SUMMARY REPORT

GROUND AND STORMWATER SAMPLING FOR EMERGING CONTAMINANTS

WESTINGHOUSE/NFTA AIRPORT SITE
CHEEKTOWAGA, NEW YORK
NYSDEC SITE # 9-15-006

Prepared for:

Niagara Frontier Transportation Authority
181 Ellicott Street
Buffalo, NY 14203

Prepared by:

BE3CORP
BRYDGES ENGINEERING IN ENVIRONMENT & ENERGY
960 Busti Avenue
Suite B-150
Buffalo, New York 14213

August 2020

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1.0 INTRODUCTION

This document presents a summary of the results of the groundwater and stormwater sampling program at the Westinghouse/NFTA site located on Genesee street in Cheektowaga, New York. The Site is currently in the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program, Site No. 9-15-066, which is administered by the New York State Department of Environmental Conservation (NYSDEC).

The sampling program and this Summary Report conform to the requirements of the approved "Ground/Storm Water Sampling Work Plan" (WP) dated December 2019, which was prepared pursuant to the November 1, 2019 letter from NFTA's counsel, Steven Ricca, to the NYSDEC and is subject to the reservations and defenses therein.

2.0 SITE LOCATION AND DESCRIPTION

The Site is located in the Town of Cheektowaga, Erie County, New York and is identified as Section 92.02 Block 1 and Lots 16.1 and 16.2 on the Erie County Tax Map. The site is approximately 143 acres and is bounded by Aero Drive to the north, Genesee Street to the south, Holtz Drive to the east, and Buffalo-Niagara International Airport to the west. The owner of the site at the time of issuance of this Summary Report is the Niagara Frontier Transportation Authority (NFTA).

The Site consists of the following: airport terminal parking, a portion of a Buffalo Niagara International Airport runway and taxiways, long-term parking areas, remote fueling facility, Mercy Flight of Western New York and grassed/open areas. All buildings and structures related to the Westinghouse Site have been demolished.

3.0 SCOPE OF WORK

One groundwater and one stormwater sample were collected from the following existing locations at the site and analyzed for emerging contaminants (1,4-Dioxane and Per- and Polyfluoroalkyl Substances (PFAS)) Under NYSDEC's Part 375 Remedial Programs.

Groundwater: Eight sampling locations

- MW-28
- MW-5
- MW-31
- MW-30
- MW-35
- MW-34
- MW-34D
- MW-32

Stormwater: Three sampling locations

- 1A
- 2A
- 3A

Figure 1 shows the locations of the above sampling points. The MW points are existing monitoring wells located across the site, and the stormwater points (1A, etc.) are stormwater manholes in proximity to Genesee Street.

4.0 SAMPLING PROCEDURES AND PROTOCOLS

Collection of groundwater and stormwater samples from monitoring wells and stormwater manholes adhered to NYSDEC sampling protocols provided in the WP dated December 2019.

5.0 LABORATORY ANALYSIS

The samples were analyzed for emerging contaminants by Paradigm and Alpha laboratories, which are both NYSDOH environmental laboratory accreditation program (ELAP) certified laboratories that produce NYSDEC Category B data package deliverables. Data Usability Summary Reports (DUSRs) were prepared from our third-party data validator for all samples and are presented in **Appendix A**.

6.0 RESULTS

Monitoring well (MW) samples were collected over two days (June 9 to June 10, 2020). Stormwater manhole samples were to be collected at the same time but the designated manholes were dry. On June 23, 2020 the designated manholes were found to contain water and were sampled.

The analytical results for the MW and stormwater manhole samples are provided in **Table 1** and **Table 2,** respectively. BE3corp is not aware of any duly promulgated NYSDEC guidelines for acceptable levels of emerging contaminants in GW or SW, particularly given the recorded Declaration of Covenants and Restrictions for the site prohibiting consumptive use.

FIGURE 1

LEGEND

MW-32 GROUNDWATER MONITORING WELL

COLLECTION SYSTEM MANHOLE OR SUMP (SYSTEM 001/002/003)

PUMPING MANHOLE (CSMH-001/002/003)

2A MONITORING LOCATION

NFTA STORM SEWER

CSMH FORCEMAIN

CSMH-001 SYSTEM

CSMH-002 SYSTEM

CSMH-003 SYSTEM

Emergent Contaminant Sampling Locations

MW-1 MONITORING WELLS

1A STORM WATER MANHOLES

MW-32 1,400' NORTH

MW-33 400' NORTHEAST

MH-001-09

MH-001-10

MH-001-06

MH-001-13

MH-001-02

MH-001-14

MW-34

MW-34D

MH-001-03 (NOT FOUND)

