	43.5		ng/L		109	71 - 140
Perfluorodecanoic acid (PFDA)	40.0	42.4		ng/L		106	66 - 141
Perfluoroundecanoic acid (PFUnA)	40.0	41.9		ng/L		105	68 - 139
Perfluorododecanoic acid (PFDoA)	40.0	40.2		ng/L		101	71 - 139
Perfluorotridecanoic Acid (PFTriA)	40.0	39.5		ng/L		99	51 - 139
Perfluorotetradecanoic acid (PFTeA)	40.0	51.0		ng/L		127	47 - 130
Perfluorobutanesulfonic acid (PFBS)	35.4	33.5		ng/L		95	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	36.4	38.3		ng/L		105	58 - 138
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	44.0		ng/L		115	32 - 170
Perfluorodecanesulfonic acid (PFDS)	38.6	39.4		ng/L		102	35 - 157

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 320-172104/2-A
Matrix: Water
Analysis Batch: 173630

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 172104

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	37.1	40.9		ng/L		110	47 - 162
Perfluorooctane Sulfonamide (FOSA)	40.0	42.5		ng/L		106	59 - 163
6:2FTS	37.9	47.2		ng/L		124	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*78*		*25 - 150*
13C4 PFBA	*112*		*25 - 150*
13C2 PFHxA	*109*		*25 - 150*
13C4 PFOA	*116*		*25 - 150*
13C5 PFNA	*110*		*25 - 150*
13C2 PFDA	*125*		*25 - 150*
13C2 PFUnA	*108*		*25 - 150*
13C2 PFDoA	*110*		*25 - 150*
18O2 PFHxS	*119*		*25 - 150*
13C4 PFOS	*113*		*25 - 150*
13C4-PFHpA	*115*		*25 - 150*
13C5 PFPeA	*102*		*25 - 150*
M2-6:2FTS	*122*		*25 - 150*

Lab Sample ID: LCSD 320-172104/3-A
Matrix: Water
Analysis Batch: 173630

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 172104

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	44.8		ng/L		112	74 - 138	4	30
Perfluoropentanoic acid (PFPeA)	40.0	42.4		ng/L		106	69 - 134	1	30
Perfluorohexanoic acid (PFHxA)	40.0	41.2		ng/L		103	70 - 136	2	30
Perfluoroheptanoic acid (PFHpA)	40.0	41.8		ng/L		104	63 - 135	2	30
Perfluorooctanoic acid (PFOA)	40.0	38.3		ng/L		96	63 - 141	2	30
Perfluorononanoic acid (PFNA)	40.0	41.6		ng/L		104	71 - 140	5	30
Perfluorodecanoic acid (PFDA)	40.0	43.4		ng/L		108	66 - 141	2	30
Perfluoroundecanoic acid (PFUnA)	40.0	44.0		ng/L		110	68 - 139	5	30
Perfluorododecanoic acid (PFDoA)	40.0	40.3		ng/L		101	71 - 139	0	30
Perfluorotridecanoic Acid (PFTriA)	40.0	43.3		ng/L		108	51 - 139	9	30
Perfluorotetradecanoic acid (PFTeA)	40.0	56.7	*	ng/L		142	47 - 130	11	30
Perfluorobutanesulfonic acid (PFBS)	35.4	36.3		ng/L		103	55 - 147	8	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	42.7		ng/L		117	58 - 138	11	30
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	44.8		ng/L		118	32 - 170	2	30
Perfluorodecanesulfonic acid (PFDS)	38.6	36.8		ng/L		95	35 - 157	7	30
Perfluorooctanesulfonic acid (PFOS)	37.1	39.0		ng/L		105	47 - 162	5	30

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320-172104/3-A
Matrix: Water
Analysis Batch: 173630

