

OBG | There's a way

December 14, 2018

Mr. Michael Belveg
NYSDEC
Regional Enforcement Coordinator
Region 7
615 Erie Blvd. West
Syracuse, NY 13204

RE: Emerging Contaminant Sampling
Former Accurate Die Casting Site (Site #7-34-052)
Fayetteville, New York
FILE: Obg-Lim.3902/45845

Dear Mr. Belveg,

This letter report summarizes the results of the sampling and analysis of per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane at the former Accurate Die Casting site (the Site) in Fayetteville, New York. Activities summarized in this report were completed in accordance with the New York State Department of Environmental Conservation (NYSDEC) guidance document *Groundwater Sampling for Emerging Contaminants* (NYSDEC, July 2018).

BACKGROUND

The detection of 1,4-dioxane and PFAS in drinking water supplies in New York State has been widely publicized over the past several years. Neither NYSDEC nor the United States Environmental Protection Agency (USEPA) have issued regulatory standards for 1,4-dioxane or PFAS in groundwater or drinking water. However, USEPA issued a drinking water lifetime health advisory (LHA) for two perfluoroalkyl compounds (perfluorooctanoic acid [PFOA] and perfluorooctanesulfonic acid [PFOS]) in May 2016 that is 70 nanograms per liter (ng/L), individually or combined. This advisory has been adopted by the New York State Department of Health (NYSDOH).

1,4-Dioxane is most often associated with 1,1,1-trichloroethane (TCA) in which it was used as a stabilizer. Based on review of Site data, trichloroethene (TCE) and cis-1,2-dichloroethene (cDCE) are the dominant constituents of concern at the Site.

PFAS have been used in many residential, commercial, and industrial products, and their occurrence is widespread. The two most widely known PFAS are PFOA and PFOS. PFAS are predominantly associated with the storage, training and/or use of aqueous film-forming foam (AFFF) for flammable liquids, although other uses for PFAS are noted. Some of these uses include the manufacture of specialty/coated fabrics, paper and carpet, and in products used for waterproofing and stain resistance. None of this is known to be associated with the historic operations at the Site.



GROUNDWATER SAMPLING

The PFAS and 1,4-dioxane samples were collected on November 19 and 20, 2018 from three monitoring wells (bedrock well MW-11, and overburden wells MW-14 and MW-18). The monitoring well locations are shown on **Figure 1**.

Passive diffusion bags (PDBs) from previous VOC sampling events were present in the wells. These were removed approximately six weeks prior to the PFAS and 1,4-dioxane sampling to help reduce potential cross-contamination. Each well was purged and sampled via conventional methods using a dedicated PVC bailer with Delrin® ball valve suspended by a nylon-coated, stainless steel wire. Prior to purging at each well location, a water level measurement was recorded using a water level probe that was thoroughly decontaminated using PFAS-free water and Alconox® detergent.

Water quality parameters including temperature, conductivity, and pH, were measured using a Hanna 991301 water quality meter. The measured water quality parameters and water levels were recorded on groundwater sampling forms (**Attachment A**) along with visual and olfactory observations noted at the start and end of purging.

The PFAS and 1,4-dioxane groundwater samples were collected directly from the dedicated bailers into the laboratory-provided bottleware. PFAS samples were collected in certified PFAS-free bottles, immediately capped, labelled, and placed into a cooler containing ice before collecting the 1,4-dioxane samples. Additionally, the PFAS were stored separately from the 1,4-dioxane samples. The sample identifier, location, date, time, and sample collector were recorded on the groundwater sampling log and a chain-of-custody form. Sample coolers were delivered to the TestAmerica (TA) Service Center in Syracuse, New York. The PFAS samples were shipped to the TA facility in Burlington, Vermont, and the 1,4-dioxane samples were shipped to the TA facility in Buffalo, New York.

Several QC samples were also collected, including a field duplicate (FD), matrix spike (MS), and matrix spike duplicate (MSD) for PFAS and 1,4-dioxane analyses. For the PFAS analyses, a field reagent blank (FRB) was also collected.¹ Additionally, an equipment blank (EB) sample was collected for PFAS and 1,4-dioxane analyses from a new bailer, unused bailer using PFAS-free water.

For the PFAS analyses, TA analyzed the groundwater samples and associated QC samples in accordance with USEPA Method 537 (modified) for the 21 PFAS analytes. For the 1,4-dioxane samples, TA used USEPA Method 8270D with selected ion monitoring (SIM). The laboratory provided a full category B deliverable per the NYSDEC analysis and reporting guidelines. The analytical data package is provided in **Attachment B**.

GROUNDWATER SAMPLE RESULTS

The analytical results from the November 2018 sampling event are presented in **Table 1**. The following observations are based on a review of the analytical results.

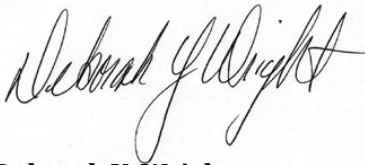
- 1,4-Dioxane was not detected in any of the groundwater samples or the QC samples.

¹ The FRB is PFAS-free water supplied by the laboratory that is transferred into an empty laboratory-supplied container in the field.

- PFOS was detected in MW-14 and its associated field duplicate at concentrations of 2.9 and 3.2 ng/L, respectively, which are well below the LHA of 70 ng/L.
- PFOA was detected in MW-11, MW-14, and MW-18 at estimated concentrations of 0.88 ng/L, 1.6 ng/L, and 0.34 ng/L, respectively, each well below the LHA of 70 ng/L.
- Other PFAS constituents were detected in each monitoring well at concentrations ranging from an estimated concentration of 0.22 ng/L and 3.5 ng/L.

If you have any questions regarding these data, please do not hesitate to contact me at your earliest convenience.

Very truly yours,
O'BRIEN & GERE ENGINEERS, INC.



Deborah Y. Wright
Senior Managing Scientist

I:\Obj-Lim.3902\45845.Itt-Acc-Die-O-A\N-D\Emerging Contaminant Sampling\EC_Letter_Report.docx

Table 1
Former Accurate Die Casting Site (Site #7-34-052)
Fayetteville, New York

1,4-Dioxane and PFAS Analytical Summary

	Sample ID	MW-11-111918	MW-14-112018	MW-18-111918	EB-111918	X-1-112018	FRB-111918
	Sample Date	11/19/2018	11/20/2018	11/19/2018	11/19/2018	11/20/2018	11/19/2018
Analyte	CAS Number	Units					
1,4-Dioxane	123-91-1	ug/L	<0.10	<0.10	<0.10	<0.10	NA
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	39108-34-4	ng/L	<0.56	<0.50	<0.48	<0.51	<0.48
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	27619-97-2	ng/L	<1.0	<0.90	<0.86	<0.92	<0.86
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	ng/L	<0.70	1.2 J	<0.60	<0.64	1.4 J
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2355-31-9	ng/L	<0.45	<0.40	<0.39	<0.41	<0.38
Perfluorobutanesulfonic acid (PFBS)	375-73-5	ng/L	<0.44	0.51 J	<0.38	<0.40	0.47 J
Perfluorobutanoic acid (PFBA)	375-22-4	ng/L	2.0	3.5	0.88 J	<0.38	1.7 J
Perfluorodecanesulfonic acid (PFDS)	335-77-3	ng/L	<0.53	<0.48	<0.46	<0.49	<0.55
Perfluorodecanoic acid (PFDA)	335-76-2	ng/L	<0.38	<0.34	<0.33	<0.35	0.40 J
Perfluorododecanoic acid (PFDoA)	307-55-1	ng/L	<0.35	<0.31	<0.30	<0.32	<0.37
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	ng/L	<0.82	<0.74	<0.71	<0.75	<0.86
Perfluoroheptanoic acid (PFHpA)	375-85-9	ng/L	<0.32	0.78 J	<0.28	<0.29	1.1 J
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	ng/L	<0.26	0.26 J	<0.22	<0.24	<0.27
Perfluorohexanoic acid (PFHxA)	307-24-4	ng/L	0.82 J	1.1 J	0.35 J	<0.22	1.4 J
Perfluorononanoic acid (PFNA)	375-95-1	ng/L	<0.38	0.35 J	<0.33	<0.35	0.45 J
Perfluorooctanesulfonamide (PFOSA)	754-91-6	ng/L	<0.56	<0.50	<0.48	<0.51	<0.59
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	ng/L	<0.76	2.9	<0.65	<0.70	3.2
Perfluorooctanoic acid (PFOA)	335-67-1	ng/L	0.88 J	1.6 J	0.34 J	<0.29	2.5
Perfluoropentanoic acid (PFPeA)	2706-90-3	ng/L	1.5 J	2.8	<0.65	<0.69	0.86 J
Perfluorotetradecanoic acid (PFTeA)	376-06-7	ng/L	<0.45	<0.40	<0.39	<0.41	<0.47
Perfluorotridecanoic acid (PFTriA)	72629-94-8	ng/L	<0.24	<0.22	<0.21	<0.22	<0.25
Perfluoroundecanoic acid (PFUnA)	2058-94-8	ng/L	<0.25	0.22 J B	<0.22	<0.23	0.37 J B