1B

(NOT FOUND) MH-002-05

MH001-01

CSMH-001

MW-35

1C

MW-30

1A

EAST ENTRANCE/EXIT

MH-002-13

MH-002-12

MH-002-10

MH-002-09

MH-002-15

MH-002-06

MH-002-07

MH-002-03

MH-002-02

MH002-01

CSMH-002

2C

2D

MW-31

2B

3A

2A

MH-003-07

LONG TERM PARKING

MW-2

MW-28

MH-003-04

MH-003-03

CSMH-003

3B

MH003-01

MW-5

MH-003-02

3C

PARKING

GENESEE STREET

N

0 80 160ft

Figure 1:
NFTA Storm Sewer
Monitoring Well Locations

NYSDEC Site No. 9-15-066
Cheektowaga, New York

12-13-09 | SCALE: N/A

TABLES

TABLE 1
EMERGING CONTAMINANTS IN GROUNDWATER MW SAMPLES

Sample Number	MW-5	MW-28	MW-30	MW-31	MW-32	MW-34	MW-34D	MW-35
Sample Date	**6/9/2020**	**6/9/2020**	**6/10/2020**	**6/9/2020**	**6/10/2020**	**6/10/2020**	**6/10/2020**	**6/9/2020**
1,4 Dioxane by 8270D UNITS:	**PPB**	**PPB**	**PPB**	**PPB**	**PPB**	**PPB**	**PPB**	**PPB**
1,4 Dioxane	ND	ND	ND	ND	0.238	ND	ND	ND
Note: PPB = parts per billion (µg/l)								
Perfluorinated Alkyl Acids by Isotope Dilution EPA 537 UNITS:	**PPT**	**PPT**	**PPT**	**PPT**	**PPT**	**PPT**	**PPT**	**PPT**
Perfluorobutanoic Acid (PFBA)	5.54	25.7	3.40	3.02	15.5	14.0	5.65	11.8 J
Perfluoropentanoic Acid (PFPeA)	6.43	18.6	2.62	3.50	30.6	16.0	4.53	23.9 J
Perfluorobutanesulfonic Acid (PFBS)	ND	0.305 J	0.632 J	ND	1.95 J	ND	0.344 J	0.249 J
Perfluorohexanoic Acid (PFHxA)	ND	5.19	1.96 J	ND	17.0	8.37	ND	12.1 J
Perfluoroheptanoic Acid (PFHpA)	0.848 J	2.88	0.897 J	0.776 J	7.28	1.36 J	2.56	8.07 J
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	1.22 J	ND	6.21	ND	ND	0.328 J
Perfluorooctanoic Acid (PFOA)	0.469 J	1.68 J	1.94 J	1.02 J	8.03	2.41	2.56	6.54 J
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ND	ND	3.32	ND	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic Acid (PFNA)	ND	0.478 J	0.367 J	0.423 J	1.42 J	ND	1.8 J	0.996 J
Perfluorooctanesulfonic Acid (PFOS)	ND	0.991 J	4.10	0.697 J	6.58	ND	1.90	1.54 J
Perfluorodecanoic Acid (PFDA)	ND	ND	0.367 J	ND	1.37 J	ND	1.08 J	1.1 J
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ND	ND	ND	ND	0.288 J	0.387 J
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (FOSA)	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	ND	ND	ND	0.393 J	ND
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ND	ND	ND	ND	ND	ND
PFOA/PFOS Total	13.287 J	55.824 J	15.543 J	9.436 J	99.26 J	42.14 J	21.105 J	67.01 J
Well Development Field Parameters								
Turbidity (NTU)	52.3	11.7	138.00	7.00	16.10	55.80	191.00	13.70
pH	8.67	8.20	8.31	8.77	8.42	8.74	9.20	8.40
Dissolved Oxygen	7.42	1.40	0.76	4.52	0.84	2.52	0.94	1.14
Temp (degrees C)	17.79	13.54	20.80	17.22	18.64	14.69	18.30	19.47
Conductivity	4.05	12.30	0.77	8.51	3.88	1.03	0.14	0.31

Note 1: PPT = parts per trillion (ng/l)
Note 2: ND = not detected
Note 3: J = approximate concentration