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 172104

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctane Sulfonamide (FOSA)			40.0	42.5		ng/L		106	59 - 163	0	30
6:2FTS			37.9	43.2		ng/L		114	60 - 140	9	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*82*		*25 - 150*
13C4 PFBA	*108*		*25 - 150*
13C2 PFHxA	*108*		*25 - 150*
13C4 PFOA	*115*		*25 - 150*
13C5 PFNA	*111*		*25 - 150*
13C2 PFDA	*122*		*25 - 150*
13C2 PFUnA	*105*		*25 - 150*
13C2 PFDoA	*109*		*25 - 150*
18O2 PFHxS	*111*		*25 - 150*
13C4 PFOS	*113*		*25 - 150*
13C4-PFHpA	*118*		*25 - 150*
13C5 PFPeA	*104*		*25 - 150*
M2-6:2FTS	*130*		*25 - 150*

Lab Sample ID: MB 320-175097/1-A
Matrix: Water
Analysis Batch: 175529

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 175097

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctane Sulfonamide (FOSA)	ND		40	0.64	ng/L		07/20/17 10:13	07/23/17 14:39	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*51*		*25 - 150*	*07/20/17 10:13*	*07/23/17 14:39*	*1*

Lab Sample ID: LCS 320-175097/2-A
Matrix: Water
Analysis Batch: 175529

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 175097

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perfluorobutanoic acid (PFBA)			40.0	43.9		ng/L		110	74 - 138		
Perfluoropentanoic acid (PFPeA)			40.0	40.4		ng/L		101	69 - 134		
Perfluorohexanoic acid (PFHxA)			40.0	41.9		ng/L		105	70 - 136		
Perfluoroheptanoic acid (PFHpA)			40.0	42.1		ng/L		105	63 - 135		
Perfluorooctanoic acid (PFOA)			40.0	39.8		ng/L		100	63 - 141		
Perfluorononanoic acid (PFNA)			40.0	42.2		ng/L		105	71 - 140		
Perfluorodecanoic acid (PFDA)			40.0	42.6		ng/L		107	66 - 141		
Perfluoroundecanoic acid (PFUnA)			40.0	41.4		ng/L		104	68 - 139		
Perfluorododecanoic acid (PFDoA)			40.0	46.3		ng/L		116	71 - 139		
Perfluorotridecanoic Acid (PFTriA)			40.0	54.0		ng/L		135	51 - 139		
Perfluorotetradecanoic acid (PFTeA)			40.0	73.6	*	ng/L		184	47 - 130		

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 320-175097/2-A
Matrix: Water
Analysis Batch: 175529

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 175097

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanesulfonic acid (PFBS)	35.4	39.2		ng/L		111	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.8		ng/L		98	58 - 138
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	44.5		ng/L		117	32 - 170
Perfluorodecanesulfonic acid (PFDS)	38.6	42.5		ng/L		110	35 - 157
Perfluorooctanesulfonic acid (PFOS)	37.1	38.2		ng/L		103	47 - 162
Perfluorooctane Sulfonamide (FOSA)	40.0	43.1		ng/L		108	59 - 163
6:2FTS	37.9	44.6		ng/L		118	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	7	*	25 - 150

Lab Sample ID: LCSD 320-175097/3-A
Matrix: Water
Analysis Batch: 175529

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 175097

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	45.8		ng/L		114	74 - 138	4	30
Perfluoropentanoic acid (PFPeA)	40.0	43.1		ng/L		108	69 - 134	6	30
Perfluorohexanoic acid (PFHxA)	40.0	43.2		ng/L		108	70 - 136	3	30
Perfluoroheptanoic acid (PFHpA)	40.0	42.3		ng/L		106	63 - 135	0	30
Perfluorooctanoic acid (PFOA)	40.0	41.6		ng/L		104	63 - 141	4	30
Perfluorononanoic acid (PFNA)	40.0	40.9		ng/L		102	71 - 140	3	30
Perfluorodecanoic acid (PFDA)	40.0	39.8		ng/L		100	66 - 141	7	30
Perfluoroundecanoic acid (PFUnA)	40.0	42.6		ng/L		107	68 - 139	3	30
Perfluorododecanoic acid (PFDoA)	40.0	45.0		ng/L		113	71 - 139	3	30
Perfluorotridecanoic Acid (PFTriA)	40.0	48.6		ng/L		122	51 - 139	10	30
Perfluorotetradecanoic acid (PFTeA)	40.0	68.4	*	ng/L		171	47 - 130	7	30
Perfluorobutanesulfonic acid (PFBS)	35.4	39.5		ng/L		112	55 - 147	1	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.3		ng/L		97	58 - 138	1	30
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	45.3		ng/L		119	32 - 170	2	30
Perfluorodecanesulfonic acid (PFDS)	38.6	43.3		ng/L		112	35 - 157	2	30
Perfluorooctanesulfonic acid (PFOS)	37.1	41.3		ng/L		111	47 - 162	8	30
Perfluorooctane Sulfonamide (FOSA)	40.0	44.6		ng/L		112	59 - 163	3	30
6:2FTS	37.9	49.4		ng/L		130	60 - 140	10	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C8 FOSA	25		25 - 150