Notes: ng/L - nanograms per liter

ug/L - micrograms per liter

J - Result is less than the reporting limit but greater than or equal to the method detection limit and the concentrations is an approximate value

B - Compound was found in the blank and sample

BOLD - Detected concentration

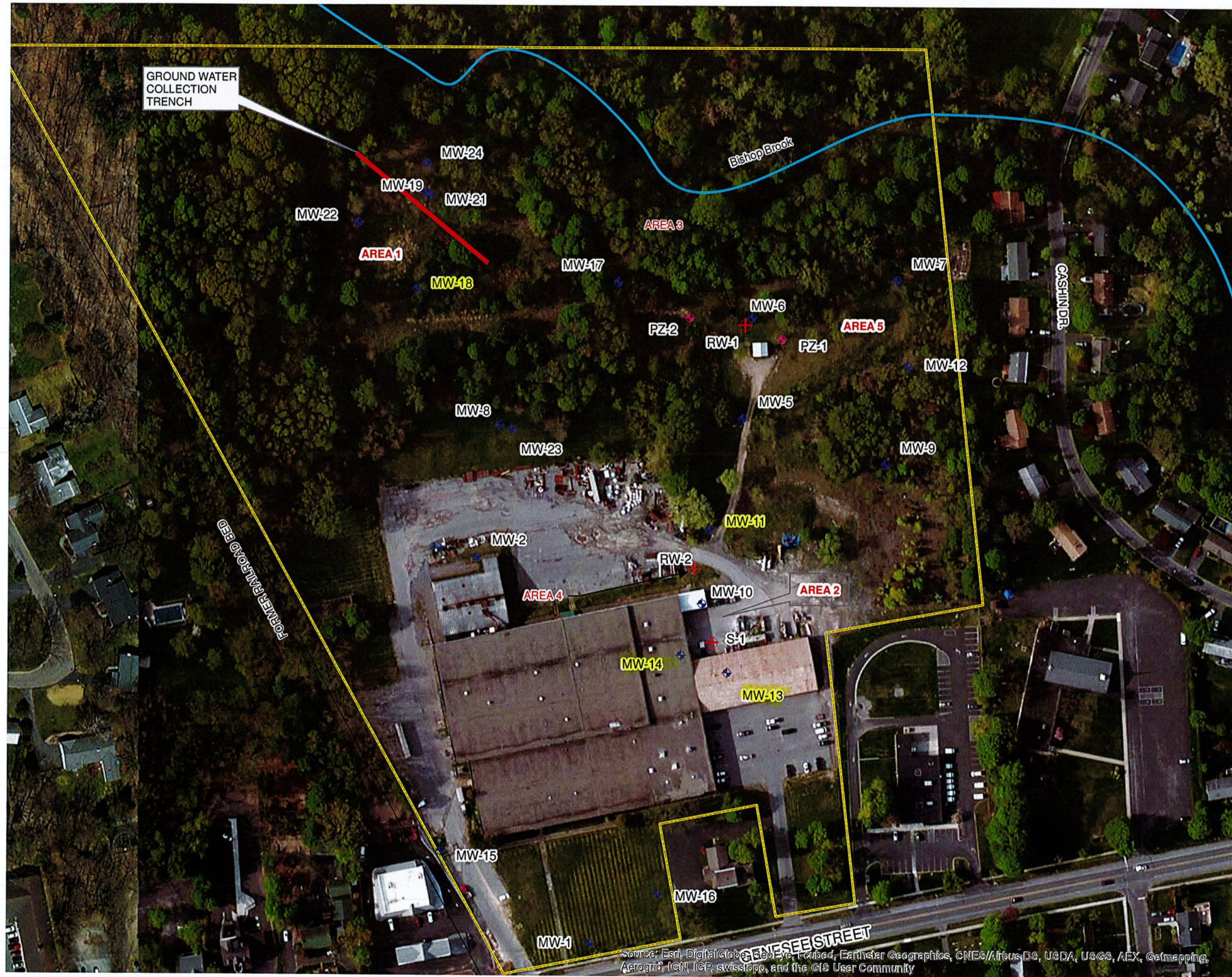
EB-111918 - Equipment Blank sample

X-1 - Blind Duplicate sample (Parent sample is MW-14-112018)

FRB-111918 - Field Reagent Blank sample

NA - Not applicable





Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

FIGURE 1



LEGEND

PROPERTY LINE (approximate)

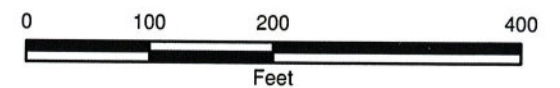
SAMPLE TYPE

- MONITORING WELL
- PIEZOMETER
- RECOVERY WELL

FORMER ACCURATE
DIE CASTING SITE
FAYETTEVILLE, NEW YORK

SITE CODE 7-34-052

SITE PLAN



NOVEMBER 2013
2488.45845



Groundwater Sampling Logs

**Conventional Groundwater Sampling Log**Well ID: **MW-11**

Project No.: 45845 Evacuation Method: Dedicated Bailer Field Personnel: SGM/CYV
Site Name: Fromer Accurate Die Casting Sampling Method: Conventional Date: 11/19/2018
Site Loc.: Fayetteville, NY Equipment Used: PVC Bailer - Dedicated Weather: 45 Deg F, Overcast

Well Information:

Depth of Well: <u>50.55</u> ft. bmp*	Well Vol. / ft. of casing by diameter:	* Measurement Point:
Depth to Water: <u>39.98</u> ft. bmp*	☐ 1" Well = 0.041 X LWC	☐ Well Casing
Length of Water Column (LWC): <u>10.57</u> ft.	☒ 2" Well = 0.163 X LWC	☒ Protective Casing
Well Volume: <u>1.72</u> gal.	☐ 4" Well = 0.653 X LWC	☐ Other: _____
3X Well Volume: <u>5.16</u> gal.	☐ 6" Well = 1.469 X LWC	

Purge Start Time: <u>10:45</u>	Volume removed before sampling: <u>~5.16</u> gal.
Purge End Time: <u>11:16</u>	Did the well go dry?: <u>yes / no</u>

Groundwater Parameters:

	Volume Purged: (gallons)	Temperature: (Celcius)	pH: (S.I. Units)	Conductivity: mS/cm	Other: Turbidity
<i>Initial:</i>	<u>0</u>	<u>11.1</u>	<u>9.92</u>	<u>0.98</u>	<u><100</u>
	<u>1</u>	<u>11.8</u>	<u>8.75</u>	<u>1.08</u>	<u><100</u>
	<u>2</u>	<u>11.6</u>	<u>7.57</u>	<u>1.15</u>	<u><100</u>
	<u>3</u>	<u>11.5</u>	<u>7.58</u>	<u>1.15</u>	<u><100</u>
	_____	_____	_____	_____	_____
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	_____	_____	_____	_____	_____

Groundwater Sample:Time Collected: 11:20Physical Appearance at Start:

Color: Clear
Odor: No
Turbidity (> 100 NTU): No
Sheen/Free Product: No

Physical Appearance Upon Sampling:

Color: Clear
Odor: No
Turbidity (> 100 NTU): No
Sheen/Free Product: No

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Analysis
1 L	Amber	6	N	None	1,4-Dioxane
250 ml	Poly	6	N	None	PFAS

Notes: ** MS/MSD Collected

*** Equipment Blank Collected prior to purging well at 10:25



Conventional Groundwater Sampling Log

Well ID: **MW-14**

Project No.: 45845 Evacuation Method: Dedicated Bailer Field Personnel: SGM/CYV
Site Name: Former Accurate Die Casting Sampling Method: Conventional Date: 11/19/2018 - 11/20/2018
Site Loc.: Fayetteville, NY Equipment Used: PVC Bailer - Dedicated Weather: 44 Deg F, Overcast

Well Information:

Depth of Well: 23.8 ft. bmp* Well Vol. / ft. of casing by diameter: * Measurement Point:
Depth to Water: 17.94 ft. bmp* ☐ 1" Well = 0.041 X LWC ☐ Well Casing
Length of Water Column (LWC): 5.96 ft. ☒ 2" Well = 0.163 X LWC ☒ Protective Casing
Well Volume: 0.96 gal. ☐ 4" Well = 0.653 X LWC ☐ Other: _____
3X Well Volume: 2.88 gal. ☐ 6" Well = 1.469 X LWC

Purge Start Time: 12:50 Volume removed before sampling: ~3.0 gal.
Purge End Time: 07:30** Did the well go dry?: **yes** / no

Groundwater Parameters:

	Volume Purged: (gallons)	Temperature: (Celcius)	pH: (S.I. Units)	Conductivity: mS/cm	Other: Turbidity
Initial:	<u>0</u>	<u>12.1</u>	<u>7.55</u>	<u>1.23</u>	<u><100</u>
	<u>1</u>	<u>11.6</u>	<u>7.6</u>	<u>1.22</u>	<u>>100</u>
	<u>2</u>	<u>10.7</u>	<u>7.54</u>	<u>1.16</u>	<u>>100</u>
	<u>3</u>	<u>DRY</u>	<u>DRY</u>	<u>DRY</u>	<u>DRY</u>
	_____	_____	_____	_____	_____
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	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____

Groundwater Sample:

Time Collected: 7:30Physical Appearance at Start:

Color: Clear
Odor: No
Turbidity (> 100 NTU): No
Sheen/Free Product: No

Physical Appearance Upon Sampling:

Color: Clear
Odor: No
Turbidity (> 100 NTU): No
Sheen/Free Product: No

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Analysis
1 L	Amber	4	N	None	1,4-Dioxane
250 ml	Poly	4	N	None	PFAS

Notes: ** Well purged dry on 11-19-2018; allowed to recover overnight, and was sampled on the morning of 11-20-2018.

