LAN ASSOCIATES, INC.
CONSULTING • ENGINEERING • PLANNING

August 24, 2018

Mr. Andrew Zwack
Assistant Engineer
New York Department of Environmental Conservation
Via Email: andrew.zwack@dec.ny.gov

Re: Results of Groundwater Analysis for the "Sampling of Emerging Contaminants"
CC Metals and Alloys
Vanadium Corporation of America
SKW Newco Inc. Site #932001C
Niagara (T), Niagara County, NY
LAN Reference # 2-3643-17.01

Dear Mr. Zwack:

The following is a Letter of Findings for the requested "Sampling of Emerging Contaminates" at the above referenced location. The site is located on Witmer Road in Niagara, New York. There are five (5) groundwater monitoring wells located on the property (see Figure 1: Site Plan; attachments 1 & 2) as part of an ongoing monitoring program at the site.

The requested, sampling was conducted in accordance with your letter dated June 14, 2018, and the attached guidance document Groundwater Sampling for Emerging Contaminates; April 2018, (attachment # 3). The samples were analyzed for 1,4-dioxane and the full PFAS Target Analyte List detailed in the guidance document.

All five on-site monitoring wells were sampled by TestAmerica of Amherst, NY on July 26, 2018. These wells are representative of up-gradient (MW-3R), mid-site (MWs-BR-1, 5R, and 14N) and down gradient (MW-12) locations. These wells, and the groundwater flow, are depicted on the attached Figure 2: Groundwater Flow Map (May 11, 2018).

The sampling results show detections of some PFAS constituents in all of the wells sampled but none were detected at or above the NYSDEC Screening Levels. The sample from MW-12 has multiple detections of PFAS constituents, but according to the laboratory Case Narrative;

> "Method(s) 537 (modified): Internal standard responses were outside acceptance limits for the following sample: MW-12 (480-139587-3). The sample shows evidence of matrix interference and was diluted."

This Matrix Interference could bias the reported concentrations in the groundwater sample collected from MW-12 to higher than actual concentrations.

The constituent 1,4-dioxane was detected in two wells but at concentrations below the NYSDEC Screening Levels. Additionally, 1,4-dioxane was detected in both equipment blanks with one at a concentration above those detected in the groundwater samples. These detections in the blanks indicate the possibility that the detections in the groundwater samples from the monitoring wells could be false detections. The results are detailed on the Table 1: Groundwater Analytical Results (attachment #4). The complete laboratory report is included as attachment #5.

Included with this Letter of Findings are the Level 2 Laboratory Data in electronic data deliverable formats; EquNysdec.xls and TalStandard.xls. This has been formatted as an electronic data deliverable (EDD) and will be uploaded into the NYSDEC's EIMS.

If you have any questions please contact LAN at the number listed below.

Thank you and have a pleasant day.

James Cole.
Project Geologist

LAN Associates, Inc.
904-945-6543

Attachments:
1 Figure 1: Site Plan
2 Figure 2: Groundwater Flow Map (7/26/2018)
3 Letter from NYSDEC; June 14, 2018 including guidance document
4 Table 1: Groundwater Analytical Results and Water Table Elevation Data
5 Groundwater Analytical Results w/ COC and Field Notes

ATTACHMENTS 1 & 2

FIGURES

FIGURE 1

SITE PLAN

LEGEND:

- MW-5R — Monitoring Well
- Surface Water Sample
- Sump Sample

CELL 1

CELL 2

PROPERTY SUBDIVISION LINE

ROAD

WITMER

TIE-IN MANHOLE

EXISTING STORM SEWER

MUNICIPAL STORM SEWER

MW-3R

MW-BR1

LS-1

MW-5R

MW-14N

MW-12

SW-1

GRAPHIC SCALE

75 0 37.5 75 150 300

(IN FEET)

1 inch = 150 ft.

DATE: 11/14/2017

REV:

CHECKED : GVD

DRAWN : MJC

SCALE : 1"=150'

SITE PLAN

Calvert City Metals and Alloys, LLC (Witmer Road Landfill)
4201 Witmer Road
Niagara Falls, NY 14305

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CONSULTING • ENGINEERING • PLANNING
88 RIBERIA ST., SUITE 400, ST AUGUSTINE, FL 32084 (904)824-6999

FIGURE: 1

JOB NO. 2.3643.17.02

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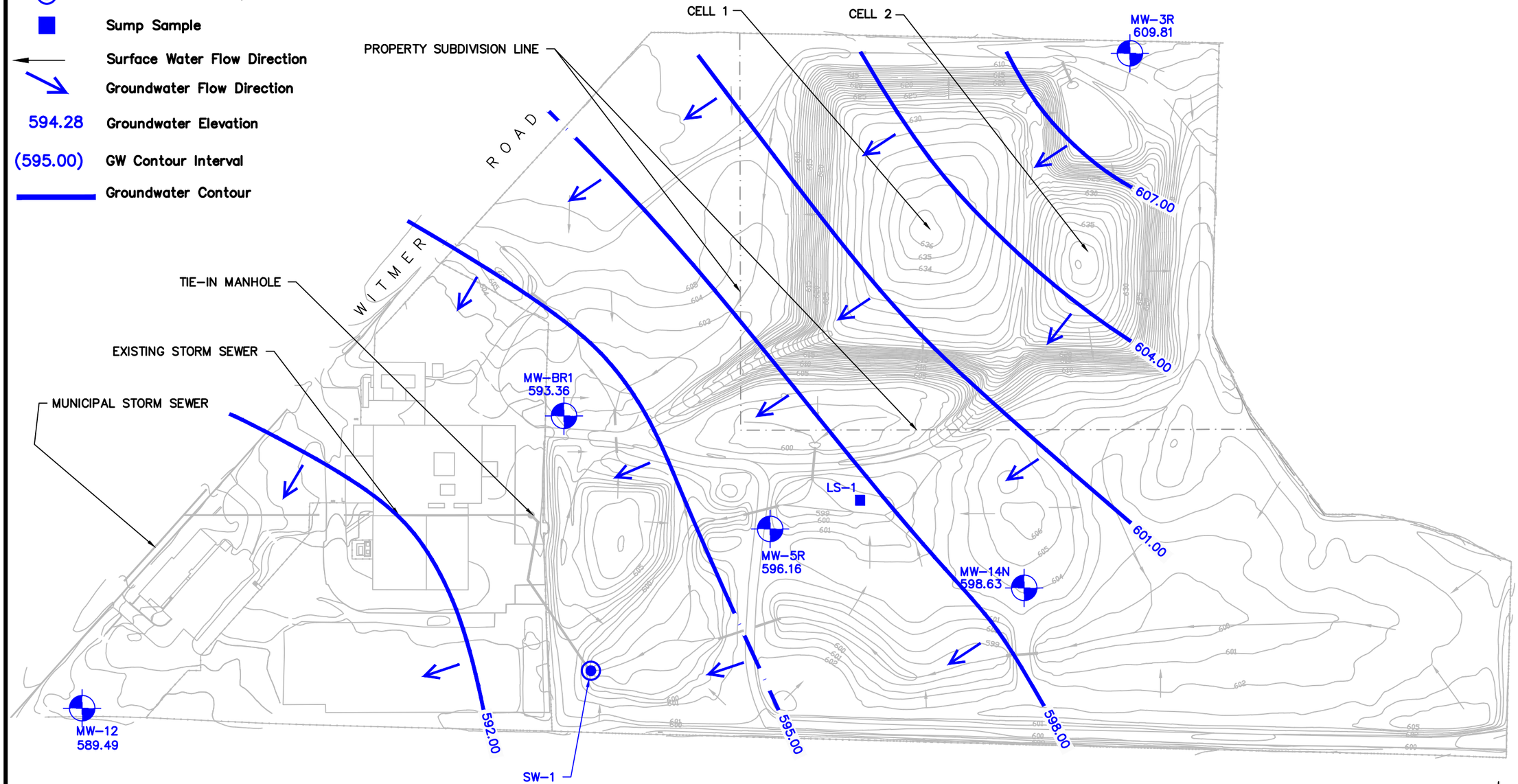
FIGURE 2

GROUNDWATER FLOW MAP

MAY 11, 2018

LEGEND:

- MW-00 — Monitoring Well
- Surface Water Sample
- Sump Sample
- Surface Water Flow Direction
- Groundwater Flow Direction
- 594.28 — Groundwater Elevation
- (595.00) — GW Contour Interval
- Groundwater Contour



GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch = 150 ft.