Lab Sample ID: MB 320-175739/1-A
Matrix: Water
Analysis Batch: 176414

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 175739

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctane Sulfonamide (FOSA)	ND		40	0.64	ng/L		07/25/17 08:54	07/27/17 15:38	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	55		25 - 150	07/25/17 08:54	07/27/17 15:38	1

Lab Sample ID: LCS 320-175739/2-A
Matrix: Water
Analysis Batch: 176414

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 175739

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctane Sulfonamide (FOSA)	40.0	46.9		ng/L		117	59 - 163

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C8 FOSA	75		25 - 150

Lab Sample ID: LCSD 320-175739/3-A
Matrix: Water
Analysis Batch: 176414

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 175739

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctane Sulfonamide (FOSA)	40.0	44.3		ng/L		111	59 - 163	6	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C8 FOSA	43		25 - 150

Method: 537 (modified) - Perfluorinated Hydrocarbons - RE

Lab Sample ID: 320-29302-10 MS
Matrix: Water
Analysis Batch: 175529

Client Sample ID: Vault F
Prep Type: Total/NA
Prep Batch: 175097

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctane Sulfonamide (FOSA) - RE	22	J H	37.6	58.0	H	ng/L		97	59 - 163

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C8 FOSA - RE	1	*	25 - 150

Lab Sample ID: 320-29302-10 MSD
Matrix: Water
Analysis Batch: 175529

Client Sample ID: Vault F
Prep Type: Total/NA
Prep Batch: 175097

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctane Sulfonamide (FOSA) - RE	22	J H	38.5	53.1	H	ng/L		82	59 - 163	9	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C8 FOSA - RE	2	*	25 - 150

LCMS

Prep Batch: 172064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29302-1 - DL	SUMP A	Total/NA	Water	3535	
320-29302-1	SUMP A	Total/NA	Water	3535	
320-29302-2	Vault A	Total/NA	Water	3535	
320-29302-2 - DL	Vault A	Total/NA	Water	3535	
320-29302-3	SUMP B	Total/NA	Water	3535	
320-29302-3 - DL	SUMP B	Total/NA	Water	3535	
320-29302-4	Vault B	Total/NA	Water	3535	
320-29302-5	SUMP C	Total/NA	Water	3535	
320-29302-5 - DL	SUMP C	Total/NA	Water	3535	
320-29302-6 - DL	Vault C	Total/NA	Water	3535	
320-29302-6	Vault C	Total/NA	Water	3535	
320-29302-7	SUMP E	Total/NA	Water	3535	
320-29302-7 - DL	SUMP E	Total/NA	Water	3535	
320-29302-8 - DL	Vault E	Total/NA	Water	3535	
320-29302-8	Vault E	Total/NA	Water	3535	
320-29302-9 - DL	SUMP F	Total/NA	Water	3535	
320-29302-9	SUMP F	Total/NA	Water	3535	
320-29302-10	Vault F	Total/NA	Water	3535	
320-29302-11 - DL	DUP-1	Total/NA	Water	3535	
320-29302-11	DUP-1	Total/NA	Water	3535	
320-29302-12	Vault D	Total/NA	Water	3535	
320-29302-13	FB-01	Total/NA	Water	3535	
MB 320-172064/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-172064/2-A	Lab Control Sample	Total/NA	Water	3535	
320-29302-10 MS	Vault F	Total/NA	Water	3535	
320-29302-10 MSD	Vault F	Total/NA	Water	3535	