TABLE 2
EMERGING CONTAMINANTS IN STORMWATER MH SAMPLES

Sample Number		MH-1A	MH-2A	MH-3A
Sample Date		6/23/2020	6/23/2020	6/23/2020
1,4 Dioxane by 8270D	**UNITS:**	**PPB**	**PPB**	**PPB**
1,4 Dioxane		ND	1.30	3.85 J
Note: PPB = parts per billion (µg/l)				
Perfluorinated Alkyl Acids by Isotope Dilution EPA 537	**UNITS:**	**PPT**	**PPT**	**PPT**
Perfluorobutanoic Acid (PFBA)		2.01	366 J	12.1
Perfluoropentanoic Acid (PFPeA)		1.97	8.58 J	8.61
Perfluorobutanesulfonic Acid (PFBS)		1.38 J	0.650 J	1.79
Perfluorohexanoic Acid (PFHxA)		ND	7.59 J	5.36
Perfluoroheptanoic Acid (PFHpA)		1.04 J	3.45 J	2.92
Perfluorohexanesulfonic Acid (PFHxS)		0.921 J	2.46 J	6.33
Perfluorooctanoic Acid (PFOA)		2.12	10.2 J	7.97
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)		ND	3.58 J	1.98
Perfluoroheptanesulfonic Acid (PFHpS)		ND	ND	ND
Perfluorononanoic Acid (PFNA)		0.419 J	1.28 J	0.930 J
Perfluorooctanesulfonic Acid (PFOS)		3.02	23.3 J	16.60
Perfluorodecanoic Acid (PFDA)		ND	1.89 J	0.823 J
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)		ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)		ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)		ND	0.732 J	ND
Perfluorodecanesulfonic Acid (PFDS)		ND	ND	ND
Perfluorooctanesulfonamide (FOSA)		ND	ND	0.609 J
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)		ND	ND	ND
Perfluorododecanoic Acid (PFDoA)		ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)		ND	ND	ND
Perfluorotetradecanoic Acid (PFTA)		ND	ND	ND
PFOA/PFOS Total		12.88 J	429.712 J	66.022 J

Note 1: PPT = parts per trillion (ng/l

Note 2: ND = not detected

Note 3: J = approximate concentration

APPENDIX A

Data Usability Summary Reports (DUSR)

DATA USABILITY SUMMARY REPORT (DUSR)

Westinghouse/NFTA
Buffalo, NY
Project #9-15-006

SDG: 202606
11 water samples

Prepared for:

BE3
1270 Niagara Street
Buffalo, NY 14213
Attention: John Berry

August 2020

EDU *Environmental Data Usability* *10028 Deerpark Dr. Dansville, NY 14437* *585-991-9156*

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REVIEWER'S NARRATIVE
BE3 SDG 202606: Doat Street

The data associated with this Sample Delivery Group (SDG) 202606, analyzed by Paradigm Environmental Services, Inc. Rochester, NY have been reviewed in accordance with assessment criteria provided by the New York State Department of Environmental Conservation following the review procedures provided in the USEPA Functional Guidelines for evaluating organic and inorganic data.

All analytical results reported by the laboratory are considered valid and acceptable except results that have been qualified as rejected, "R". Results qualified as estimated "J", or as non-detects, "U", are considered usable for the purpose of evaluating water and/or soil quality. However, these qualifiers indicate that the accuracy and/or precision of the analytical result is questionable. A summary of all data that have been qualified and the reasons for qualification are provided in the following data usability summary report (DUSR).

Two facts should be noted by all data users. First, the "R" qualifier means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Values qualified with an "R" should not appear on the final data tables because they cannot be relied upon, even as the last resort. Second, no analyte concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

Reviewer's Signature: Michael K. Perry Date: 8/18/20

Michael K. Perry
Chemist

1.0 SUMMARY

SITE:	Westinghouse/NFTA Buffalo, NY
SAMPLING DATE:	June 09 and 10, 2020
AMPLE TYPE:	11 water samples
LABORATORY:	Paradigm Environmental Services, Inc. Rochester, NY
SDG No.:	202606

2.0 INTRODUCTION

This data usability summary report (DUSR) was prepared in accordance with guidance provided by the New York State Department of Environmental Conservation (NYSDEC). The DUSR is based on a review and evaluation of the laboratory analytical data package. Specifically, the NYSDEC guidance recommends review and evaluation of the following elements of the data package:

- Completeness of the data package as defined under the requirements of the NYSDEC Analytical Services Protocols (ASP) Category B or the United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) deliverables,
- Compliance with established analyte holding times,
- Adherence to quality control (QC) limits and specifications for blanks, instrument tuning and calibration, surrogate recoveries, spike recoveries, laboratory duplicate analyses, and other QC criteria,
- Adherence to established analytical protocols,
- Conformance of data summary sheets with raw analytical data, and
- Use of correct data qualifiers.

Data deficiencies, analytical protocol deviations, and quality control problems identified using the review criteria above and their effect on the analytical results are discussed in this report.

3.0 SAMPLE AND ANALYSIS SUMMARY

The data package consists of analytical results for eleven water samples collected on June 09 and 10, 2020. These samples were analyzed for the 1,4-Dioxane by 8270-SIM and PFASs by EPA 537 (modified).