DATE: 05/18/18
REV:
CHECKED : ____
DRAWN : MKL
SCALE : 1"=150'

Groundwater Flow Direction

CC Metals and Alloys, LLC Niagra, NY

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FIGURE: 2

JOB NO. 2.3643.17

ATTACHMENT 3

Letter from NYSDEC; June 14, 2018

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 9
270 Michigan Avenue, Buffalo, NY 14203-2915
P: (716) 851-7220 | F: (716) 851-7226
www.dec.ny.gov

June 14, 2018

Mr. Gary Joiner
Plant Manager, CC Metals and Alloys, LLC
P.O. Box 217
Calvert City, KY 42029

Request for Sampling of Emerging Contaminants
Vanadium Corporation of America
SKW Newco Inc. Site #932001C
Niagara (T), Niagara County

Dear Mr. Joiner:

The New York State Department of Environmental Conservation (DEC) is undertaking a Statewide evaluation of remediation sites to better understand the risk posed to New Yorkers by 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS). PFAS have historically not been evaluated at remediation sites, and 1,4-dioxane has not been evaluated at the levels that are now thought to represent a health concern. This initiative is being undertaken as a result of these "emerging contaminants" having been found in a number of drinking water supplies in New York. Accordingly, the DEC is requiring that you test site groundwater for these chemicals. To accommodate this requirement, a select number of existing monitoring wells, representative of the potential for the above-referenced site to be a source of these emerging contaminants, must be sampled. DEC recommends that at least one of these wells should be upgradient of the site.

The attached guidance provides information on the analytical methods and reporting requirements. A second guidance document describes special precautions that need to be considered when sampling for PFAS.

Please note that the analytical results from this sampling need to be submitted to the DEC in both an Adobe Acrobat "pdf" and electronic data deliverable (EDD) formats, the latter for upload into the DEC's Environmental Information Management System (EIMS). The EIMS uses the database software application EQuIS™ from EarthSoft® Inc. Additional information concerning the format of data submissions can be found at: http://www.dec.ny.gov/chemical/62440.html.

Please prepare a draft letter work plan that identifies the wells proposed for sampling, brief description of the sampling methods, and anticipated sampling date within the next 60 days.

If you wish to discuss the scope of the requested water testing, please contact me at 716-851-7220 or at andrew.zwack@dec.ny.gov.

Sincerely yours,

Andrew Zwack
Assistant Engineer

ecc: Mr. Michael Cruden, NYSDEC, Director, Remedial Bureau E
Mr. Stanley Radon, NYSDEC, Regional Remediation Geologist, R9
Mr. Guy VanDoren, LAN Associates Inc.

Groundwater Sampling for Emerging Contaminants

April 2018

Issue: NYSDEC has committed to analyzing representative groundwater samples at remediation sites for emerging contaminants (1,4-dioxane and PFAS) as described in the below guidance.

Implementation

NYSDEC project managers will be contacting site owners to schedule sampling for these chemicals. Only groundwater sampling is required. The number of samples required will be similar to the number of samples where "full TAL/TCL sampling" would typically be required in a remedial investigation. If sampling is not feasible (e.g., the site no longer has any monitoring wells in place), sampling may be waived on a site-specific basis after first considering potential sources of these chemicals and whether there are water supplies nearby.

Upon a new site being brought into any program (i.e., SSF, BCP), PFAS and 1,4-dioxane will be incorporated into the investigation of groundwater as part of the standard "full TAL/TCL" sampling. Until an SCO is established for PFAS, soil samples do not need to be analyzed for PFAS unless groundwater contamination is detected. Separate guidance will be developed to address sites where emerging contaminants are found in the groundwater. The analysis currently performed for SVOCs in soil is adequate for evaluation of 1,4-dioxane, which already has an established SCO.

Analysis and Reporting

Labs should provide a full category B deliverable, and a DUSR should be prepared by a data validator, and the electronic data submission should meet the requirements provided at: https://www.dec.ny.gov/chemical/62440.html ,

The work plan should explicitly describe analysis and reporting requirements.

PFAS sample analysis: Currently, ELAP does not offer certification for PFAS compounds in matrices other than finished drinking water. However, laboratories analyzing environmental samples (ex. soil, sediments, and groundwater) are required, by DER, to hold ELAP certification for PFOA and PFOS in drinking water by EPA Method 537 or ISO 25101.

Modified EPA Method 537 is the preferred method to use for groundwater samples due to the ability to achieve 2 ng/L (ppt) detection limits. If contract labs or work plans submitted by responsible parties indicate that they are not able to achieve similar reporting limits, the project manager should discuss this with a DER chemist. Note: Reporting limits for PFOA and PFOS should not exceed 2 ng/L.

PFAS sample reporting: DER has developed a PFAS target analyte list (below) with the intent of achieving reporting consistency between labs for commonly reportable analytes. It is expected that reported results for PFAS will include, at a minimum, all the compounds listed. This list may be updated in the future as new information is learned and as labs develop new capabilities. If lab and/or matrix specific issues are encountered for any particular compounds, the NYSDEC project manager will make case-by-case decisions as to whether particular analytes may be temporarily or permanently discontinued from analysis for each site. Any technical lab issues should be brought to the attention of a NYSDEC chemist.

Some sampling using this full PFAS target analyte list is needed to understand the nature of contamination. It may also be critical to differentiate PFAS compounds associated with a site from other

sources of these chemicals. Like routine refinements to parameter lists based on investigative findings, the full PFAS target analyte list may not be needed for all sampling intended to define the extent of contamination. Project managers may approve a shorter analyte list (e.g., just the UCMR3 list) for some reporting on a case by case basis.

1,4-Dioxane Analysis and Reporting: The method detection limit (MDL) for 1,4-dioxane should be no higher than 0.28 µg/l (ppb). ELAP offers certification for both EPA Methods 8260 and 8270. In order to get the appropriate detection limits, the lab would need to run either of these methods in "selective ion monitoring" (SIM) mode. DER is advising the use of method 8270, since this method provides a more robust extraction procedure, uses a larger sample volume, and is less vulnerable to interference from chlorinated solvents (we acknowledge that 8260 has been shown to have a higher recovery in some studies).

Full PFAS Target Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonates	**Perfluorobutanesulfonic acid**	**PFBS**	**375-73-5**
	Perfluorohexanesulfonic acid	**PFHxS**	**355-46-4**
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanessulfonic acid	**PFOS**	**1763-23-1**
	Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluoroalkyl carboxylates	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	**PFHpA**	**375-85-9**
	Perfluorooctanoic acid	**PFOA**	**335-67-1**
	Perfluorononanoic acid	**PFNA**	**375-95-1**
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUA/PFUdA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTriA/PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTA/PFTeDA	376-06-7
Fluorinated Telomer Sulfonates	6:2 Fluorotelomer sulfonate	6:2 FTS	27619-97-2
	8:2 Fluorotelomer sulfonate	8:2 FTS	39108-34-4
Perfluorooctane-sulfonamides	Perfluroroctanesulfonamide	FOSA	754-91-6
Perfluorooctane-sulfonamidoacetic acids	N-methyl perfluorooctanesulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	2991-50-6

Bold entries depict the 6 original UCMR3 chemicals

Collection of Groundwater Samples for Perfluorooctanoic Acid (PFOA) and Perfluorinated Compounds (PFCs) from Monitoring Wells Sample Protocol

Samples collected using this protocol are intended to be analyzed for perfluorooctanoic acid (PFOA) and other perfluorinated compounds by Modified (Low Level) Test Method 537.

The procedure used must be consistent with the NYSDEC March 1991 Sampling Guidelines and Protocols http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf with the following materials limitations.

At this time acceptable materials for sampling include: stainless steel, high density polyethylene (HDPE), PVC, silicone, acetate and polypropylene. Equipment blanks should be generated at least daily. Additional materials may be acceptable if pre-approved by NYSDEC. Requests to use alternate equipment should include clean equipment blanks. **NOTE: Grunfos pumps and bladder pumps are known to contain PFC materials (e.g. Teflon™ washers for Grunfos pumps and LDPE bladders for bladder pumps).** All sampling equipment components and sample containers should not come in contact with aluminum foil, low density polyethylene (LDPE), glass or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer. Standard two step decontamination using detergent and clean water rinse will be performed for equipment that does come in contact with PFC materials. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFC materials must be avoided. Many food and drink packaging materials and “plumbers thread seal tape” contain PFCs.

All clothing worn by sampling personnel must have been laundered multiple times. The sampler must wear nitrile gloves while filling and sealing the sample bottles.

Pre-cleaned sample bottles with closures, coolers, ice, sample labels and a chain of custody form will be provided by the laboratory.

1. Fill two pre-cleaned 500 mL HDPE or polypropylene bottle with the sample.
2. Cap the bottles with an acceptable cap and liner closure system.
3. Label the sample bottles.
4. Fill out the chain of custody.
5. Place in a cooler maintained at 4 ± 2º Celsius.

Collect one equipment blank for every sample batch, not to exceed 20 samples.

Collect one field duplicate for every sample batch, not to exceed 20 samples.

Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, not to exceed 20 samples.

Request appropriate data deliverable (Category A or B) and an electronic data deliverable.