Prep Batch: 172104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29302-14	EB-01	Total/NA	Water	3535	
320-29302-15	OBG-MW-7	Total/NA	Water	3535	
320-29302-16	B-24r	Total/NA	Water	3535	
320-29302-17	OBG-MW-9	Total/NA	Water	3535	
320-29302-18	B-28	Total/NA	Water	3535	
320-29302-19	B-27D	Total/NA	Water	3535	
320-29302-20	B-18A	Total/NA	Water	3535	
320-29302-21	B-9	Total/NA	Water	3535	
MB 320-172104/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-172104/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-172104/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 173630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29302-14	EB-01	Total/NA	Water	537 (modified)	172104
320-29302-15	OBG-MW-7	Total/NA	Water	537 (modified)	172104
320-29302-16	B-24r	Total/NA	Water	537 (modified)	172104
320-29302-17	OBG-MW-9	Total/NA	Water	537 (modified)	172104
320-29302-18	B-28	Total/NA	Water	537 (modified)	172104
320-29302-19	B-27D	Total/NA	Water	537 (modified)	172104
320-29302-20	B-18A	Total/NA	Water	537 (modified)	172104
320-29302-21	B-9	Total/NA	Water	537 (modified)	172104

LCMS (Continued)

Analysis Batch: 173630 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-172104/1-A	Method Blank	Total/NA	Water	537 (modified)	172104
LCS 320-172104/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	172104
LCSD 320-172104/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	172104

Analysis Batch: 173915

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29302-1	SUMP A	Total/NA	Water	537 (modified)	172064
320-29302-2	Vault A	Total/NA	Water	537 (modified)	172064
MB 320-172064/1-A	Method Blank	Total/NA	Water	537 (modified)	172064
LCS 320-172064/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	172064

Analysis Batch: 174098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29302-3	SUMP B	Total/NA	Water	537 (modified)	172064
320-29302-5	SUMP C	Total/NA	Water	537 (modified)	172064
320-29302-6	Vault C	Total/NA	Water	537 (modified)	172064
320-29302-7	SUMP E	Total/NA	Water	537 (modified)	172064
320-29302-8	Vault E	Total/NA	Water	537 (modified)	172064
320-29302-9	SUMP F	Total/NA	Water	537 (modified)	172064
320-29302-10	Vault F	Total/NA	Water	537 (modified)	172064
320-29302-11	DUP-1	Total/NA	Water	537 (modified)	172064
320-29302-13	FB-01	Total/NA	Water	537 (modified)	172064
320-29302-10 MS	Vault F	Total/NA	Water	537 (modified)	172064
320-29302-10 MSD	Vault F	Total/NA	Water	537 (modified)	172064

Analysis Batch: 174615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29302-1 - DL	SUMP A	Total/NA	Water	537 (modified)	172064
320-29302-2 - DL	Vault A	Total/NA	Water	537 (modified)	172064
320-29302-3 - DL	SUMP B	Total/NA	Water	537 (modified)	172064
320-29302-5 - DL	SUMP C	Total/NA	Water	537 (modified)	172064
320-29302-6 - DL	Vault C	Total/NA	Water	537 (modified)	172064
320-29302-7 - DL	SUMP E	Total/NA	Water	537 (modified)	172064
320-29302-9 - DL	SUMP F	Total/NA	Water	537 (modified)	172064

Analysis Batch: 174619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29302-8 - DL	Vault E	Total/NA	Water	537 (modified)	172064
320-29302-11 - DL	DUP-1	Total/NA	Water	537 (modified)	172064