***X-1 collected

Project No.:	45845	Evacuation Method:	Dedicated Bailer	Field Personnel:	SGM/CYV
Site Name:	Former Accurate Die Casting	Sampling Method:	Conventional	Date:	11/19/2018
Site Loc.:	Fayetteville, NY	Equipment Used:	PVC Bailer - Dedicated	Weather:	45 Deg F, Overcast

Well Information:

Depth of Well:	<u>15.95</u>	ft. bmp*	Well Vol. / ft. of casing by diameter:	* Measurement Point:
Depth to Water:	<u>6</u>	ft. bmp*	☐ 1" Well = 0.041 X LWC	☐ Well Casing
Length of Water Column (LWC):	<u>9.95</u>	ft.	☒ 2" Well = 0.163 X LWC	☒ Protective Casing
Well Volume:	<u>1.62</u>	gal.	☐ 4" Well = 0.653 X LWC	☐ Other: _____
3X Well Volume:	<u>4.86</u>	gal.	☐ 6" Well = 1.469 X LWC	

Purge Start Time: 9:30 Volume removed before sampling: ~5.0 gal.

Purge End Time: 9:55 Did the well go dry?: yes / no

Groundwater Parameters:

[illegible]

Groundwater Sample:

Time Collected: 10:00

Physical Appearance at Start:

Color:	Clear
Odor:	No
Turbidity (> 100 NTU):	No
Sheen/Free Product:	No

Physical Appearance Upon Sampling:

Color:	Transparent Brown
Odor:	No
Turbidity (> 100 NTU):	No
Sheen/Free Product:	No

Samples collected:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Analysis
1 L	Amber	2	N	None	1,4-Dioxane
250 ml	Poly	2	N	None	PFAS

Notes: ** FRB Collected at 09:25



Analytical Data Package

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-145576-1

Client Project/Site: Former Accurate Die Cast

For:

O'Brien & Gere Inc of North America

333 West Washington St.

PO BOX 4873

East Syracuse, New York 13221

Attn: Mr. David J Carnevale



Authorized for release by:

12/11/2018 9:15:19 AM

Mary Schwartzmyer, Project Manager I

mary.schwartzmyer@testamericainc.com

Designee for

Melissa Deyo, Project Manager I

(716)504-9874

melissa.deyo@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	Isotope Dilution analyte is outside acceptance limits.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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)

Case Narrative

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Job ID: 480-145576-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-145576-1

Receipt

The samples were received on 11/21/2018 1:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1° C.

GC/MS Semi VOA

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

LCMS

Method(s) 537 (modified): M2-6:2 FTS and/or M2-8:2 FTS Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: MW-14-112018 (480-145576-5) and X-1-112018 (480-145576-6). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): The method blank for preparation batch 200-137460 and analytical batch 200-137534 contained Perfluoroundecanoic acid (PFUnA) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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

Organic Prep

Method(s) 3510C: The following samples: MW-14-112018 (480-145576-5) and X-1-112018 (480-145576-6) was decanted prior to preparation.

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: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Client Sample ID: FRB-111918

Lab Sample ID: 480-145576-1

No Detections.

Client Sample ID: MW-18-111918

Lab Sample ID: 480-145576-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.88	J	1.7	0.35	ng/L	1			537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.35	J	1.7	0.21	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	0.34	J	1.7	0.28	ng/L	1			537 (modified)	Total/NA

Client Sample ID: EB-111918

Lab Sample ID: 480-145576-3

No Detections.

Client Sample ID: MW-11-111918

Lab Sample ID: 480-145576-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.0		2.0	0.41	ng/L	1			537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.82	J	2.0	0.24	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	0.88	J	2.0	0.32	ng/L	1			537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.5	J	2.0	0.75	ng/L	1			537 (modified)	Total/NA

Client Sample ID: MW-14-112018

Lab Sample ID: 480-145576-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
N-ethylperfluorooctanesulfonamidoacetic acid (NETFOSAA)	1.2	J	18	0.63	ng/L	1			537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.51	J	1.8	0.39	ng/L	1			537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	3.5		1.8	0.37	ng/L	1			537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.78	J	1.8	0.29	ng/L	1			537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.26	J	1.8	0.23	ng/L	1			537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.1	J	1.8	0.22	ng/L	1			537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.35	J	1.8	0.34	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.9		1.8	0.68	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.6	J	1.8	0.29	ng/L	1			537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.8		1.8	0.67	ng/L	1			537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.22	J B	1.8	0.22	ng/L	1			537 (modified)	Total/NA

Client Sample ID: X-1-112018

Lab Sample ID: 480-145576-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
N-ethylperfluorooctanesulfonamidoacetic acid (NETFOSAA)	1.4	J	21	0.73	ng/L	1			537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.47	J	2.1	0.46	ng/L	1			537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	1.7	J	2.1	0.43	ng/L	1			537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.40	J	2.1	0.40	ng/L	1			537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.1	J	2.1	0.33	ng/L	1			537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.4	J	2.1	0.25	ng/L	1			537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.45	J	2.1	0.40	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.2		2.1	0.80	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.5		2.1	0.33	ng/L	1			537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.86	J	2.1	0.78	ng/L	1			537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.37	J B	2.1	0.26	ng/L	1			537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Client Sample ID: FRB-111918

Lab Sample ID: 480-145576-1

Date Collected: 11/19/18 09:25

Matrix: Water

Date Received: 11/21/18 01:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		17	0.48	ng/L		11/28/18 09:45	11/30/18 00:15	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		17	0.86	ng/L		11/28/18 09:45	11/30/18 00:15	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		17	0.60	ng/L		11/28/18 09:45	11/30/18 00:15	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		17	0.38	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.38	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluorobutanoic acid (PFBA)	ND		1.7	0.35	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.45	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.33	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.30	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.7	0.70	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.27	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.22	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.21	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.33	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.48	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.65	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.27	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluoropentanoic acid (PFPeA)	ND		1.7	0.64	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.38	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7	0.21	ng/L		11/28/18 09:45	11/30/18 00:15	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.21	ng/L		11/28/18 09:45	11/30/18 00:15	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	88		25 - 150	11/28/18 09:45	11/30/18 00:15	1
13C2 PFDoA	80		25 - 150	11/28/18 09:45	11/30/18 00:15	1
13C2 PFHxA	77		25 - 150	11/28/18 09:45	11/30/18 00:15	1
13C2 PFTeDA	74		25 - 150	11/28/18 09:45	11/30/18 00:15	1
13C2 PFUnA	90		25 - 150	11/28/18 09:45	11/30/18 00:15	1
13C3 PFBS	92		25 - 150	11/28/18 09:45	11/30/18 00:15	1
13C4 PFBA	82		25 - 150	11/28/18 09:45	11/30/18 00:15	1
13C4 PFHpA	85		25 - 150	11/28/18 09:45	11/30/18 00:15	1
13C4 PFOA	81		25 - 150	11/28/18 09:45	11/30/18 00:15	1
13C4 PFOS	80		25 - 150	11/28/18 09:45	11/30/18 00:15	1
13C5 PFNA	84		25 - 150	11/28/18 09:45	11/30/18 00:15	1
13C5 PFPeA	91		25 - 150	11/28/18 09:45	11/30/18 00:15	1
13C8 FOSA	59		25 - 150	11/28/18 09:45	11/30/18 00:15	1
18O2 PFHxS	85		25 - 150	11/28/18 09:45	11/30/18 00:15	1
d3-NMeFOSAA	74		25 - 150	11/28/18 09:45	11/30/18 00:15	1
d5-NEtFOSAA	88		25 - 150	11/28/18 09:45	11/30/18 00:15	1
M2-6:2 FTS	104		25 - 150	11/28/18 09:45	11/30/18 00:15	1
M2-8:2 FTS	83		25 - 150	11/28/18 09:45	11/30/18 00:15	1

TestAmerica Buffalo

Client Sample Results

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Client Sample ID: MW-18-111918