ATTACHMENT 4

Table 1: Groundwater Analytical Results and Water Table Elevation Data

TABLE 1
GROUNDWATER ANALYTICAL SUMMARY AND
WATER TABLE ELEVATION DATA
CC Metals and Alloys
Vanadium Corporation of America
SKW Newco Inc. Site #932001C
Niagara (T), Niagara County
LAN Reference # 2-3643-17.01

Sample Location	Sample Date	TOP OF CASING ELEVATION	DEPTH TO WATER	WATER TABLE ELEVATION	1, 4-dioxane	Qualifier	Perfluorobutanoic acid (PFBA)	Qualifier	Perfluoropentanoic acid (PFPeA)	Qualifier	Perfluorohexanoic acid (PFHxA)	Qualifier	Perfluoroheptanoic acid (PFHpA)	Qualifier	Perfluorooctanoic acid (PFOA)	Qualifier	Perfluorononanoic acid (PFNA)	Qualifier	Perfluorodecanoic acid (PFDA)	Qualifier	Perfluoroundecanoic acid (PFUnA)	Qualifier	Perfluorododecanoic acid (PFDoA)	Qualifier	Perfluorotridecanoic acid (PFTrDA)	Qualifier	Perfluorotetradecanoic acid (PFTeA)	Qualifier	Perfluorobutanesulfonic acid (PFBS)	Qualifier	Perfluorohexanesulfonic acid (PFHxS)	Qualifier	Perfluoroheptanesulfonic acid (PFHpS)	Qualifier	Perfluorooctanesulfonic acid (PFOS)	Qualifier	Perfluorodecanesulfonic acid (PFDS)	Qualifier	Perfluorooctane Sulfonamide (PFOSA)	Qualifier	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	Qualifier	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	Qualifier	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	Qualifier	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	Qualifier
NYSDEC Screening Levels					*0.35*										*70*																				*70*															
Units		*Water Elevations Recorded May 11, 2018*			*ug/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*		*ng/L*	
MW-3R	7/26/2018	611.87	2.06	609.81	ND		15		3.3		ND		ND		1.8		ND		ND		ND		ND		ND		ND		3.5		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
MW-5R	7/26/2018	601.67	5.51	596.16	0.23		15		12		3.3		ND		7.0		ND		ND		ND		ND		ND		ND		6.2		ND		ND		5.5		ND		ND		ND		ND		ND		ND		ND	
MW-BR1	7/26/2018	603.79	10.43	593.36	ND		11		3.6		2.4		ND		3.9		ND		ND		ND		ND		ND		ND		1.8		ND		ND		2.4		ND		ND		ND		ND		ND		ND		ND	
MW-12	7/26/2018	597.71	8.22	589.49	ND		63		94		300		27		61		ND		ND		ND		ND		ND		ND		220		410		5.2		30		ND		ND		ND		ND		ND		ND		ND	
MW-14N	7/26/2018	605.52	6.89	598.63	0.31		46		4.5		4.2		ND		2.2		ND		ND		ND		ND		ND		ND		3.9		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
EQUIPMENT BLANK (ROPE)					0.22		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
EQUIPMENT BLANK (BAILER)					0.33		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
METHOD BLANK					ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	

ND - Not Detected
(V) Method blank contamination
(U) The compound was analyzed for but not detected
(J) Peak detected below detection limit value suspect
ug/L - micro-grams per liter
ng/l - Nano-grams per liter
BOLD - Indicates a NYSDEC Screening Level Exceedances

ATTACHMENT 5

Groundwater Analytical Results

with COC and Field Notes

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: 480-139587-1
Client Project/Site: Witmer Road G/W Emerging Contaminants

For:
LAN Associates Inc
88 Riberia Street
Suite 400
St. Augustine, Florida 32084

Attn: Mr. Chris L. Callegari

Judy Stone

Authorized for release by:
8/21/2018 4:12:09 PM

Judy Stone, Senior Project Manager
(484)685-0868
judy.stone@testamericainc.com

Table of Contents

Definitions/Glossary

Client: LAN Associates Inc
Project/Site: Witmer Road G/W Emerging Contaminants

TestAmerica Job ID: 480-139587-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte 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: 480-139587-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-139587-1

Receipt
The samples were received on 7/26/2018 1:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.1º C, 2.3º C and 3.2º C.

GC/MS Semi VOA
Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for samples (LCS 480-427086/2-A), (480-139635-B-1-A MS) and (480-139635-B-1-B MSD) have an E flag qualifier indicating the results are over the calibration range on the raw data. The actual amounts are within the calibration range; however, the E flag is generated based upon the bias corrected concentration. The LIMS system calculates a bias correction based on the recovery of the 1,4-Dioxane-d8 isotope.

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

LCMS
Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery of 13C4 PFBA associated with the following samples is below the method recommended limit: MW-3R (480-139587-2), MW-12 (480-139587-3), MW-14N (480-139587-4) and MW-5R (480-139587-5). 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(s).

Method(s) 537 (modified): Isotope Dilution Analyte (IDA) recovery of M2-6:2FTS and M2-8:2FTS is above the method recommended limit for the following samples: BR-1 (480-139587-1) and MW-5R (480-139587-5). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): Internal standard responses were outside acceptance limits for the following sample: MW-12 (480-139587-3). The sample shows evidence of matrix interference and was diluted. Adjustment of the ISTD response for the dilution provides acceptable recoveries.

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

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

Detection Summary

Client: LAN Associates Inc
Project/Site: Witmer Road G/W Emerging Contaminants

TestAmerica Job ID: 480-139587-1

Client Sample ID: BR-1 — Lab Sample ID: 480-139587-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	11		1.6		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.6		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.4		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.9		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.8		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.4		1.6		ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-3R — Lab Sample ID: 480-139587-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	15		1.6		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.3		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.8		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.5		1.6		ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-12 — Lab Sample ID: 480-139587-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	63		1.6		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	94		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	300		1.6		ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	27		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	61		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	220		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	410		3.2		ng/L	2		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	5.2		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	30		1.6		ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-14N — Lab Sample ID: 480-139587-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.31		0.20		ug/L	1		8270D SIM ID	Total/NA
Perfluorobutanoic acid (PFBA)	46		1.6		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.5		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.2		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.2		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.9		1.6		ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-5R — Lab Sample ID: 480-139587-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.23		0.20		ug/L	1		8270D SIM ID	Total/NA
Perfluorobutanoic acid (PFBA)	15		1.6		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	12		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.3		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	7.0		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	6.2		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.5		1.6		ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: LAN Associates Inc
Project/Site: Witmer Road G/W Emerging Contaminants

TestAmerica Job ID: 480-139587-1

Client Sample ID: EQUIPMENT BLANK 1 (ROPE) — Lab Sample ID: 480-139587-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.22		0.20		ug/L	1		8270D SIM ID	Total/NA

Client Sample ID: EQUIPMENT BLANK 2 (BAILER) — Lab Sample ID: 480-139587-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.33		0.20		ug/L	1		8270D SIM ID	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: BR-1

Date Collected: 07/26/18 10:55
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-1

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		ug/L		07/30/18 14:25	08/07/18 06:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*24*		*15 - 110*	*07/30/18 14:25*	*08/07/18 06:56*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**11**		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluoropentanoic acid (PFPeA)	**3.6**		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluorohexanoic acid (PFHxA)	**2.4**		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluorooctanoic acid (PFOA)	**3.9**		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluorononanoic acid (PFNA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluorodecanoic acid (PFDA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluorododecanoic acid (PFDoA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluorobutanesulfonic acid (PFBS)	**1.8**		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluorooctanesulfonic acid (PFOS)	**2.4**		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
Perfluorooctane Sulfonamide (PFOSA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:14	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		16		ng/L		08/08/18 09:20	08/11/18 21:14	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		16		ng/L		08/08/18 09:20	08/11/18 21:14	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		16		ng/L		08/08/18 09:20	08/11/18 21:14	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		16		ng/L		08/08/18 09:20	08/11/18 21:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*90*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
13C4-PFHpA	*65*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
13C4 PFOA	*87*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
13C4 PFOS	*119*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
13C5 PFNA	*99*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
13C4 PFBA	*28*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
13C2 PFHxA	*52*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
13C2 PFDA	*105*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
13C2 PFUnA	*106*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
13C2 PFDoA	*89*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
13C8 FOSA	*94*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
13C5-PFPeA	*41*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
13C2-PFTeDA	*107*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
d3-NMeFOSAA	*105*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*
d5-NEtFOSAA	*110*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:14*	*1*

Client Sample ID: BR-1

Lab Sample ID: 480-139587-1
Date Collected: 07/26/18 10:55
Matrix: Water
Date Received: 07/26/18 13:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2FTS	189	*	25 - 150	08/08/18 09:20	08/11/18 21:14	1
M2-8:2FTS	180	*	25 - 150	08/08/18 09:20	08/11/18 21:14	1
13C3-PFBS	65		25 - 150	08/08/18 09:20	08/11/18 21:14	1

Client Sample ID: MW-3R

Lab Sample ID: 480-139587-2
Date Collected: 07/26/18 10:40
Matrix: Water
Date Received: 07/26/18 13:00