Analysis Batch: 174622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29302-4	Vault B	Total/NA	Water	537 (modified)	172064
320-29302-12	Vault D	Total/NA	Water	537 (modified)	172064

Prep Batch: 175097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29302-8 - RE	Vault E	Total/NA	Water	3535	
320-29302-10 - RE	Vault F	Total/NA	Water	3535	
MB 320-175097/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-175097/2-A	Lab Control Sample	Total/NA	Water	3535	

LCMS (Continued)

Prep Batch: 175097 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 320-175097/3-A	Lab Control Sample Dup	Total/NA	Water	3535	
320-29302-10 MS - RE	Vault F	Total/NA	Water	3535	
320-29302-10 MSD - RE	Vault F	Total/NA	Water	3535	

Analysis Batch: 175529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29302-8 - RE	Vault E	Total/NA	Water	537 (modified)	175097
320-29302-10 - RE	Vault F	Total/NA	Water	537 (modified)	175097
MB 320-175097/1-A	Method Blank	Total/NA	Water	537 (modified)	175097
LCS 320-175097/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	175097
LCSD 320-175097/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	175097
320-29302-10 MS - RE	Vault F	Total/NA	Water	537 (modified)	175097
320-29302-10 MSD - RE	Vault F	Total/NA	Water	537 (modified)	175097

Prep Batch: 175739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29302-21 - RE	B-9	Total/NA	Water	3535	
MB 320-175739/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-175739/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-175739/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 176414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29302-21 - RE	B-9	Total/NA	Water	537 (modified)	175739
MB 320-175739/1-A	Method Blank	Total/NA	Water	537 (modified)	175739
LCS 320-175739/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	175739
LCSD 320-175739/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	175739

Client Sample ID: SUMP A

Lab Sample ID: 320-29302-1

Date Collected: 06/19/17 11:40

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			257 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			173915	07/13/17 07:16	SBC	TAL SAC
Total/NA	Prep	3535	DL		257 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)	DL	50			174615	07/17/17 12:15	SBC	TAL SAC

Client Sample ID: Vault A

Lab Sample ID: 320-29302-2

Date Collected: 06/19/17 12:10

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			257.1 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			173915	07/13/17 07:23	SBC	TAL SAC
Total/NA	Prep	3535	DL		257.1 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)	DL	5			174615	07/17/17 12:43	SBC	TAL SAC

Client Sample ID: SUMP B

Lab Sample ID: 320-29302-3

Date Collected: 06/19/17 13:00

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			255.1 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			174098	07/13/17 07:37	SBC	TAL SAC
Total/NA	Prep	3535	DL		255.1 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)	DL	100			174615	07/17/17 12:01	SBC	TAL SAC

Client Sample ID: Vault B

Lab Sample ID: 320-29302-4

Date Collected: 06/19/17 13:55

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			252.6 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			174622	07/17/17 16:05	SBC	TAL SAC

Client Sample ID: SUMP C

Lab Sample ID: 320-29302-5

Date Collected: 06/19/17 14:15

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			257.3 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			174098	07/13/17 07:51	SBC	TAL SAC
Total/NA	Prep	3535	DL		257.3 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)	DL	100			174615	07/17/17 12:08	SBC	TAL SAC

Client Sample ID: Vault C

Lab Sample ID: 320-29302-6

Date Collected: 06/19/17 14:45

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			262 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			174098	07/13/17 07:58	SBC	TAL SAC
Total/NA	Prep	3535	DL		262 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)	DL	5			174615	07/17/17 12:49	SBC	TAL SAC

Client Sample ID: SUMP E

Lab Sample ID: 320-29302-7

Date Collected: 06/19/17 16:25

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			258 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			174098	07/13/17 08:05	SBC	TAL SAC
Total/NA	Prep	3535	DL		258 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)	DL	20			174615	07/17/17 12:29	SBC	TAL SAC