Lab Sample ID: 480-145576-2

Date Collected: 11/19/18 10:00

Matrix: Water

Date Received: 11/21/18 01:00

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		11/23/18 14:39	12/08/18 01:50	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	27		15 - 110				11/23/18 14:39	12/08/18 01:50	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		17	0.48	ng/L		11/28/18 09:45	11/30/18 00:30	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		17	0.86	ng/L		11/28/18 09:45	11/30/18 00:30	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		17	0.60	ng/L		11/28/18 09:45	11/30/18 00:30	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		17	0.39	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.38	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluorobutanoic acid (PFBA)	0.88	J	1.7	0.35	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.46	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.33	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.30	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.7	0.71	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.28	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.22	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluorohexanoic acid (PFHxA)	0.35	J	1.7	0.21	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.33	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.48	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.65	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluorooctanoic acid (PFOA)	0.34	J	1.7	0.28	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluoropentanoic acid (PFPeA)	ND		1.7	0.65	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.39	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7	0.21	ng/L		11/28/18 09:45	11/30/18 00:30	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.22	ng/L		11/28/18 09:45	11/30/18 00:30	1

Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFDA	85		25 - 150				11/28/18 09:45	11/30/18 00:30	1
13C2 PFDoA	88		25 - 150				11/28/18 09:45	11/30/18 00:30	1
13C2 PFHxA	55		25 - 150				11/28/18 09:45	11/30/18 00:30	1
13C2 PFTeDA	79		25 - 150				11/28/18 09:45	11/30/18 00:30	1
13C2 PFUnA	88		25 - 150				11/28/18 09:45	11/30/18 00:30	1
13C3 PFBS	81		25 - 150				11/28/18 09:45	11/30/18 00:30	1
13C4 PFBA	37		25 - 150				11/28/18 09:45	11/30/18 00:30	1
13C4 PFHpA	70		25 - 150				11/28/18 09:45	11/30/18 00:30	1
13C4 PFOA	77		25 - 150				11/28/18 09:45	11/30/18 00:30	1
13C4 PFOS	83		25 - 150				11/28/18 09:45	11/30/18 00:30	1
13C5 PFNA	80		25 - 150				11/28/18 09:45	11/30/18 00:30	1
13C5 PFPeA	51		25 - 150				11/28/18 09:45	11/30/18 00:30	1
13C8 FOSA	45		25 - 150				11/28/18 09:45	11/30/18 00:30	1
18O2 PFHxS	91		25 - 150				11/28/18 09:45	11/30/18 00:30	1
d3-NMeFOSAA	77		25 - 150				11/28/18 09:45	11/30/18 00:30	1
d5-NEtFOSAA	83		25 - 150				11/28/18 09:45	11/30/18 00:30	1
M2-6:2 FTS	133		25 - 150				11/28/18 09:45	11/30/18 00:30	1

TestAmerica Buffalo

Client Sample Results

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Client Sample ID: MW-18-111918

Date Collected: 11/19/18 10:00

Date Received: 11/21/18 01:00

Lab Sample ID: 480-145576-2

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	94		25 - 150	11/28/18 09:45	11/30/18 00:30	1

Client Sample ID: EB-111918

Date Collected: 11/19/18 10:25

Date Received: 11/21/18 01:00

Lab Sample ID: 480-145576-3

Matrix: Water

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		11/23/18 14:39	12/08/18 02:14	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	29		15 - 110				11/23/18 14:39	12/08/18 02:14	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		18	0.51	ng/L		11/28/18 09:45	11/30/18 00:46	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		18	0.92	ng/L		11/28/18 09:45	11/30/18 00:46	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18	0.64	ng/L		11/28/18 09:45	11/30/18 00:46	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18	0.41	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.40	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluorobutanoic acid (PFBA)	ND		1.8	0.38	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.49	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.35	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.32	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.75	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.29	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.24	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.22	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.35	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.51	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.70	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.29	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.69	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.41	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	0.22	ng/L		11/28/18 09:45	11/30/18 00:46	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.23	ng/L		11/28/18 09:45	11/30/18 00:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFDA	88		25 - 150				11/28/18 09:45	11/30/18 00:46	1
13C2 PFDoA	70		25 - 150				11/28/18 09:45	11/30/18 00:46	1
13C2 PFHxA	79		25 - 150				11/28/18 09:45	11/30/18 00:46	1
13C2 PFTeDA	67		25 - 150				11/28/18 09:45	11/30/18 00:46	1
13C2 PFUnA	86		25 - 150				11/28/18 09:45	11/30/18 00:46	1
13C3 PFBS	91		25 - 150				11/28/18 09:45	11/30/18 00:46	1
13C4 PFBA	77		25 - 150				11/28/18 09:45	11/30/18 00:46	1
13C4 PFHpA	83		25 - 150				11/28/18 09:45	11/30/18 00:46	1
13C4 PFOA	85		25 - 150				11/28/18 09:45	11/30/18 00:46	1
13C4 PFOS	82		25 - 150				11/28/18 09:45	11/30/18 00:46	1

TestAmerica Buffalo

Client Sample Results

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Client Sample ID: EB-111918

Date Collected: 11/19/18 10:25

Date Received: 11/21/18 01:00

Lab Sample ID: 480-145576-3

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	82		25 - 150	11/28/18 09:45	11/30/18 00:46	1
13C5 PFPeA	81		25 - 150	11/28/18 09:45	11/30/18 00:46	1
13C8 FOSA	48		25 - 150	11/28/18 09:45	11/30/18 00:46	1
18O2 PFHxS	82		25 - 150	11/28/18 09:45	11/30/18 00:46	1
d3-NMeFOSAA	69		25 - 150	11/28/18 09:45	11/30/18 00:46	1
d5-NEtFOSAA	79		25 - 150	11/28/18 09:45	11/30/18 00:46	1
M2-6:2 FTS	110		25 - 150	11/28/18 09:45	11/30/18 00:46	1
M2-8:2 FTS	91		25 - 150	11/28/18 09:45	11/30/18 00:46	1

Client Sample ID: MW-11-111918

Date Collected: 11/19/18 11:20

Date Received: 11/21/18 01:00

Lab Sample ID: 480-145576-4

Matrix: Water

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		11/23/18 14:39	12/08/18 01:01	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	30		15 - 110				11/23/18 14:39	12/08/18 01:01	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		20	0.56	ng/L		11/28/18 09:45	11/30/18 01:02	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		20	1.0	ng/L		11/28/18 09:45	11/30/18 01:02	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	0.70	ng/L		11/28/18 09:45	11/30/18 01:02	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	0.45	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.44	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluorobutanoic acid (PFBA)	2.0		2.0	0.41	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.53	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.38	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.35	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.82	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.32	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.26	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluorohexanoic acid (PFHxA)	0.82	J	2.0	0.24	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.38	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.56	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.76	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluorooctanoic acid (PFOA)	0.88	J	2.0	0.32	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluoropentanoic acid (PFPeA)	1.5	J	2.0	0.75	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.45	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluorotridecanoic acid (PFTrIA)	ND		2.0	0.24	ng/L		11/28/18 09:45	11/30/18 01:02	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.25	ng/L		11/28/18 09:45	11/30/18 01:02	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFDA	79		25 - 150				11/28/18 09:45	11/30/18 01:02	1
13C2 PFDoA	102		25 - 150				11/28/18 09:45	11/30/18 01:02	1
13C2 PFHxA	52		25 - 150				11/28/18 09:45	11/30/18 01:02	1

TestAmerica Buffalo

Client Sample Results

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Client Sample ID: MW-11-111918

Date Collected: 11/19/18 11:20

Date Received: 11/21/18 01:00

Lab Sample ID: 480-145576-4

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFTeDA	81		25 - 150	11/28/18 09:45	11/30/18 01:02	1
13C2 PFUnA	88		25 - 150	11/28/18 09:45	11/30/18 01:02	1
13C3 PFBS	77		25 - 150	11/28/18 09:45	11/30/18 01:02	1
13C4 PFBA	41		25 - 150	11/28/18 09:45	11/30/18 01:02	1
13C4 PFHpA	68		25 - 150	11/28/18 09:45	11/30/18 01:02	1
13C4 PFOA	72		25 - 150	11/28/18 09:45	11/30/18 01:02	1
13C4 PFOS	81		25 - 150	11/28/18 09:45	11/30/18 01:02	1
13C5 PFNA	76		25 - 150	11/28/18 09:45	11/30/18 01:02	1
13C5 PFPeA	54		25 - 150	11/28/18 09:45	11/30/18 01:02	1
13C8 FOSA	49		25 - 150	11/28/18 09:45	11/30/18 01:02	1
18O2 PFHxS	83		25 - 150	11/28/18 09:45	11/30/18 01:02	1
d3-NMeFOSAA	72		25 - 150	11/28/18 09:45	11/30/18 01:02	1
d5-NEtFOSAA	85		25 - 150	11/28/18 09:45	11/30/18 01:02	1
M2-6:2 FTS	117		25 - 150	11/28/18 09:45	11/30/18 01:02	1
M2-8:2 FTS	93		25 - 150	11/28/18 09:45	11/30/18 01:02	1