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		ug/L		07/30/18 14:25	08/07/18 07:19	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	29		15 - 110	07/30/18 14:25	08/07/18 07:19	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**15**		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluoropentanoic acid (PFPeA)	**3.3**		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluorohexanoic acid (PFHxA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluorooctanoic acid (PFOA)	**1.8**		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluorononanoic acid (PFNA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluorodecanoic acid (PFDA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluorododecanoic acid (PFDoA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluorobutanesulfonic acid (PFBS)	**3.5**		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
Perfluorooctane Sulfonamide (PFOSA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 21:30	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		16		ng/L		08/08/18 09:20	08/11/18 21:30	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		16		ng/L		08/08/18 09:20	08/11/18 21:30	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		16		ng/L		08/08/18 09:20	08/11/18 21:30	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		16		ng/L		08/08/18 09:20	08/11/18 21:30	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	89		25 - 150	08/08/18 09:20	08/11/18 21:30	1
13C4-PFHpA	71		25 - 150	08/08/18 09:20	08/11/18 21:30	1
13C4 PFOA	81		25 - 150	08/08/18 09:20	08/11/18 21:30	1
13C4 PFOS	103		25 - 150	08/08/18 09:20	08/11/18 21:30	1
13C5 PFNA	93		25 - 150	08/08/18 09:20	08/11/18 21:30	1
13C4 PFBA	21	*	25 - 150	08/08/18 09:20	08/11/18 21:30	1

Client Sample ID: MW-3R

Date Collected: 07/26/18 10:40
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-2
Matrix: Water

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*54*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:30*	*1*
13C2 PFDA	*92*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:30*	*1*
13C2 PFUnA	*91*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:30*	*1*
13C2 PFDoA	*72*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:30*	*1*
13C8 FOSA	*91*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:30*	*1*
13C5-PFPeA	*42*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:30*	*1*
13C2-PFTeDA	*74*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:30*	*1*
d3-NMeFOSAA	*85*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:30*	*1*
d5-NEtFOSAA	*83*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:30*	*1*
M2-6:2FTS	*121*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:30*	*1*
M2-8:2FTS	*108*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:30*	*1*
13C3-PFBS	*56*		*25 - 150*	*08/08/18 09:20*	*08/11/18 21:30*	*1*

Client Sample ID: MW-12

Date Collected: 07/26/18 11:15
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-3
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		ug/L		07/30/18 14:25	08/07/18 07:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*25*		*15 - 110*	*07/30/18 14:25*	*08/07/18 07:43*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**63**		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluoropentanoic acid (PFPeA)	**94**		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluorohexanoic acid (PFHxA)	**300**		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluoroheptanoic acid (PFHpA)	**27**		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluorooctanoic acid (PFOA)	**61**		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluorononanoic acid (PFNA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluorodecanoic acid (PFDA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluorododecanoic acid (PFDoA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluorobutanesulfonic acid (PFBS)	**220**		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluorohexanesulfonic acid (PFHxS)	**410**		3.2		ng/L		08/08/18 09:20	08/13/18 15:52	2
Perfluoroheptanesulfonic Acid (PFHpS)	**5.2**		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluorooctanesulfonic acid (PFOS)	**30**		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
Perfluorooctane Sulfonamide (PFOSA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:02	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		16		ng/L		08/08/18 09:20	08/11/18 22:02	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		16		ng/L		08/08/18 09:20	08/11/18 22:02	1

Client Sample ID: MW-12

Date Collected: 07/26/18 11:15
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		16		ng/L		08/08/18 09:20	08/11/18 22:02	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		16		ng/L		08/08/18 09:20	08/11/18 22:02	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*84*		*25 - 150*	*08/08/18 09:20*	*08/13/18 15:52*	*2*
13C4-PFHpA	*56*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
13C4 PFOA	*80*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
13C4 PFOS	*94*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
13C5 PFNA	*97*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
13C4 PFBA	*20*	*	*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
13C2 PFHxA	*43*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
13C2 PFDA	*100*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
13C2 PFUnA	*100*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
13C2 PFDoA	*83*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
13C8 FOSA	*86*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
13C5-PFPeA	*34*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
13C2-PFTeDA	*76*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
d3-NMeFOSAA	*83*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
d5-NEtFOSAA	*91*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
M2-6:2FTS	*140*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
M2-8:2FTS	*120*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*
13C3-PFBS	*51*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:02*	*1*

Client Sample ID: MW-14N

Date Collected: 07/26/18 10:00
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-4
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	**0.31**		0.20		ug/L		07/30/18 14:25	08/07/18 08:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*27*		*15 - 110*	*07/30/18 14:25*	*08/07/18 08:07*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**46**		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluoropentanoic acid (PFPeA)	**4.5**		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluorohexanoic acid (PFHxA)	**4.2**		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluorooctanoic acid (PFOA)	**2.2**		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluorononanoic acid (PFNA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluorodecanoic acid (PFDA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluorododecanoic acid (PFDoA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluorobutanesulfonic acid (PFBS)	**3.9**		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1

Client Sample ID: MW-14N

Date Collected: 07/26/18 10:00
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
Perfluorooctane Sulfonamide (PFOSA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:18	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		16		ng/L		08/08/18 09:20	08/11/18 22:18	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		16		ng/L		08/08/18 09:20	08/11/18 22:18	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		16		ng/L		08/08/18 09:20	08/11/18 22:18	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		16		ng/L		08/08/18 09:20	08/11/18 22:18	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*74*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
13C4-PFHpA	*55*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
13C4 PFOA	*71*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
13C4 PFOS	*89*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
13C5 PFNA	*82*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
13C4 PFBA	*16*	*	*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
13C2 PFHxA	*41*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
13C2 PFDA	*82*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
13C2 PFUnA	*77*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
13C2 PFDoA	*64*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
13C8 FOSA	*77*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
13C5-PFPeA	*34*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
13C2-PFTeDA	*69*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
d3-NMeFOSAA	*70*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
d5-NEtFOSAA	*70*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
M2-6:2FTS	*97*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
M2-8:2FTS	*96*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*
13C3-PFBS	*47*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:18*	*1*

Client Sample ID: MW-5R

Date Collected: 07/26/18 10:10
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-5
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	**0.23**		0.20		ug/L		07/30/18 14:25	08/07/18 08:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*28*		*15 - 110*	*07/30/18 14:25*	*08/07/18 08:30*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**15**		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluoropentanoic acid (PFPeA)	**12**		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluorohexanoic acid (PFHxA)	**3.3**		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluorooctanoic acid (PFOA)	**7.0**		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1

Client Sample ID: MW-5R

Date Collected: 07/26/18 10:10
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-5

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluorodecanoic acid (PFDA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluorododecanoic acid (PFDoA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluorobutanesulfonic acid (PFBS)	**6.2**		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluorooctanesulfonic acid (PFOS)	**5.5**		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
Perfluorooctane Sulfonamide (PFOSA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 22:33	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		16		ng/L		08/08/18 09:20	08/11/18 22:33	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		16		ng/L		08/08/18 09:20	08/11/18 22:33	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		16		ng/L		08/08/18 09:20	08/11/18 22:33	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		16		ng/L		08/08/18 09:20	08/11/18 22:33	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*96*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
13C4-PFHpA	*54*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
13C4 PFOA	*87*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
13C4 PFOS	*125*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
13C5 PFNA	*110*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
13C4 PFBA	*18*	*	*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
13C2 PFHxA	*36*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
13C2 PFDA	*117*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
13C2 PFUnA	*124*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
13C2 PFDoA	*99*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
13C8 FOSA	*117*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
13C5-PFPeA	*27*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
13C2-PFTeDA	*113*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
d3-NMeFOSAA	*123*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
d5-NEtFOSAA	*129*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
M2-6:2FTS	*210*	*	*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
M2-8:2FTS	*196*	*	*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*
13C3-PFBS	*62*		*25 - 150*	*08/08/18 09:20*	*08/11/18 22:33*	*1*

Client Sample ID: EQUIPMENT BLANK 1 (ROPE)

Date Collected: 07/26/18 09:35
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-6

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	**0.22**		0.20		ug/L		07/30/18 14:25	08/07/18 08:54	1

Client Sample ID: EQUIPMENT BLANK 1 (ROPE)

Date Collected: 07/26/18 09:35
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-6

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	27		15 - 110	07/30/18 14:25	08/07/18 08:54	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluoropentanoic acid (PFPeA)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluorohexanoic acid (PFHxA)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluorooctanoic acid (PFOA)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluorononanoic acid (PFNA)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluorodecanoic acid (PFDA)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluorododecanoic acid (PFDoA)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
Perfluorooctane Sulfonamide (PFOSA)	ND		1.7		ng/L		08/08/18 09:20	08/11/18 22:49	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		17		ng/L		08/08/18 09:20	08/11/18 22:49	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		17		ng/L		08/08/18 09:20	08/11/18 22:49	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		17		ng/L		08/08/18 09:20	08/11/18 22:49	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		17		ng/L		08/08/18 09:20	08/11/18 22:49	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	94		25 - 150	08/08/18 09:20	08/11/18 22:49	1
13C4-PFHpA	90		25 - 150	08/08/18 09:20	08/11/18 22:49	1
13C4 PFOA	93		25 - 150	08/08/18 09:20	08/11/18 22:49	1
13C4 PFOS	99		25 - 150	08/08/18 09:20	08/11/18 22:49	1
13C5 PFNA	95		25 - 150	08/08/18 09:20	08/11/18 22:49	1
13C4 PFBA	90		25 - 150	08/08/18 09:20	08/11/18 22:49	1
13C2 PFHxA	105		25 - 150	08/08/18 09:20	08/11/18 22:49	1
13C2 PFDA	99		25 - 150	08/08/18 09:20	08/11/18 22:49	1
13C2 PFUnA	103		25 - 150	08/08/18 09:20	08/11/18 22:49	1
13C2 PFDoA	85		25 - 150	08/08/18 09:20	08/11/18 22:49	1
13C8 FOSA	57		25 - 150	08/08/18 09:20	08/11/18 22:49	1
13C5-PFPeA	100		25 - 150	08/08/18 09:20	08/11/18 22:49	1
13C2-PFTeDA	66		25 - 150	08/08/18 09:20	08/11/18 22:49	1
d3-NMeFOSAA	100		25 - 150	08/08/18 09:20	08/11/18 22:49	1
d5-NEtFOSAA	96		25 - 150	08/08/18 09:20	08/11/18 22:49	1
M2-6:2FTS	117		25 - 150	08/08/18 09:20	08/11/18 22:49	1
M2-8:2FTS	115		25 - 150	08/08/18 09:20	08/11/18 22:49	1
13C3-PFBS	96		25 - 150	08/08/18 09:20	08/11/18 22:49	1