Client Sample ID: Vault E

Lab Sample ID: 320-29302-8

Date Collected: 06/19/17 16:50

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			258.5 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			174098	07/13/17 08:12	SBC	TAL SAC
Total/NA	Prep	3535	DL		258.5 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)	DL	5			174619	07/17/17 14:28	SBC	TAL SAC
Total/NA	Prep	3535	RE		250.9 mL	0.50 mL	175097	07/20/17 10:13	CCB	TAL SAC
Total/NA	Analysis	537 (modified)	RE	1			175529	07/23/17 16:44	SBC	TAL SAC

Client Sample ID: SUMP F

Lab Sample ID: 320-29302-9

Date Collected: 06/19/17 17:15

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			254.2 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			174098	07/13/17 08:19	SBC	TAL SAC
Total/NA	Prep	3535	DL		254.2 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)	DL	50			174615	07/17/17 12:22	SBC	TAL SAC

Client Sample ID: Vault F

Lab Sample ID: 320-29302-10

Date Collected: 06/19/17 17:40

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			262.1 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC

Lab Chronicle

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-29302-1

Client Sample ID: Vault F

Date Collected: 06/19/17 17:40
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	537 (modified)		1			174098	07/13/17 08:25	SBC	TAL SAC
Total/NA	Prep	3535	RE		259 mL	0.50 mL	175097	07/20/17 10:13	CCB	TAL SAC
Total/NA	Analysis	537 (modified)	RE	1			175529	07/23/17 16:57	SBC	TAL SAC

Client Sample ID: DUP-1

Date Collected: 06/19/17 00:00
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			254.2 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			174098	07/13/17 08:53	SBC	TAL SAC
Total/NA	Prep	3535	DL		254.2 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)	DL	5			174619	07/17/17 14:35	SBC	TAL SAC

Client Sample ID: Vault D

Date Collected: 06/19/17 18:20
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			245.8 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			174622	07/17/17 16:32	SBC	TAL SAC

Client Sample ID: FB-01

Date Collected: 06/19/17 18:25
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			259.1 mL	0.50 mL	172064	07/01/17 15:26	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			174098	07/13/17 09:07	SBC	TAL SAC

Client Sample ID: EB-01

Date Collected: 06/20/17 16:25
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			253.2 mL	0.5 mL	172104	07/03/17 08:48	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			173630	07/12/17 02:31	SBC	TAL SAC

Client Sample ID: OBG-MW-7

Lab Sample ID: 320-29302-15
Date Collected: 06/20/17 10:05
Matrix: Water
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			258.3 mL	0.5 mL	172104	07/03/17 08:48	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			173630	07/12/17 02:38	SBC	TAL SAC

Client Sample ID: B-24r

Lab Sample ID: 320-29302-16
Date Collected: 06/20/17 10:55
Matrix: Water
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			265.5 mL	0.5 mL	172104	07/03/17 08:48	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			173630	07/12/17 02:45	SBC	TAL SAC

Client Sample ID: OBG-MW-9

Lab Sample ID: 320-29302-17
Date Collected: 06/20/17 11:55
Matrix: Water
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			263.1 mL	0.5 mL	172104	07/03/17 08:48	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			173630	07/12/17 02:52	SBC	TAL SAC

Client Sample ID: B-28

Lab Sample ID: 320-29302-18
Date Collected: 06/20/17 12:15
Matrix: Water
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			257.8 mL	0.5 mL	172104	07/03/17 08:48	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			173630	07/12/17 02:59	SBC	TAL SAC

Client Sample ID: B-27D

Lab Sample ID: 320-29302-19
Date Collected: 06/20/17 12:18
Matrix: Water
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			261 mL	0.5 mL	172104	07/03/17 08:48	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			173630	07/12/17 03:06	SBC	TAL SAC

Client Sample ID: B-18A

Lab Sample ID: 320-29302-20
Date Collected: 06/20/17 14:10
Matrix: Water
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			262.7 mL	0.5 mL	172104	07/03/17 08:48	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			173630	07/12/17 03:13	SBC	TAL SAC