Client Sample ID: MW-14-112018

Date Collected: 11/20/18 07:30

Date Received: 11/21/18 01:00

Lab Sample ID: 480-145576-5

Matrix: Water

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L	-	11/23/18 14:39	12/08/18 02:38	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	29		15 - 110				11/23/18 14:39	12/08/18 02:38	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		18	0.50	ng/L		11/28/18 09:45	11/30/18 01:50	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		18	0.90	ng/L		11/28/18 09:45	11/30/18 01:50	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.2	J	18	0.63	ng/L		11/28/18 09:45	11/30/18 01:50	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18	0.40	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluorobutanesulfonic acid (PFBS)	0.51	J	1.8	0.39	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluorobutanoic acid (PFBA)	3.5		1.8	0.37	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.48	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.34	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.31	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.74	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluoroheptanoic acid (PFHpA)	0.78	J	1.8	0.29	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluorohexanesulfonic acid (PFHxS)	0.26	J	1.8	0.23	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluorohexanoic acid (PFHxA)	1.1	J	1.8	0.22	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluorononanoic acid (PFNA)	0.35	J	1.8	0.34	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.50	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluorooctanesulfonic acid (PFOS)	2.9		1.8	0.68	ng/L		11/28/18 09:45	11/30/18 01:50	1

TestAmerica Buffalo

Client Sample Results

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Client Sample ID: MW-14-112018

Lab Sample ID: 480-145576-5

Date Collected: 11/20/18 07:30

Matrix: Water

Date Received: 11/21/18 01:00

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.6	J	1.8	0.29	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluoropentanoic acid (PFPeA)	2.8		1.8	0.67	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.40	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	0.22	ng/L		11/28/18 09:45	11/30/18 01:50	1
Perfluoroundecanoic acid (PFUnA)	0.22	J B	1.8	0.22	ng/L		11/28/18 09:45	11/30/18 01:50	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFDA	89		25 - 150				11/28/18 09:45	11/30/18 01:50	1
13C2 PFDoA	73		25 - 150				11/28/18 09:45	11/30/18 01:50	1
13C2 PFHxA	49		25 - 150				11/28/18 09:45	11/30/18 01:50	1
13C2 PFTeDA	73		25 - 150				11/28/18 09:45	11/30/18 01:50	1
13C2 PFUnA	86		25 - 150				11/28/18 09:45	11/30/18 01:50	1
13C3 PFBS	73		25 - 150				11/28/18 09:45	11/30/18 01:50	1
13C4 PFBA	32		25 - 150				11/28/18 09:45	11/30/18 01:50	1
13C4 PFHpA	70		25 - 150				11/28/18 09:45	11/30/18 01:50	1
13C4 PFOA	83		25 - 150				11/28/18 09:45	11/30/18 01:50	1
13C4 PFOS	86		25 - 150				11/28/18 09:45	11/30/18 01:50	1
13C5 PFNA	94		25 - 150				11/28/18 09:45	11/30/18 01:50	1
13C5 PFPeA	48		25 - 150				11/28/18 09:45	11/30/18 01:50	1
13C8 FOSA	45		25 - 150				11/28/18 09:45	11/30/18 01:50	1
18O2 PFHxS	88		25 - 150				11/28/18 09:45	11/30/18 01:50	1
d3-NMeFOSAA	58		25 - 150				11/28/18 09:45	11/30/18 01:50	1
d5-NEtFOSAA	75		25 - 150				11/28/18 09:45	11/30/18 01:50	1
M2-6:2 FTS	212	*	25 - 150				11/28/18 09:45	11/30/18 01:50	1
M2-8:2 FTS	145		25 - 150				11/28/18 09:45	11/30/18 01:50	1

Client Sample ID: X-1-112018

Lab Sample ID: 480-145576-6

Date Collected: 11/20/18 00:00

Matrix: Water

Date Received: 11/21/18 01:00

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		11/23/18 14:39	12/08/18 03:02	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	34		15 - 110				11/23/18 14:39	12/08/18 03:02	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		21	0.59	ng/L		11/28/18 09:45	11/30/18 02:05	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		21	1.0	ng/L		11/28/18 09:45	11/30/18 02:05	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.4	J	21	0.73	ng/L		11/28/18 09:45	11/30/18 02:05	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		21	0.47	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluorobutanesulfonic acid (PFBS)	0.47	J	2.1	0.46	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluorobutanoic acid (PFBA)	1.7	J	2.1	0.43	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.55	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluorodecanoic acid (PFDA)	0.40	J	2.1	0.40	ng/L		11/28/18 09:45	11/30/18 02:05	1

TestAmerica Buffalo

Client Sample Results

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Client Sample ID: X-1-112018

Lab Sample ID: 480-145576-6

Date Collected: 11/20/18 00:00

Matrix: Water

Date Received: 11/21/18 01:00

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.37	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.1	0.86	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluoroheptanoic acid (PFHpA)	1.1	J	2.1	0.33	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.1	0.27	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluorohexanoic acid (PFHxA)	1.4	J	2.1	0.25	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluorononanoic acid (PFNA)	0.45	J	2.1	0.40	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.1	0.59	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluorooctanesulfonic acid (PFOS)	3.2		2.1	0.80	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluorooctanoic acid (PFOA)	2.5		2.1	0.33	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluoropentanoic acid (PFPeA)	0.86	J	2.1	0.78	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.47	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluorotridecanoic acid (PFTriA)	ND		2.1	0.25	ng/L		11/28/18 09:45	11/30/18 02:05	1
Perfluoroundecanoic acid (PFUnA)	0.37	J B	2.1	0.26	ng/L		11/28/18 09:45	11/30/18 02:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFDA	100		25 - 150				11/28/18 09:45	11/30/18 02:05	1
13C2 PFDoA	90		25 - 150				11/28/18 09:45	11/30/18 02:05	1
13C2 PFHxA	52		25 - 150				11/28/18 09:45	11/30/18 02:05	1
13C2 PFTeDA	80		25 - 150				11/28/18 09:45	11/30/18 02:05	1
13C2 PFUnA	104		25 - 150				11/28/18 09:45	11/30/18 02:05	1
13C3 PFBS	69		25 - 150				11/28/18 09:45	11/30/18 02:05	1
13C4 PFBA	36		25 - 150				11/28/18 09:45	11/30/18 02:05	1
13C4 PFHpA	73		25 - 150				11/28/18 09:45	11/30/18 02:05	1
13C4 PFOA	84		25 - 150				11/28/18 09:45	11/30/18 02:05	1
13C4 PFOS	87		25 - 150				11/28/18 09:45	11/30/18 02:05	1
13C5 PFNA	96		25 - 150				11/28/18 09:45	11/30/18 02:05	1
13C5 PFPeA	48		25 - 150				11/28/18 09:45	11/30/18 02:05	1
13C8 FOSA	52		25 - 150				11/28/18 09:45	11/30/18 02:05	1
18O2 PFHxS	92		25 - 150				11/28/18 09:45	11/30/18 02:05	1
d3-NMeFOSAA	78		25 - 150				11/28/18 09:45	11/30/18 02:05	1
d5-NEtFOSAA	92		25 - 150				11/28/18 09:45	11/30/18 02:05	1
M2-6:2 FTS	221	*	25 - 150				11/28/18 09:45	11/30/18 02:05	1
M2-8:2 FTS	166	*	25 - 150				11/28/18 09:45	11/30/18 02:05	1

TestAmerica Buffalo

Isotope Dilution Summary

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	DXE (15-110)
480-145576-2	MW-18-111918	27
480-145576-3	EB-111918	29
480-145576-4	MW-11-111918	30
480-145576-4 MS	MW-11-111918	25
480-145576-4 MSD	MW-11-111918	30
480-145576-5	MW-14-112018	29
480-145576-6	X-1-112018	34
LCS 480-447173/2-A	Lab Control Sample	30
MB 480-447173/1-A	Method Blank	31
Surrogate Legend		
DXE = 1,4-Dioxane-d8		

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	PFDA (25-150)	PFDoA (25-150)	PFHxA (25-150)	PFTDA (25-150)	PFUnA (25-150)	3C3-PFBz (25-150)	PFBA (25-150)	PFHpA (25-150)
480-145576-1	FRB-111918	88	80	77	74	90	92	82	85
480-145576-2	MW-18-111918	85	88	55	79	88	81	37	70
480-145576-3	EB-111918	88	70	79	67	86	91	77	83
480-145576-4	MW-11-111918	79	102	52	81	88	77	41	68
480-145576-4 MS	MW-11-111918	71	95	54	76	79	83	41	65
480-145576-4 MSD	MW-11-111918	80	105	53	79	82	83	47	67
480-145576-5	MW-14-112018	89	73	49	73	86	73	32	70
480-145576-6	X-1-112018	100	90	52	80	104	69	36	73
LCS 200-137460/2-A	Lab Control Sample	77	64	72	64	75	86	74	70
MB 200-137460/1-A	Method Blank	86	63	74	61	80	81	82	74
Percent Isotope Dilution Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	PFOA (25-150)	PFOS (25-150)	PFNA (25-150)	PFPeA (25-150)	PFOSA (25-150)	PFHxS (25-150)	PFMeFOS (25-150)	PFNEtFOS (25-150)
480-145576-1	FRB-111918	81	80	84	91	59	85	74	88
480-145576-2	MW-18-111918	77	83	80	51	45	91	77	83
480-145576-3	EB-111918	85	82	82	81	48	82	69	79
480-145576-4	MW-11-111918	72	81	76	54	49	83	72	85
480-145576-4 MS	MW-11-111918	67	79	75	52	33	85	70	70
480-145576-4 MSD	MW-11-111918	74	82	76	55	49	88	70	78
480-145576-5	MW-14-112018	83	86	94	48	45	88	58	75
480-145576-6	X-1-112018	84	87	96	48	52	92	78	92
LCS 200-137460/2-A	Lab Control Sample	77	81	79	81	39	79	62	78
MB 200-137460/1-A	Method Blank	87	75	82	87	38	79	69	82
Percent Isotope Dilution Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)						
480-145576-1	FRB-111918	104	83						
480-145576-2	MW-18-111918	133	94						
480-145576-3	EB-111918	110	91						
480-145576-4	MW-11-111918	117	93						