Client Sample ID: EQUIPMENT BLANK 2 (BAILER)

Lab Sample ID: 480-139587-7

Date Collected: 07/26/18 09:40

Matrix: Water

Date Received: 07/26/18 13:00

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	0.33		0.20		ug/L		07/30/18 14:25	08/07/18 09:17	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*28*		*15 - 110*	*07/30/18 14:25*	*08/07/18 09:17*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluoropentanoic acid (PFPeA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluorohexanoic acid (PFHxA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluorooctanoic acid (PFOA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluorononanoic acid (PFNA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluorodecanoic acid (PFDA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluorododecanoic acid (PFDoA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
Perfluorooctane Sulfonamide (PFOSA)	ND		1.6		ng/L		08/08/18 09:20	08/11/18 23:05	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		16		ng/L		08/08/18 09:20	08/11/18 23:05	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		16		ng/L		08/08/18 09:20	08/11/18 23:05	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		16		ng/L		08/08/18 09:20	08/11/18 23:05	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		16		ng/L		08/08/18 09:20	08/11/18 23:05	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*92*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
13C4-PFHpA	*83*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
13C4 PFOA	*90*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
13C4 PFOS	*93*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
13C5 PFNA	*87*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
13C4 PFBA	*68*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
13C2 PFHxA	*93*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
13C2 PFDA	*93*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
13C2 PFUnA	*92*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
13C2 PFDoA	*68*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
13C8 FOSA	*54*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
13C5-PFPeA	*82*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
13C2-PFTeDA	*56*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
d3-NMeFOSAA	*78*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
d5-NEtFOSAA	*78*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
M2-6:2FTS	*82*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*
M2-8:2FTS	*96*		*25 - 150*	*08/08/18 09:20*	*08/11/18 23:05*	*1*

Client: LAN Associates Inc
Project/Site: Witmer Road G/W Emerging Contaminants

TestAmerica Job ID: 480-139587-1

Client Sample ID: EQUIPMENT BLANK 2 (BAILER)
Date Collected: 07/26/18 09:40
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-7
Matrix: Water

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3-PFBS	85		25 - 150	08/08/18 09:20	08/11/18 23:05	1

Isotope Dilution Summary

Client: LAN Associates Inc
Project/Site: Witmer Road G/W Emerging Contaminants

TestAmerica Job ID: 480-139587-1

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)							
480-139587-1	BR-1	24							
480-139587-2	MW-3R	29							
480-139587-3	MW-12	25							
480-139587-4	MW-14N	27							
480-139587-5	MW-5R	28							
480-139587-6	EQUIPMENT BLANK 1 (ROPE)	27							
480-139587-7	EQUIPMENT BLANK 2 (BAILEF	28							
LCS 480-427086/2-A	Lab Control Sample	31							
MB 480-427086/1-A	Method Blank	30							

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	PFHxS (25-150)	PFHpA (25-150)	PFOA (25-150)	PFOS (25-150)	PFNA (25-150)	PFBA (25-150)	PFHxA (25-150)	PFDA (25-150)
480-139587-1	BR-1	90	65	87	119	99	28	52	105
480-139587-2	MW-3R	89	71	81	103	93	21 *	54	92
480-139587-3	MW-12		56	80	94	97	20 *	43	100
480-139587-3	MW-12	84							
480-139587-4	MW-14N	74	55	71	89	82	16 *	41	82
480-139587-5	MW-5R	96	54	87	125	110	18 *	36	117
480-139587-6	EQUIPMENT BLANK 1 (ROPE)	94	90	93	99	95	90	105	99
480-139587-7	EQUIPMENT BLANK 2 (BAILEF	92	83	90	93	87	68	93	93
LCS 200-132646/2-A	Lab Control Sample	92	85	87	101	92	74	100	95
LCSD 200-132646/3-A	Lab Control Sample Dup	93	84	92	99	91	80	105	97
MB 200-132646/1-A	Method Blank	88	82	87	99	85	76	99	93

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFOSA (25-150)	PFPeA (25-150)	PFTDA (25-150)	-NMeFOS/ (25-150)	-NEtFOS/ (25-150)	M262FTS (25-150)
480-139587-1	BR-1	106	89	94	41	107	105	110	189 *
480-139587-2	MW-3R	91	72	91	42	74	85	83	121
480-139587-3	MW-12	100	83	86	34	76	83	91	140
480-139587-3	MW-12								
480-139587-4	MW-14N	77	64	77	34	69	70	70	97
480-139587-5	MW-5R	124	99	117	27	113	123	129	210 *
480-139587-6	EQUIPMENT BLANK 1 (ROPE)	103	85	57	100	66	100	96	117
480-139587-7	EQUIPMENT BLANK 2 (BAILEF	92	68	54	82	56	78	78	82
LCS 200-132646/2-A	Lab Control Sample	94	82	60	92	59	86	89	131
LCSD 200-132646/3-A	Lab Control Sample Dup	99	69	58	91	58	90	82	126
MB 200-132646/1-A	Method Blank	93	69	56	97	54	76	80	94

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M282FTS (25-150)	3C3-PFBS (25-150)						
480-139587-1	BR-1	180 *	65						
480-139587-2	MW-3R	108	56						

Isotope Dilution Summary

Client: LAN Associates Inc
Project/Site: Witmer Road G/W Emerging Contaminants

TestAmerica Job ID: 480-139587-1

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	M282FTS (25-150)	3C3-PFBS (25-150)								
480-139587-3	MW-12	120	51								
480-139587-3	MW-12										
480-139587-4	MW-14N	96	47								
480-139587-5	MW-5R	196 *	62								
480-139587-6	EQUIPMENT BLANK 1 (ROPE)	115	96								
480-139587-7	EQUIPMENT BLANK 2 (BAILEF	96	85								
LCS 200-132646/2-A	Lab Control Sample	101	93								
LCSD 200-132646/3-A	Lab Control Sample Dup	111	94								
MB 200-132646/1-A	Method Blank	104	92								

Surrogate Legend

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

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

Lab Sample ID: MB 480-427086/1-A
Matrix: Water
Analysis Batch: 428263

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 427086

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20		ug/L		07/30/18 14:25	08/07/18 04:58	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*30*		*15 - 110*	*07/30/18 14:25*	*08/07/18 04:58*	*1*

Lab Sample ID: LCS 480-427086/2-A
Matrix: Water
Analysis Batch: 428263

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 427086

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.00	1.24	E	ug/L		124	40 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8	*31*		*15 - 110*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 200-132646/1-A
Matrix: Water
Analysis Batch: 132796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 132646

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluoropentanoic acid (PFPeA)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluorohexanoic acid (PFHxA)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluorooctanoic acid (PFOA)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluorononanoic acid (PFNA)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluorodecanoic acid (PFDA)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluorododecanoic acid (PFDoA)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
Perfluorooctane Sulfonamide (PFOSA)	ND		2.0		ng/L		08/08/18 09:20	08/11/18 18:35	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20		ng/L		08/08/18 09:20	08/11/18 18:35	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20		ng/L		08/08/18 09:20	08/11/18 18:35	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		20		ng/L		08/08/18 09:20	08/11/18 18:35	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		20		ng/L		08/08/18 09:20	08/11/18 18:35	1