Client Sample ID: B-9

Date Collected: 06/20/17 14:25
Date Received: 06/21/17 09:10

Lab Sample ID: 320-29302-21

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			256.8 mL	0.5 mL	172104	07/03/17 08:48	J1S	TAL SAC
Total/NA	Analysis	537 (modified)		1			173630	07/12/17 03:26	SBC	TAL SAC
Total/NA	Prep	3535	RE		256.3 mL	0.50 mL	175739	07/25/17 08:56	J1S	TAL SAC
Total/NA	Analysis	537 (modified)	RE	1			176414	07/27/17 15:58	SBC	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-29302-1

Laboratory: TestAmerica Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Oregon	NELAP	10	4040	01-28-18

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	3535	Water	6:2FTS
537 (modified)	3535	Water	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	3535	Water	Perfluorobutanoic acid (PFBA)
537 (modified)	3535	Water	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	3535	Water	Perfluorodecanoic acid (PFDA)
537 (modified)	3535	Water	Perfluorododecanoic acid (PFDoA)
537 (modified)	3535	Water	Perfluoroheptanesulfonic Acid (PFHpS)
537 (modified)	3535	Water	Perfluoroheptanoic acid (PFHpA)
537 (modified)	3535	Water	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	3535	Water	Perfluorohexanoic acid (PFHxA)
537 (modified)	3535	Water	Perfluorononanoic acid (PFNA)
537 (modified)	3535	Water	Perfluorooctane Sulfonamide (FOSA)
537 (modified)	3535	Water	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	3535	Water	Perfluorooctanoic acid (PFOA)
537 (modified)	3535	Water	Perfluoropentanoic acid (PFPeA)
537 (modified)	3535	Water	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	3535	Water	Perfluorotridecanoic Acid (PFTriA)
537 (modified)	3535	Water	Perfluoroundecanoic acid (PFUnA)

Method Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-29302-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-29302-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-29302-1	SUMP A	Water	06/19/17 11:40	06/21/17 09:10
320-29302-2	Vault A	Water	06/19/17 12:10	06/21/17 09:10
320-29302-3	SUMP B	Water	06/19/17 13:00	06/21/17 09:10
320-29302-4	Vault B	Water	06/19/17 13:55	06/21/17 09:10
320-29302-5	SUMP C	Water	06/19/17 14:15	06/21/17 09:10
320-29302-6	Vault C	Water	06/19/17 14:45	06/21/17 09:10
320-29302-7	SUMP E	Water	06/19/17 16:25	06/21/17 09:10
320-29302-8	Vault E	Water	06/19/17 16:50	06/21/17 09:10
320-29302-9	SUMP F	Water	06/19/17 17:15	06/21/17 09:10
320-29302-10	Vault F	Water	06/19/17 17:40	06/21/17 09:10
320-29302-11	DUP-1	Water	06/19/17 00:00	06/21/17 09:10
320-29302-12	Vault D	Water	06/19/17 18:20	06/21/17 09:10
320-29302-13	FB-01	Water	06/19/17 18:25	06/21/17 09:10
320-29302-14	EB-01	Water	06/20/17 16:25	06/21/17 09:10
320-29302-15	OBG-MW-7	Water	06/20/17 10:05	06/21/17 09:10
320-29302-16	B-24r	Water	06/20/17 10:55	06/21/17 09:10
320-29302-17	OBG-MW-9	Water	06/20/17 11:55	06/21/17 09:10
320-29302-18	B-28	Water	06/20/17 12:15	06/21/17 09:10
320-29302-19	B-27D	Water	06/20/17 12:18	06/21/17 09:10
320-29302-20	B-18A	Water	06/20/17 14:10	06/21/17 09:10
320-29302-21	B-9	Water	06/20/17 14:25	06/21/17 09:10

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone (916) 373-5600 Fax (916) 372-1059

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin Schneider	Lab PM: Kellmann, Jill	Carrier Tracking No(s): FEDEX 7869 4022 7549	COC No: 320-16107-3760.2
Client Contact: Mr. Clifford Yantz	Phone: 734-306-9685	E-Mail: jill.kellmann@testamericainc.com		Page: Page 2 of 3 1 of 3
Company: O'Brien & Gere Inc of North America				Job #:

Address: 37000 Grand River Ave Suite 260	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Farmington Hills	TAT Requested (days): a week		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: MI, 48335	PO #: 11700138		
Phone: 248-477-5701(Tel)	WO #:		Other:
Email: yantzcs@obg.com	Project #: 32008780		
Project Name: PFC Analysis RACER Coldwater Rd LF	SSOW#:		
Site: Coldwater Rd Landfill			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - (MOD) PFAS, Standard List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
SUMP A	6/19/17	1140	G	Water	N	N	X		
Vault A		1210		Water			X		
SUMP B		1300		Water			X		
Vault B		1355		Water			X		
SUMP C		1415		Water			X		
Vault C		1445		Water			X		
~~SUMP D~~		~~1515~~		Water			~~X~~		
~~Vault D~~		~~1540~~		Water			~~X~~		
SUMP E		1625		Water			X		
Vault E		1650		Water			X		
SUMP F	↓	1715	↓	Water	↓	↓	X		

320-29302 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
[X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [ ] Radiological	[ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment: FEDEX

Relinquished by: K SCL OBG	Date/Time: 6/20/17 1735	Company: OBG	Received by: FEDEX overnight	Date/Time: 6/20/17 1735	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 6/21/17 910	Company TAMS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 6.0

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7/3/2017

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone (916) 373-5600 Fax (916) 372-1059

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin Schneider	Lab PM: Kellmann, Jill	Carrier Tracking No(s): FEDEX 7869 4022 7542	COC No: 320-16107-3760.1
Client Contact: Mr. Clifford Yantz	Phone: 734-306-9685	E-Mail: jill.kellmann@testamericainc.com		Page: Page 1 of 3 ~~2 of 2~~
Company: O'Brien & Gere Inc of North America				Job #:

Address: 37000 Grand River Ave Suite 260	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Farmington Hills	TAT Requested (days): 2 week		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: MI, 48335			
Phone: 248-477-5701(Tel)	PO #: 11700138		
Email: yantzcs@obg.com	WO #:		Other:
Project Name: PFC Analysis RACER Coldwater Rd LF	Project #: 32008780		
Site: Coldwater Rd Landfill	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - (MOD) PFAS, Standard List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
Vault F	6/19/17	1740	G	Water	N	Y	X		(MS/MSD)
DUP-1	6/19/17	—	G	Water	N	N	X		
Vault D	6/19/17	1820	G	Water	N	N	X		
FB-01	6/19/17	1825	G	Water	N	N	X		Field Blank
EB-01	6/20/17	1625	G	Water	N	N	X		Equipment Blank
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment: FEDEX

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature] OBG	6/20/17 1735	OBG	FEDEX Overnight	6/20/17 1775	
Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 6/21/17 910	Company TAS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 6.0

7/3/2017

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone (916) 373-5600 Fax (916) 372-1059

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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State, Zip: MI, 48335			
Phone: 248-477-5701(Tel)	PO #: 11700138		
Email: yantzcs@obg.com	WO #:		Other:
Project Name: PFC Analysis RACER coldwater Rd LF	Project #: 32008780		
Site: coldwater Rd Landfill	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - (MOD) PFAS, Standard List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
OBG-MW-7	6/20/17	1005	G	Water	N	N	X		
B-24r		1055		Water			X		
OBG-MW-9		1155		Water			X		
B-28		1215		Water			X		
B-27D		1218		Water			X		
B-18A		1410		Water			X		
B-9		1425		Water			X		
				Water					
				Water					
				Water					

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: JC SCC OBG	Date/Time: 6/20/17 1735	Company: OBG	Received by: FEDEX overnight	Date/Time: 6/20/17 1735	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 6/21/17 910	Company TAS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 6.0

Login Sample Receipt Checklist

Client: O'Brien & Gere Inc of North America

Job Number: 320-29302-1

Login Number: 29302
List Number: 1
Creator: Turpen, Troy

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

OBG

THERE'S A WAY