TestAmerica Buffalo

Isotope Dilution Summary

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)
480-145576-4 MS	MW-11-111918	134	93
480-145576-4 MSD	MW-11-111918	123	97
480-145576-5	MW-14-112018	212 *	145
480-145576-6	X-1-112018	221 *	166 *
LCS 200-137460/2-A	Lab Control Sample	113	78
MB 200-137460/1-A	Method Blank	113	84

Surrogate Legend

PFDA = 13C2 PFDA
PFDaA = 13C2 PFDaA
PFHxA = 13C2 PFHxA
PFTDA = 13C2 PFTeDA
PFUnA = 13C2 PFUnA
13C3-PFBS = 13C3 PFBS
PFBA = 13C4 PFBA
PFHpA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS
PFNA = 13C5 PFNA
PFPeA = 13C5 PFPeA
PFOSA = 13C8 FOSA
PFHxS = 18O2 PFHxS
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS

QC Sample Results

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 480-447173/1-A

Matrix: Water

Analysis Batch: 449682

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 447173

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		11/23/18 14:39	12/07/18 22:36	1
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	31		15 - 110				11/23/18 14:39	12/07/18 22:36	1

Lab Sample ID: LCS 480-447173/2-A

Matrix: Water

Analysis Batch: 449682

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 447173

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.00	1.13		ug/L		113	40 - 140
Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits				
1,4-Dioxane-d8	30		15 - 110				

Lab Sample ID: 480-145576-4 MS

Matrix: Water

Analysis Batch: 449682

Client Sample ID: MW-11-111918

Prep Type: Total/NA

Prep Batch: 447173

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	ND		1.00	1.16		ug/L		116	40 - 140
Isotope Dilution	MS %Recovery	MS Qualifier	Limits						
1,4-Dioxane-d8	25		15 - 110						

Lab Sample ID: 480-145576-4 MSD

Matrix: Water

Analysis Batch: 449682

Client Sample ID: MW-11-111918

Prep Type: Total/NA

Prep Batch: 447173

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	ND		1.00	1.13		ug/L		113	40 - 140	2	20
Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits								
1,4-Dioxane-d8	30		15 - 110								

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 200-137460/1-A

Matrix: Water

Analysis Batch: 137534

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 137460

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		20	0.56	ng/L		11/28/18 09:45	11/29/18 23:43	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		20	1.0	ng/L		11/28/18 09:45	11/29/18 23:43	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	0.70	ng/L		11/28/18 09:45	11/29/18 23:43	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	0.45	ng/L		11/28/18 09:45	11/29/18 23:43	1

TestAmerica Buffalo

QC Sample Results

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 200-137460/1-A

Matrix: Water

Analysis Batch: 137534

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 137460

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.44	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluorobutanoic acid (PFBA)	ND		2.0	0.41	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.53	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.38	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.35	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.82	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.32	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.26	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.24	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.38	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.56	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.76	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.32	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.75	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.45	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.24	ng/L		11/28/18 09:45	11/29/18 23:43	1
Perfluoroundecanoic acid (PFUnA)	0.336	J	2.0	0.25	ng/L		11/28/18 09:45	11/29/18 23:43	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	86		25 - 150	11/28/18 09:45	11/29/18 23:43	1
13C2 PFDoA	63		25 - 150	11/28/18 09:45	11/29/18 23:43	1
13C2 PFHxA	74		25 - 150	11/28/18 09:45	11/29/18 23:43	1
13C2 PFTeDA	61		25 - 150	11/28/18 09:45	11/29/18 23:43	1
13C2 PFUnA	80		25 - 150	11/28/18 09:45	11/29/18 23:43	1
13C3 PFBS	81		25 - 150	11/28/18 09:45	11/29/18 23:43	1
13C4 PFBA	82		25 - 150	11/28/18 09:45	11/29/18 23:43	1
13C4 PFHpA	74		25 - 150	11/28/18 09:45	11/29/18 23:43	1
13C4 PFOA	87		25 - 150	11/28/18 09:45	11/29/18 23:43	1
13C4 PFOS	75		25 - 150	11/28/18 09:45	11/29/18 23:43	1
13C5 PFNA	82		25 - 150	11/28/18 09:45	11/29/18 23:43	1
13C5 PFPeA	87		25 - 150	11/28/18 09:45	11/29/18 23:43	1
13C8 FOSA	38		25 - 150	11/28/18 09:45	11/29/18 23:43	1
18O2 PFHxS	79		25 - 150	11/28/18 09:45	11/29/18 23:43	1
d3-NMeFOSAA	69		25 - 150	11/28/18 09:45	11/29/18 23:43	1
d5-NEtFOSAA	82		25 - 150	11/28/18 09:45	11/29/18 23:43	1
M2-6:2 FTS	113		25 - 150	11/28/18 09:45	11/29/18 23:43	1
M2-8:2 FTS	84		25 - 150	11/28/18 09:45	11/29/18 23:43	1

Lab Sample ID: LCS 200-137460/2-A

Matrix: Water

Analysis Batch: 137534

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 137460

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	38.3	45.9		ng/L		120	50 - 150
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	37.9	41.6		ng/L		110	50 - 150

TestAmerica Buffalo

QC Sample Results

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 200-137460/2-A

Matrix: Water

Analysis Batch: 137534

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 137460

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	40.0		ng/L		100	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	42.6		ng/L		107	50 - 150
Perfluorobutanesulfonic acid (PFBS)	35.4	40.2		ng/L		114	50 - 150
Perfluorobutanoic acid (PFBA)	40.0	47.8		ng/L		119	50 - 150
Perfluorodecanesulfonic acid (PFDS)	38.6	38.3		ng/L		99	50 - 150
Perfluorodecanoic acid (PFDA)	40.0	44.3		ng/L		111	50 - 150
Perfluorododecanoic acid (PFDoA)	40.0	47.8		ng/L		120	50 - 150
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	44.8		ng/L		118	50 - 150
Perfluoroheptanoic acid (PFHpA)	40.0	49.6		ng/L		124	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	36.4	36.8		ng/L		101	50 - 150
Perfluorohexanoic acid (PFHxA)	40.0	40.7		ng/L		102	50 - 150
Perfluorononanoic acid (PFNA)	40.0	38.8		ng/L		97	50 - 150
Perfluorooctanesulfonamide (PFOSA)	40.0	45.2		ng/L		113	50 - 150
Perfluorooctanesulfonic acid (PFOS)	37.1	43.7		ng/L		118	50 - 150
Perfluorooctanoic acid (PFOA)	40.0	50.6		ng/L		127	50 - 150
Perfluoropentanoic acid (PFPeA)	40.0	44.1		ng/L		110	50 - 150
Perfluorotetradecanoic acid (PFTeA)	40.0	40.2		ng/L		100	50 - 150
Perfluorotridecanoic acid (PFTriA)	40.0	47.2		ng/L		118	50 - 150
Perfluoroundecanoic acid (PFUnA)	40.0	46.3		ng/L		116	50 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C2 PFDA	77		25 - 150
13C2 PFDoA	64		25 - 150
13C2 PFHxA	72		25 - 150
13C2 PFTeDA	64		25 - 150
13C2 PFUnA	75		25 - 150
13C3 PFBS	86		25 - 150
13C4 PFBA	74		25 - 150
13C4 PFHpA	70		25 - 150
13C4 PFOA	77		25 - 150
13C4 PFOS	81		25 - 150
13C5 PFNA	79		25 - 150
13C5 PFPeA	81		25 - 150
13C8 FOSA	39		25 - 150
18O2 PFHxS	79		25 - 150
d3-NMeFOSAA	62		25 - 150
d5-NEtFOSAA	78		25 - 150
M2-6:2 FTS	113		25 - 150
M2-8:2 FTS	78		25 - 150