QC Sample Results

Client: LAN Associates Inc
Project/Site: Witmer Road G/W Emerging Contaminants

TestAmerica Job ID: 480-139587-1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	88		25 - 150	08/08/18 09:20	08/11/18 18:35	1
13C4-PFHpA	82		25 - 150	08/08/18 09:20	08/11/18 18:35	1
13C4 PFOA	87		25 - 150	08/08/18 09:20	08/11/18 18:35	1
13C4 PFOS	99		25 - 150	08/08/18 09:20	08/11/18 18:35	1
13C5 PFNA	85		25 - 150	08/08/18 09:20	08/11/18 18:35	1
13C4 PFBA	76		25 - 150	08/08/18 09:20	08/11/18 18:35	1
13C2 PFHxA	99		25 - 150	08/08/18 09:20	08/11/18 18:35	1
13C2 PFDA	93		25 - 150	08/08/18 09:20	08/11/18 18:35	1
13C2 PFUnA	93		25 - 150	08/08/18 09:20	08/11/18 18:35	1
13C2 PFDoA	69		25 - 150	08/08/18 09:20	08/11/18 18:35	1
13C8 FOSA	56		25 - 150	08/08/18 09:20	08/11/18 18:35	1
13C5-PFPeA	97		25 - 150	08/08/18 09:20	08/11/18 18:35	1
13C2-PFTeDA	54		25 - 150	08/08/18 09:20	08/11/18 18:35	1
d3-NMeFOSAA	76		25 - 150	08/08/18 09:20	08/11/18 18:35	1
d5-NEtFOSAA	80		25 - 150	08/08/18 09:20	08/11/18 18:35	1
M2-6:2FTS	94		25 - 150	08/08/18 09:20	08/11/18 18:35	1
M2-8:2FTS	104		25 - 150	08/08/18 09:20	08/11/18 18:35	1
13C3-PFBS	92		25 - 150	08/08/18 09:20	08/11/18 18:35	1

Lab Sample ID: LCS 200-132646/2-A
Matrix: Water
Analysis Batch: 132796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 132646

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	44.4		ng/L		111	50 - 150
Perfluoropentanoic acid (PFPeA)	40.0	42.5		ng/L		106	50 - 150
Perfluorohexanoic acid (PFHxA)	40.0	43.8		ng/L		110	50 - 150
Perfluoroheptanoic acid (PFHpA)	40.0	42.1		ng/L		105	50 - 150
Perfluorooctanoic acid (PFOA)	40.0	42.9		ng/L		107	50 - 150
Perfluorononanoic acid (PFNA)	40.0	42.4		ng/L		106	50 - 150
Perfluorodecanoic acid (PFDA)	40.0	42.7		ng/L		107	50 - 150
Perfluoroundecanoic acid (PFUnA)	40.0	43.7		ng/L		109	50 - 150
Perfluorododecanoic acid (PFDoA)	40.0	36.7		ng/L		92	50 - 150
Perfluorotridecanoic Acid (PFTriA)	40.0	29.3		ng/L		73	50 - 150
Perfluorotetradecanoic acid (PFTeA)	40.0	39.5		ng/L		99	50 - 150
Perfluorobutanesulfonic acid (PFBS)	40.0	41.8		ng/L		104	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	40.0	40.3		ng/L		101	50 - 150
Perfluoroheptanesulfonic Acid (PFHpS)	40.0	43.0		ng/L		108	50 - 150
Perfluorooctanesulfonic acid (PFOS)	40.0	42.3		ng/L		106	50 - 150
Perfluorodecanesulfonic acid (PFDS)	40.0	33.9		ng/L		85	50 - 150
Perfluorooctane Sulfonamide (PFOSA)	40.0	39.6		ng/L		99	50 - 150
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	45.9		ng/L		115	50 - 150
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	41.2		ng/L		103	50 - 150

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

Lab Sample ID: LCS 200-132646/2-A
Matrix: Water
Analysis Batch: 132796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 132646

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)			40.0	36.8		ng/L		92	50 - 150		
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)			40.0	42.4		ng/L		106	50 - 150		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
18O2 PFHxS	*92*		*25 - 150*
13C4-PFHpA	*85*		*25 - 150*
13C4 PFOA	*87*		*25 - 150*
13C4 PFOS	*101*		*25 - 150*
13C5 PFNA	*92*		*25 - 150*
13C4 PFBA	*74*		*25 - 150*
13C2 PFHxA	*100*		*25 - 150*
13C2 PFDA	*95*		*25 - 150*
13C2 PFUnA	*94*		*25 - 150*
13C2 PFDoA	*82*		*25 - 150*
13C8 FOSA	*60*		*25 - 150*
13C5-PFPeA	*92*		*25 - 150*
13C2-PFTeDA	*59*		*25 - 150*
d3-NMeFOSAA	*86*		*25 - 150*
d5-NEtFOSAA	*89*		*25 - 150*
M2-6:2FTS	*131*		*25 - 150*
M2-8:2FTS	*101*		*25 - 150*
13C3-PFBS	*93*		*25 - 150*

Lab Sample ID: LCSD 200-132646/3-A
Matrix: Water
Analysis Batch: 132796

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 132646

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	42.2		ng/L		105	50 - 150	5	30
Perfluoropentanoic acid (PFPeA)			40.0	42.7		ng/L		107	50 - 150	1	30
Perfluorohexanoic acid (PFHxA)			40.0	43.0		ng/L		108	50 - 150	2	30
Perfluoroheptanoic acid (PFHpA)			40.0	40.7		ng/L		102	50 - 150	3	30
Perfluorooctanoic acid (PFOA)			40.0	40.5		ng/L		101	50 - 150	6	30
Perfluorononanoic acid (PFNA)			40.0	45.0		ng/L		113	50 - 150	6	30
Perfluorodecanoic acid (PFDA)			40.0	42.1		ng/L		105	50 - 150	1	30
Perfluoroundecanoic acid (PFUnA)			40.0	41.8		ng/L		104	50 - 150	5	30
Perfluorododecanoic acid (PFDoA)			40.0	39.5		ng/L		99	50 - 150	7	30
Perfluorotridecanoic Acid (PFTriA)			40.0	31.5		ng/L		79	50 - 150	7	30
Perfluorotetradecanoic acid (PFTeA)			40.0	40.5		ng/L		101	50 - 150	3	30
Perfluorobutanesulfonic acid (PFBS)			40.0	42.8		ng/L		107	50 - 150	2	30
Perfluorohexanesulfonic acid (PFHxS)			40.0	39.2		ng/L		98	50 - 150	3	30
Perfluoroheptanesulfonic Acid (PFHpS)			40.0	45.0		ng/L		112	50 - 150	4	30

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

Lab Sample ID: LCSD 200-132646/3-A
Matrix: Water
Analysis Batch: 132796

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 132646

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)			40.0	43.0		ng/L		108	50 - 150	2	30
Perfluorodecanesulfonic acid (PFDS)			40.0	31.5		ng/L		79	50 - 150	7	30
Perfluorooctane Sulfonamide (PFOSA)			40.0	38.6		ng/L		97	50 - 150	2	30
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)			40.0	42.7		ng/L		107	50 - 150	7	30
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)			40.0	42.2		ng/L		106	50 - 150	3	30
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)			40.0	38.4		ng/L		96	50 - 150	4	30
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)			40.0	45.3		ng/L		113	50 - 150	7	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
18O2 PFHxS	*93*		*25 - 150*
13C4-PFHpA	*84*		*25 - 150*
13C4 PFOA	*92*		*25 - 150*
13C4 PFOS	*99*		*25 - 150*
13C5 PFNA	*91*		*25 - 150*
13C4 PFBA	*80*		*25 - 150*
13C2 PFHxA	*105*		*25 - 150*
13C2 PFDA	*97*		*25 - 150*
13C2 PFUnA	*99*		*25 - 150*
13C2 PFDoA	*69*		*25 - 150*
13C8 FOSA	*58*		*25 - 150*
13C5-PFPeA	*91*		*25 - 150*
13C2-PFTeDA	*58*		*25 - 150*
d3-NMeFOSAA	*90*		*25 - 150*
d5-NEtFOSAA	*82*		*25 - 150*
M2-6:2FTS	*126*		*25 - 150*
M2-8:2FTS	*111*		*25 - 150*
13C3-PFBS	*94*		*25 - 150*

GC/MS Semi VOA

Prep Batch: 427086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-139587-1	BR-1	Total/NA	Water	3510C	
480-139587-2	MW-3R	Total/NA	Water	3510C	
480-139587-3	MW-12	Total/NA	Water	3510C	
480-139587-4	MW-14N	Total/NA	Water	3510C	
480-139587-5	MW-5R	Total/NA	Water	3510C	
480-139587-6	EQUIPMENT BLANK 1 (ROPE)	Total/NA	Water	3510C	
480-139587-7	EQUIPMENT BLANK 2 (BAILER)	Total/NA	Water	3510C	
MB 480-427086/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-427086/2-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 428263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-139587-1	BR-1	Total/NA	Water	8270D SIM ID	427086
480-139587-2	MW-3R	Total/NA	Water	8270D SIM ID	427086
480-139587-3	MW-12	Total/NA	Water	8270D SIM ID	427086
480-139587-4	MW-14N	Total/NA	Water	8270D SIM ID	427086
480-139587-5	MW-5R	Total/NA	Water	8270D SIM ID	427086
480-139587-6	EQUIPMENT BLANK 1 (ROPE)	Total/NA	Water	8270D SIM ID	427086
480-139587-7	EQUIPMENT BLANK 2 (BAILER)	Total/NA	Water	8270D SIM ID	427086
MB 480-427086/1-A	Method Blank	Total/NA	Water	8270D SIM ID	427086
LCS 480-427086/2-A	Lab Control Sample	Total/NA	Water	8270D SIM ID	427086

LCMS

Prep Batch: 132646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-139587-1	BR-1	Total/NA	Water	3535	
480-139587-2	MW-3R	Total/NA	Water	3535	
480-139587-3	MW-12	Total/NA	Water	3535	
480-139587-4	MW-14N	Total/NA	Water	3535	
480-139587-5	MW-5R	Total/NA	Water	3535	
480-139587-6	EQUIPMENT BLANK 1 (ROPE)	Total/NA	Water	3535	
480-139587-7	EQUIPMENT BLANK 2 (BAILER)	Total/NA	Water	3535	
MB 200-132646/1-A	Method Blank	Total/NA	Water	3535	
LCS 200-132646/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 200-132646/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 132796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-139587-1	BR-1	Total/NA	Water	537 (modified)	132646
480-139587-2	MW-3R	Total/NA	Water	537 (modified)	132646
480-139587-3	MW-12	Total/NA	Water	537 (modified)	132646
480-139587-4	MW-14N	Total/NA	Water	537 (modified)	132646
480-139587-5	MW-5R	Total/NA	Water	537 (modified)	132646
480-139587-6	EQUIPMENT BLANK 1 (ROPE)	Total/NA	Water	537 (modified)	132646
480-139587-7	EQUIPMENT BLANK 2 (BAILER)	Total/NA	Water	537 (modified)	132646
MB 200-132646/1-A	Method Blank	Total/NA	Water	537 (modified)	132646
LCS 200-132646/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	132646
LCSD 200-132646/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	132646

LCMS (Continued)

Analysis Batch: 132831

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-139587-3	MW-12	Total/NA	Water	537 (modified)	132646

Lab Chronicle

Client: LAN Associates Inc
Project/Site: Witmer Road G/W Emerging Contaminants

TestAmerica Job ID: 480-139587-1

Client Sample ID: BR-1
Date Collected: 07/26/18 10:55
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			427086	07/30/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	428263	08/07/18 06:56	DMR	TAL BUF
Total/NA	Prep	3535			132646	08/08/18 09:20	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132796	08/11/18 21:14	BWC	TAL BUR

Client Sample ID: MW-3R
Date Collected: 07/26/18 10:40
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			427086	07/30/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	428263	08/07/18 07:19	DMR	TAL BUF
Total/NA	Prep	3535			132646	08/08/18 09:20	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132796	08/11/18 21:30	BWC	TAL BUR

Client Sample ID: MW-12
Date Collected: 07/26/18 11:15
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			427086	07/30/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	428263	08/07/18 07:43	DMR	TAL BUF
Total/NA	Prep	3535			132646	08/08/18 09:20	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132796	08/11/18 22:02	BWC	TAL BUR
Total/NA	Prep	3535			132646	08/08/18 09:20	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		2	132831	08/13/18 15:52	BWC	TAL BUR

Client Sample ID: MW-14N
Date Collected: 07/26/18 10:00
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			427086	07/30/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	428263	08/07/18 08:07	DMR	TAL BUF
Total/NA	Prep	3535			132646	08/08/18 09:20	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132796	08/11/18 22:18	BWC	TAL BUR

Client Sample ID: MW-5R
Date Collected: 07/26/18 10:10
Date Received: 07/26/18 13:00

Lab Sample ID: 480-139587-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			427086	07/30/18 14:25	ATG	TAL BUF

Lab Chronicle

Client: LAN Associates Inc
Project/Site: Witmer Road G/W Emerging Contaminants

TestAmerica Job ID: 480-139587-1

Client Sample ID: MW-5R

Lab Sample ID: 480-139587-5

Date Collected: 07/26/18 10:10
Date Received: 07/26/18 13:00

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270D SIM ID		1	428263	08/07/18 08:30	DMR	TAL BUF
Total/NA	Prep	3535			132646	08/08/18 09:20	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132796	08/11/18 22:33	BWC	TAL BUR

Client Sample ID: EQUIPMENT BLANK 1 (ROPE)

Lab Sample ID: 480-139587-6

Date Collected: 07/26/18 09:35
Date Received: 07/26/18 13:00

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			427086	07/30/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	428263	08/07/18 08:54	DMR	TAL BUF
Total/NA	Prep	3535			132646	08/08/18 09:20	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132796	08/11/18 22:49	BWC	TAL BUR

Client Sample ID: EQUIPMENT BLANK 2 (BAILER)

Lab Sample ID: 480-139587-7

Date Collected: 07/26/18 09:40
Date Received: 07/26/18 13:00

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			427086	07/30/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	428263	08/07/18 09:17	DMR	TAL BUF
Total/NA	Prep	3535			132646	08/08/18 09:20	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132796	08/11/18 23:05	BWC	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: LAN Associates Inc
Project/Site: Witmer Road G/W Emerging Contaminants

TestAmerica Job ID: 480-139587-1

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

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

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10391	04-01-19

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	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)
537 (modified)	3535	Water	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)
537 (modified)	3535	Water	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)
537 (modified)	3535	Water	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)
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 (PFOSA)
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: LAN Associates Inc
Project/Site: Witmer Road G/W Emerging Contaminants

TestAmerica Job ID: 480-139587-1

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: LAN Associates Inc
Project/Site: Witmer Road G/W Emerging Contaminants

TestAmerica Job ID: 480-139587-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-139587-1	BR-1	Water	07/26/18 10:55	07/26/18 13:00
480-139587-2	MW-3R	Water	07/26/18 10:40	07/26/18 13:00
480-139587-3	MW-12	Water	07/26/18 11:15	07/26/18 13:00
480-139587-4	MW-14N	Water	07/26/18 10:00	07/26/18 13:00
480-139587-5	MW-5R	Water	07/26/18 10:10	07/26/18 13:00
480-139587-6	EQUIPMENT BLANK 1 (ROPE)	Water	07/26/18 09:35	07/26/18 13:00
480-139587-7	EQUIPMENT BLANK 2 (BAILER)	Water	07/26/18 09:40	07/26/18 13:00

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIR

480-139587 COC

Client Information	Sampler: TB/EB	Lab PM: Stone, Judy L	Carrier Tracking No(s):	COC No: 480-115413-26687.
Client Contact: Gary Joiner	Phone:	E-Mail: judy.stone@testamericainc.com		Page: Page 1 of 1
Company: CC Metals and Alloys LLC				Job #:

Address: PO BOX 217	Due Date Requested:
City: Calvert City	TAT Requested (days):
State, Zip: KY, 42029	
Phone: 904-343-3087(Tel) 904-824-0726(Fax)	PO #: Purchase Order not required
Email: gjoiner@ccmetals.com	WO #:
Project Name: Witmer Road G/W/ Event Desc: Witmer Road G/W	Project #: 48003429
Site: New York	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

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)	8270D_SIM_MS_ID - SIM List	PFC_IDA - PFAS, Standard List (21 analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
BR-1	7-26-18	1055	G	Water			2	2	4	
MW-3R		1040		Water			2	2	4	
MW-12		1115		Water			2	2	4	
MW-14N		1006		Water			2	2	4	
MW-5R		1010		Water			2	2	4	
EQUIPMENT BLANK 1 (ROPE)		0935		Water			2	2	4	
EQUIPMENT BLANK 2 (BAILER)	7-26-18	0940	G	Water			2	2	4	
				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:

Relinquished by:	Date/Time: 7-26-18/1300	Company TAL	Received by:	Date/Time: 7/26/18 1300	Company TAB
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
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: 2.1 3.2 2.3 #1

Ver: 08/04/2016

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica
AN ENVIRONMENTAL TESTING

480-139587 Chain of Custody

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Stone, Judy L	
Client Contact: Shipping/Receiving	Phone:	E-Mail: judy.stone@testamericainc.com	
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York	480-139587-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 8/7/2018		
City: South Burlington	TAT Requested (days):		
State, Zip: VT, 05403			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:		
Email:	WO #:		
Project Name: Witmer Road G/W Emerging Contaminants	Project #: 48003429		
Site: Witmer Road GW Annual Sampling	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	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/3535_IWT PFAS, Standard List (21 analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
BR-1 (480-139587-1)	7/26/18	10:55 Eastern		Water			X	2	
MW-3R (480-139587-2)	7/26/18	10:40 Eastern		Water			X	2	
MW-12 (480-139587-3)	7/26/18	11:15 Eastern		Water			X	2	
MW-14N (480-139587-4)	7/26/18	10:00 Eastern		Water			X	2	
MW-5R (480-139587-5)	7/26/18	10:10 Eastern		Water			X	2	
EQUITMENT BLANK 1 (ROPE) (480-139587-6)	7/26/18	09:35 Eastern		Water			X	2	
EQUITMENT BLANK 2(BAILER) (480-139587-7)	7/26/18	09:40 Eastern		Water			X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***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) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 7/27/18 1700	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 7/28/18 0920	Company TAL	

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 526058 | Cooler Temperature(s) °C and Other Remarks: 0.2

Ver: 09/20/2016


ORIGIN ID:DKKA
CHAR BRONSON
TEST AMERICA
10 HAZELWOOD
AMHERST , NY 14228
UNITED STATES US
CAD: 8466547/CHFE
DIMS: 26x15x14 IN
BILL RECIPIENT
TO SAMPLE MGT.
TA BURLINGTON
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
DEPT: SC
REF: BURLINGTON
FedEx
Express
SATURDAY 12:00P
PRIORITY OVERNIGHT
TRK# 0201 4276 0717 3750
XO BTVA
05403
VT-US BTV