TestAmerica Buffalo

QC Sample Results

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 480-145576-4 MS

Matrix: Water

Analysis Batch: 137534

Client Sample ID: MW-11-111918

Prep Type: Total/NA

Prep Batch: 137460

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		35.4	38.9		ng/L		110	40 - 160
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		35.0	39.7		ng/L		113	40 - 160
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		37.0	40.5		ng/L		110	40 - 160
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		37.0	33.7		ng/L		91	40 - 160
Perfluorobutanesulfonic acid (PFBS)	ND		32.7	36.9		ng/L		113	40 - 160
Perfluorobutanoic acid (PFBA)	2.0		37.0	45.5		ng/L		118	40 - 160
Perfluorodecanesulfonic acid (PFDS)	ND		35.6	34.0		ng/L		95	40 - 160
Perfluorodecanoic acid (PFDA)	ND		37.0	40.4		ng/L		109	40 - 160
Perfluorododecanoic acid (PFDoA)	ND		37.0	44.6		ng/L		121	40 - 160
Perfluoroheptanesulfonic Acid (PFHpS)	ND		35.2	41.7		ng/L		119	40 - 160
Perfluoroheptanoic acid (PFHpA)	ND		37.0	44.2		ng/L		120	40 - 160
Perfluorohexanesulfonic acid (PFHxS)	ND		33.6	35.6		ng/L		106	40 - 160
Perfluorohexanoic acid (PFHxA)	0.82 J		37.0	37.5		ng/L		99	40 - 160
Perfluorononanoic acid (PFNA)	ND		37.0	35.0		ng/L		95	40 - 160
Perfluorooctanesulfonamide (PFOSA)	ND		37.0	44.8		ng/L		121	40 - 160
Perfluorooctanesulfonic acid (PFOS)	ND		34.3	42.6		ng/L		124	40 - 160
Perfluorooctanoic acid (PFOA)	0.88 J		37.0	46.7		ng/L		124	40 - 160
Perfluoropentanoic acid (PFPeA)	1.5 J		37.0	41.7		ng/L		109	40 - 160
Perfluorotetradecanoic acid (PFTeA)	ND		37.0	37.4		ng/L		101	40 - 160
Perfluorotridecanoic acid (PFTriA)	ND		37.0	45.0		ng/L		122	40 - 160
Perfluoroundecanoic acid (PFUnA)	ND		37.0	41.0		ng/L		111	40 - 160

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C2 PFDA	71		25 - 150
13C2 PFDoA	95		25 - 150
13C2 PFHxA	54		25 - 150
13C2 PFTeDA	76		25 - 150
13C2 PFUnA	79		25 - 150
13C3 PFBS	83		25 - 150
13C4 PFBA	41		25 - 150
13C4 PFHpA	65		25 - 150
13C4 PFOA	67		25 - 150
13C4 PFOS	79		25 - 150
13C5 PFNA	75		25 - 150
13C5 PFPeA	52		25 - 150
13C8 FOSA	33		25 - 150
18O2 PFHxS	85		25 - 150

TestAmerica Buffalo

QC Sample Results

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 480-145576-4 MS

Matrix: Water

Analysis Batch: 137534

Client Sample ID: MW-11-111918

Prep Type: Total/NA

Prep Batch: 137460

<i>Isotope Dilution</i>	<i>MS %Recovery</i>	<i>MS Qualifier</i>	<i>Limits</i>
d3-NMeFOSAA	70		25 - 150
d5-NEtFOSAA	70		25 - 150
M2-6:2 FTS	134		25 - 150
M2-8:2 FTS	93		25 - 150

Lab Sample ID: 480-145576-4 MSD

Matrix: Water

Analysis Batch: 137534

Client Sample ID: MW-11-111918

Prep Type: Total/NA

Prep Batch: 137460

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		33.8	36.2		ng/L		107	40 - 160	7	30
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		33.4	37.0		ng/L		111	40 - 160	7	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		35.2	37.5		ng/L		106	40 - 160	8	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		35.2	32.9		ng/L		93	40 - 160	2	30
Perfluorobutanesulfonic acid (PFBS)	ND		31.2	33.7		ng/L		108	40 - 160	9	30
Perfluorobutanoic acid (PFBA)	2.0		35.2	41.2		ng/L		111	40 - 160	10	30
Perfluorodecanesulfonic acid (PFDS)	ND		34.0	34.5		ng/L		102	40 - 160	2	30
Perfluorodecanoic acid (PFDA)	ND		35.2	36.3		ng/L		103	40 - 160	11	30
Perfluorododecanoic acid (PFDoA)	ND		35.2	39.6		ng/L		112	40 - 160	12	30
Perfluoroheptanesulfonic Acid (PFHpS)	ND		33.6	41.3		ng/L		123	40 - 160	1	30
Perfluoroheptanoic acid (PFHpA)	ND		35.2	43.5		ng/L		123	40 - 160	2	30
Perfluorohexanesulfonic acid (PFHxS)	ND		32.1	32.0		ng/L		100	40 - 160	10	30
Perfluorohexanoic acid (PFHxA)	0.82	J	35.2	37.7		ng/L		105	40 - 160	1	30
Perfluorononanoic acid (PFNA)	ND		35.2	35.0		ng/L		99	40 - 160	0	30
Perfluorooctanesulfonamide (PFOSA)	ND		35.2	40.2		ng/L		114	40 - 160	11	30
Perfluorooctanesulfonic acid (PFOS)	ND		32.7	38.4		ng/L		117	40 - 160	10	30
Perfluorooctanoic acid (PFOA)	0.88	J	35.2	42.5		ng/L		118	40 - 160	9	30
Perfluoropentanoic acid (PFPeA)	1.5	J	35.2	38.0		ng/L		104	40 - 160	9	30
Perfluorotetradecanoic acid (PFTeA)	ND		35.2	36.6		ng/L		104	40 - 160	2	30
Perfluorotridecanoic acid (PFTriA)	ND		35.2	43.5		ng/L		123	40 - 160	3	30
Perfluoroundecanoic acid (PFUnA)	ND		35.2	40.6		ng/L		115	40 - 160	1	30

<i>Isotope Dilution</i>	<i>MSD %Recovery</i>	<i>MSD Qualifier</i>	<i>Limits</i>
13C2 PFDA	80		25 - 150
13C2 PFDoA	105		25 - 150
13C2 PFHxA	53		25 - 150
13C2 PFTeDA	79		25 - 150
13C2 PFUnA	82		25 - 150

TestAmerica Buffalo

QC Sample Results

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 480-145576-4 MSD

Matrix: Water

Analysis Batch: 137534

Client Sample ID: MW-11-111918

Prep Type: Total/NA

Prep Batch: 137460

Isotope Dilution	MSD	MSD	Limits
	%Recovery	Qualifier	
13C3 PFBS	83		25 - 150
13C4 PFBA	47		25 - 150
13C4 PFHpA	67		25 - 150
13C4 PFOA	74		25 - 150
13C4 PFOS	82		25 - 150
13C5 PFNA	76		25 - 150
13C5 PFPeA	55		25 - 150
13C8 FOSA	49		25 - 150
18O2 PFHxS	88		25 - 150
d3-NMeFOSAA	70		25 - 150
d5-NEtFOSAA	78		25 - 150
M2-6:2 FTS	123		25 - 150
M2-8:2 FTS	97		25 - 150

QC Association Summary

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

GC/MS Semi VOA

Prep Batch: 447173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-145576-2	MW-18-111918	Total/NA	Water	3510C	
480-145576-3	EB-111918	Total/NA	Water	3510C	
480-145576-4	MW-11-111918	Total/NA	Water	3510C	
480-145576-5	MW-14-112018	Total/NA	Water	3510C	
480-145576-6	X-1-112018	Total/NA	Water	3510C	
MB 480-447173/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-447173/2-A	Lab Control Sample	Total/NA	Water	3510C	
480-145576-4 MS	MW-11-111918	Total/NA	Water	3510C	
480-145576-4 MSD	MW-11-111918	Total/NA	Water	3510C	

Analysis Batch: 449682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-145576-2	MW-18-111918	Total/NA	Water	8270D SIM ID	447173
480-145576-3	EB-111918	Total/NA	Water	8270D SIM ID	447173
480-145576-4	MW-11-111918	Total/NA	Water	8270D SIM ID	447173
480-145576-5	MW-14-112018	Total/NA	Water	8270D SIM ID	447173
480-145576-6	X-1-112018	Total/NA	Water	8270D SIM ID	447173
MB 480-447173/1-A	Method Blank	Total/NA	Water	8270D SIM ID	447173
LCS 480-447173/2-A	Lab Control Sample	Total/NA	Water	8270D SIM ID	447173
480-145576-4 MS	MW-11-111918	Total/NA	Water	8270D SIM ID	447173
480-145576-4 MSD	MW-11-111918	Total/NA	Water	8270D SIM ID	447173

LCMS

Prep Batch: 137460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-145576-1	FRB-111918	Total/NA	Water	3535	
480-145576-2	MW-18-111918	Total/NA	Water	3535	
480-145576-3	EB-111918	Total/NA	Water	3535	
480-145576-4	MW-11-111918	Total/NA	Water	3535	
480-145576-5	MW-14-112018	Total/NA	Water	3535	
480-145576-6	X-1-112018	Total/NA	Water	3535	
MB 200-137460/1-A	Method Blank	Total/NA	Water	3535	
LCS 200-137460/2-A	Lab Control Sample	Total/NA	Water	3535	
480-145576-4 MS	MW-11-111918	Total/NA	Water	3535	
480-145576-4 MSD	MW-11-111918	Total/NA	Water	3535	

Analysis Batch: 137534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-145576-1	FRB-111918	Total/NA	Water	537 (modified)	137460
480-145576-2	MW-18-111918	Total/NA	Water	537 (modified)	137460
480-145576-3	EB-111918	Total/NA	Water	537 (modified)	137460
480-145576-4	MW-11-111918	Total/NA	Water	537 (modified)	137460
480-145576-5	MW-14-112018	Total/NA	Water	537 (modified)	137460
480-145576-6	X-1-112018	Total/NA	Water	537 (modified)	137460
MB 200-137460/1-A	Method Blank	Total/NA	Water	537 (modified)	137460
LCS 200-137460/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	137460
480-145576-4 MS	MW-11-111918	Total/NA	Water	537 (modified)	137460
480-145576-4 MSD	MW-11-111918	Total/NA	Water	537 (modified)	137460

TestAmerica Buffalo

Lab Chronicle

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Client Sample ID: FRB-111918

Date Collected: 11/19/18 09:25

Date Received: 11/21/18 01:00

Lab Sample ID: 480-145576-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			137460	11/28/18 09:45	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	137534	11/30/18 00:15	JM1	TAL BUR

Client Sample ID: MW-18-111918

Date Collected: 11/19/18 10:00

Date Received: 11/21/18 01:00

Lab Sample ID: 480-145576-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			447173	11/23/18 14:39	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	449682	12/08/18 01:50	DMR	TAL BUF
Total/NA	Prep	3535			137460	11/28/18 09:45	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	137534	11/30/18 00:30	JM1	TAL BUR

Client Sample ID: EB-111918

Date Collected: 11/19/18 10:25

Date Received: 11/21/18 01:00

Lab Sample ID: 480-145576-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			447173	11/23/18 14:39	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	449682	12/08/18 02:14	DMR	TAL BUF
Total/NA	Prep	3535			137460	11/28/18 09:45	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	137534	11/30/18 00:46	JM1	TAL BUR

Client Sample ID: MW-11-111918

Date Collected: 11/19/18 11:20

Date Received: 11/21/18 01:00

Lab Sample ID: 480-145576-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			447173	11/23/18 14:39	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	449682	12/08/18 01:01	DMR	TAL BUF
Total/NA	Prep	3535			137460	11/28/18 09:45	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	137534	11/30/18 01:02	JM1	TAL BUR

Client Sample ID: MW-14-112018

Date Collected: 11/20/18 07:30

Date Received: 11/21/18 01:00

Lab Sample ID: 480-145576-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			447173	11/23/18 14:39	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	449682	12/08/18 02:38	DMR	TAL BUF
Total/NA	Prep	3535			137460	11/28/18 09:45	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	137534	11/30/18 01:50	JM1	TAL BUR

TestAmerica Buffalo

Lab Chronicle

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Client Sample ID: X-1-112018

Lab Sample ID: 480-145576-6

Date Collected: 11/20/18 00:00

Matrix: Water

Date Received: 11/21/18 01:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			447173	11/23/18 14:39	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	449682	12/08/18 03:02	DMR	TAL BUF
Total/NA	Prep	3535			137460	11/28/18 09:45	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	137534	11/30/18 02:05	JM1	TAL BUR

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-19

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	DoD ELAP		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Florida	NELAP	4	E87467	06-30-19
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18 *
New Hampshire	NELAP	1	2006	12-18-18 *
New Jersey	NELAP	2	VT972	06-30-19
New York	NELAP	2	10391	04-01-19
Pennsylvania	NELAP	3	68-00489	04-30-19
Rhode Island	State Program	1	LAO00298	12-30-18 *
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-18 *
Virginia	NELAP	3	460209	12-14-18 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Buffalo

Method Summary

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Method	Method Description	Protocol	Laboratory
8270D SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	TAL BUF
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL BUR
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL BUF
3535	Solid-Phase Extraction (SPE)	SW846	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: O'Brien & Gere Inc of North America
Project/Site: Former Accurate Die Cast

TestAmerica Job ID: 480-145576-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-145576-1	FRB-111918	Water	11/19/18 09:25	11/21/18 01:00
480-145576-2	MW-18-111918	Water	11/19/18 10:00	11/21/18 01:00
480-145576-3	EB-111918	Water	11/19/18 10:25	11/21/18 01:00
480-145576-4	MW-11-111918	Water	11/19/18 11:20	11/21/18 01:00
480-145576-5	MW-14-112018	Water	11/20/18 07:30	11/21/18 01:00
480-145576-6	X-1-112018	Water	11/20/18 00:00	11/21/18 01:00

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact		Project Manager: D. CARNEGIAN		Site Contact: YVES VELIZ		Date: 11-19-2018		COC No:	
Company Name: OBG		Tel/Fax:		Lab Contact: MELISSA DEYO		Carrier: TEST AMERICA		Sampler: 1 of 1 COCs	
Address: 233 W. WASHINGTON ST.		City/State/Zip: SYRACUSE, NY 13221		Phone: 315-956-6600		Fax: 315-956-6600		For Lab Use Only:	
Project Name: Accudite		Site: Accudite		PO #		Job / SDG No.:		Walk-in Client:	
Analysis Turnaround Time		TAT if different from Below		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)	
☐ CALENDAR DAYS ☐ WORKING DAYS ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		Filtered Sample (Y/N) Perform MS/MSD (Y/N) PFC-IDA-PAS STANDARD LIST (21 max) 8270D-SIM-MS-ID- 1,4 Dioxane		Matrix		# of Cont.		Sample Specific Notes:	
FRB-111918		11-19-18 0925		G		WQ 2			
MW-18-111918		11-19-18 1000		G		WQ 4			
FB-111918		11-19-18 1025		G		WQ 4			
MW-11-111918		11-19-18 1120		G		WQ 12			
MW-14-112018		11-20-18 0730		G		WQ 4			
X-1-112018		11-20-18 --		G		WQ 4			
11-20-18								Syracuse #225	
480-145576 Chain of Custody									
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.									
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown									
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months									
Special Instructions/QC Requirements & Comments: PFAF -> BVT FROM SYR. - PFA SAMPLES RECEIVED AT SYRACUSE FROM DIAXANE CONTAINERS.									
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp. (C):		Obs'd:		Therm ID No.:	
Relinquished by: Scott Moxley		Company: OBG		Date/Time: 11-20-18 1043		Received by: R. H. H. H.		Company: Syra	
Relinquished by: R. H. H. H.		Company: Syra		Date/Time: 11-20-18 1043		Received by: TA Burt		Company: TA Burt	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

ORIGIN ID:SYRA (315) 431-0171
SYR SERVICE CENTER
TESTAMERICA
118 BOSS RD

SYRACUSE, NY 13211
UNITED STATES US

SHIP DATE: 20NOV18
ACTWGT: 30.00 LB MAN
CAD: 251798/CAFE3211

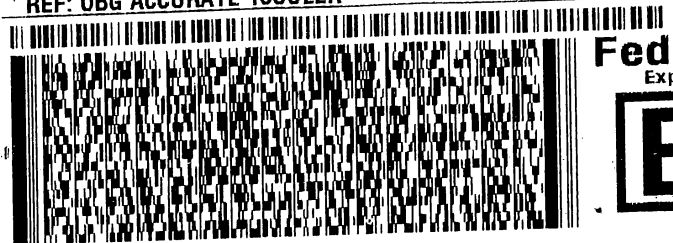
BILL RECIPIENT

TO **SAMPLE RECEIVING**
TESTAMERICA BURLINGTON
30 COMMUNITY DRIVE SUITE 11

SOUTH BURLINGTON VT 05403

(802) 660-1990

REF: OBG ACCURATE 1COOLER



FedEx
Express



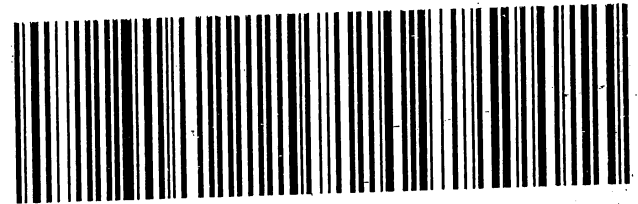
TRK# 4651 0843 2546
0201

WED - 21 NOV 10:30
PRIORITY OVERNIGHT

NC BTVA

0540

VT-US B7



Login Sample Receipt Checklist

Client: O'Brien & Gere Inc of North America

Job Number: 480-145576-1

Login Number: 145576

List Source: TestAmerica Buffalo

List Number: 1

Creator: Velickovic, Zoran

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
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 sample IDs on the containers 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	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: O'Brien & Gere Inc of North America

Job Number: 480-145576-1

Login Number: 145576

List Number: 2

Creator: Lavigne, Scott M

List Source: TestAmerica Burlington

List Creation: 11/21/18 01:44 PM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	True	
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	0.1°C
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.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	