Login Sample Receipt Checklist

Client: LAN Associates Inc

Job Number: 480-139587-1

Login Number: 139587
List Number: 1
Creator: Harper, Marcus D

List Source: TestAmerica Buffalo

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	TAL
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: LAN Associates Inc

Job Number: 480-139587-1

Login Number: 139587
List Number: 2
Creator: Mohn, Taylor J

List Source: TestAmerica Burlington
List Creation: 07/28/18 11:06 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	526058
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	0.2ºC
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?	N/A	Received project as a subcontract.
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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

FIELD OBSERVATIONS

Facility: CCMA Wetmer Road PFAS **Sample Point ID:** MW-12

Field Personnel: TR-EB **Sample Matrix:** GW

(X) Grab ( ) Composite

SAMPLING INFORMATION

Date/Time 7-26-18 1115 **Water Level @ Sampling, Feet:**

Method of Sampling: Bailer **Dedicated:** Y / N

Multi-phased/ layered: ( ) Yes ( ) No **If YES:** ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (SU)	Conductivity (µmhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1115	17.3	7.77	~~3306~~ 1336	3.2	224	

INSTRUMENT CALIBRATION INFORMATION

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std 10.0 SU	Check Std 7.0 SU (± 10%)	Cal.Std 1,413 µmhos/cm	Check.Std 1,413 µmhos/cm (± 10%)	Cal.Std 10 NTU	Check Std 10 NTU (± 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions @ time of sampling: 78°F Sunny

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

I certify that sampling procedures were in accordance with all applicable USEPA, State and Site-Specific protocols.

Date: 7/28/18 **By:** [signature] **Company:** TAL

FIELD OBSERVATIONS

Facility: CCMA Wetmer Road PFAS **Sample Point ID:** BR-1

Field Personnel: TB-EB **Sample Matrix:** GW

(X) Grab ( ) Composite

SAMPLING INFORMATION

Date/Time 7-26-18 / 1055 **Water Level @ Sampling, Feet:**

Method of Sampling: Bailer **Dedicated:** Y / N

Multi-phased/ layered: ( ) Yes (X) No **If YES:** ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (SU)	Conductivity (µmhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1055	17.0	8.12	513	4.70	20	

INSTRUMENTATION/EQUIPMENT DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std 10.0 SU	Check Std 7.0 SU (± 10%)	Cal.Std 1,413 µmhos/cm	Check.Std 1,413 µmhos/cm (± 10%)	Cal.Std 10 NTU	Check Std. 10 NTU (± 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions @ time of sampling: 78°F Sunny

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

I certify that sampling procedures were in accordance with all applicable USEPA, State and Site-Specific protocols.

Date: 7/28/18 **By:** [signature] **Company:** TAL

FIELD OBSERVATIONS

Facility: CCMA Witmer Road PFAS **Sample Point ID:** MW-3R

Field Personnel: TR-EB **Sample Matrix:** GW

(x) Grab ( ) Composite

SAMPLING INFORMATION

Date/Time 7-26-18 1040 **Water Level @ Sampling, Feet:**

Method of Sampling: Bailer **Dedicated:** Y / N

Multi-phased/ layered: ( ) Yes ( ) No **If YES:** ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (SU)	Conductivity (µmhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1040	20.3	7.80	1330	6.87	215	

INSTRUMENT CALIBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std 10.0 SU	Check Std 7.0 SU (± 10%)	Cal.Std 1,413 µmhos/cm	Check.Std 1,413 µmhos/cm (± 10%)	Cal.Std 10 NTU	Check Std. 10 NTU (± 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions @ time of sampling: 78°F Sunny

Sample Characteristics: clear

COMMENTS AND OBSERVATIONS:

I certify that sampling procedures were in accordance with all applicable USEPA, State and Site-Specific protocols.

Date: 7/26/18 **By:** [signature] **Company:** TAL

FIELD OBSERVATIONS

Facility: CCMA Wetmer Road PFAS **Sample Point ID:** MW-5R

Field Personnel: TB-EB **Sample Matrix:** GW

(x) Grab ( ) Composite

SAMPLING INFORMATION

Date/Time 7-26-18 / **Water Level @ Sampling, Feet:**

Method of Sampling: Bailer **Dedicated:** Y / N

Multi-phased/ layered: ( ) Yes (x) No **If YES:** ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (SU)	Conductivity (µmhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1010	17.7	8.27	960	5.08	83	

INSTRUMENT/EQUIPMENT CALIBRATION

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std 10.0 SU	Check Std 7.0 SU (± 10%)	Cal.Std 1,413 µmhos/cm	Check.Std 1,413 µmhos/cm (± 10%)	Cal.Std 10 NTU	Check Std. 10 NTU (± 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions @ time of sampling: 78° F Sunny

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

I certify that sampling procedures were in accordance with all applicable USEPA, State and Site-Specific protocols.

Date: 7/28/18 **By:** [signature] **Company:** TAL

FIELD OBSERVATIONS

Facility: CCMA Wetmer Road PFAS **Sample Point ID:** MW-14N

Field Personnel: TR-EB **Sample Matrix:** GW

(x) Grab ( ) Composite

SAMPLING INFORMATION:

Date/Time 7-26-18 / 1000 **Water Level @ Sampling, Feet:**

Method of Sampling: Bailer **Dedicated:** Y / N

Multi-phased/ layered: ( ) Yes (X) No **If YES:** ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (SU)	Conductivity (µmhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1000	19.3	8.19	1548	3.92	49	

INSTRUMENT CALIBRATION/CHECK DATA:

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std 10.0 SU	Check Std 7.0 SU (± 10%)	Cal.Std 1,413 µmhos/cm	Check.Std 1,413 µmhos/cm (± 10%)	Cal.Std 10 NTU	Check Std. 10 NTU (± 10%)
Solution ID#								

GENERAL INFORMATION:

Weather conditions @ time of sampling: 78° Sunny

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

I certify that sampling procedures were in accordance with all applicable USEPA, State and Site-Specific protocals.

Date: 7/28/18 **By:** [signature] **Company:** TAL

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: TB/EB	Lab PM: Stone, Judy L	Carrier Tracking No(s):	COC No: 480-115413-26687.1
Client Contact: Gary Joiner	Phone:	E-Mail: judy.stone@testamericainc.com		Page: Page 1 of 1
Company: CC Metals and Alloys LLC		Analysis Requested		Job #:
Address: PO BOX 217	Due Date Requested:			Preservation Codes:
City: Calvert City	TAT Requested (days):			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 4-6, Z - other (specify)
State, Zip: KY, 42029				
Phone: 904-343-3087(Tel) 904-824-0726(Fax)	PO #: Purchase Order not required			Other:
Email: gjoiner@ccmetals.com	WO #:			
Project Name: Wilmer Road G/W/ Event Desc: Wilmer Road G/W	Project #: 48003429			
Site: New York	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)	537(0)_SIM_MS_ID - SIM List	PFC_IDA - PFAS, Standard List (21 analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	N	N	X	
BR-1	7-26-18	1055	G	Water			2	2	4	
MW-3R		1040		Water			2	2	4	
MW-12		1115		Water			2	2	4	
MW-14N		1000		Water			2	2	4	
MW-5R		1010		Water			2	2	4	
EQUIPMENT BLANK 1		0935		Water			2	2	4	
EQUIPMENT BLANK 2	7-26-18	0940	G	Water			2	2	4	
				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:

Relinquished by:	Date/Time: 7-26-18 / 1300	Company: TAL	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
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:

Ver: 08/04/2016

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIR

480-139587 COC

Client Information	Sampler: TB/EB	Lab PM: Stone, Judy L	Carrier Tracking No(s):	COC No: 480-115413-26687.
Client Contact: Gary Joiner	Phone:	E-Mail: judy.stone@testamericainc.com		Page: Page 1 of 1
Company: CC Metals and Alloys LLC				Job #:

Address: PO BOX 217	Due Date Requested:
City: Calvert City	TAT Requested (days):
State, Zip: KY, 42029	
Phone: 904-343-3087(Tel) 904-824-0726(Fax)	PO #: Purchase Order not required
Email: gjoiner@ccmetals.com	WO #:
Project Name: Witmer Road G/W/ Event Desc: Witmer Road G/W	Project #: 48003429
Site: New York	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

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)	8270D_SIM_MS_ID - SIM List	PFC_IDA - PFAS, Standard List (21 analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
BR-1	7-26-18	1055	G	Water			2	2	4	
MW-3R		1040		Water			2	2	4	
MW-12		1115		Water			2	2	4	
MW-14N		1000		Water			2	2	4	
MW-5R		1010		Water			2	2	4	
EQUIPMENT BLANK 1 (ROPE)		0935		Water			2	2	4	
EQUIPMENT BLANK 2 (BAILER)	7-26-18	0940	G	Water			2	2	4	
				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:

Relinquished by:	Date/Time: 7-26-18/1300	Company: TAL	Received by:	Date/Time: 7/26/18 1300	Company: FOB
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
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: 2.1 3.2 2.3 #1

Ver: 08/04/2016