All analyses were performed by Paradigm Environmental Services, Inc., Rochester, NY and analyzed as SDG 202606 except the PFASs were analyzed by Alpha Analytical of Westborough, MA as SDG L2024311. The analytical results were provided in NYSDEC ASP Category B format, which includes all raw analytical data and laboratory QC data.

4.0 GUIDANCE DOCUMENTS AND DATA REVIEW CRITERIA

The guidance documents used for reviewing laboratory quality control (QC) data and assigning data qualifiers (flags) to analytical results are listed in Table 4-1. The QC limits established in the documents applicable to this data review were used to assess the quality of the analytical results. In some cases, however, QC limits established internally by the laboratory were taken into account to determine data quality.

The QC criteria considered for assessing the usability of the reported analytical results provided for each analyte type (i.e. VOCs, SVOCs, metals, etc.) are listed in Table 4-2. These criteria may vary with the analytical method utilized by the laboratory. These criteria comply with the guidance recommended in Section 2.0 above.

5.0 DATA VALIDATION QUALIFIERS

The letter qualifiers (flags) used to define data usability are described briefly below. These letters are assigned by the data validator to analytical results having questionable accuracy and/or precision as determined by reviewing the laboratory QC data associated with the analytical results.

TABLE 4-1

DATA VALIDATION GUIDANCE DOCUMENTS

Analyte Type	Validation Guidance
VOCs	USEPA, 2008, Validating Volatile Organic Compounds By Gas Chromatography/Mass Spectrometry; SW-846 Method 8260B; SOP # HW-24, Rev. 2. USEPA, 2008, Statement of Work for Organic Analysis of Low/Medium Concentration of Volatile Organic Compounds SQM01.2; SOP HW-33, Rev. 2.
SVOCs	USEPA, 2007, Statement of Work for Organic Analysis of Low/Medium Concentration of Semivolatile Organic Compounds SQM01.2; SOP HW-35, Rev. 1.
Pesticides/PCBs	USEPA, 2006, CLP Organics Data Review and Preliminary Review (CLP/SOW OLMO 4.3); SOP # HW-6, Rev. 14, Part C.
Metals	USEPA, 2006, Validation of Metals for the Contract Laboratory Program (CLP) based on SOW ILMO 5.3 (SOP Revision 13), SOP # HW-2, Rev. 13.
Gen Chemistry	NYSDEC, 2005, Analytical Services Protocols (ASP)
VOCs (Ambient air)	USEPA, 2006, Validating Air Samples, Volatile Organic Analysis of Ambient Air in Canister by Method TO-15; SOP # HW-31, Rev. 4.
Perfluoroalkyl Substances (PFASs)	USEPA, 2018, Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537

TABLE 4-2

QUALITY CONTROL CRITERIA USED FOR VALIDATING LABORATORY ANALYTICAL DATA

VOCs	SVOCs	Pesticides/PCBs	Metals	Gen Chemistry	Method TO-15
Completeness of Pkg	Completeness of Pkg	Completeness of Pkg	Completeness of Pkg	Completeness of Pkg	Completeness of Pkg
Sample Preservation	Sample Preservation	Sample Preservation	Sample Preservation	Sample Preservation	Sample Preservation
Holding Time	Holding Time	Holding Time	Holding Time	Holding Times	Holding Time
System Monitoring Compounds	Surrogate Recoveries	Surrogate Recoveries	Initial/Continuing Calibration	Calibration	Canister Certification
Lab Control Sample	Lab Control Sample	Matrix Spikes	CRDL Standards	Lab Control Samples	Lab Control Sample
Matrix Spikes	Matrix Spikes	Blanks	Blanks	Blanks	Instrument Tuning
Blanks	Blanks	Instrument Calibration & Verification	Interference Check Sample	Spike Recoveries	Blanks
Instrument Tuning	Instrument Tuning	Analyte ID	Spike Recoveries	Lab Duplicates	Initial Calibration & System Performance
Internal Standards	Internal Standards	Lab Qualifiers	Lab Duplicate		Daily Calibration
Initial Calibration	Initial Calibration	Field Duplicate	Lab Control Sample		Field Duplicate
Continuing Calibration	Continuing Calibration		ICP Serial Dilutions		
Lab Qualifiers	Lab Qualifiers		Lab Qualifiers		
Field Duplicate	Field Duplicate		Field Duplicate		

PFASs
Completeness of Pkg
Sample Preservation
Holding Time
Instr Performance Check
Initial Calibration
Continuing Calibration
Blanks
Surrogates
Lab Fortified Blank
Matrix Spikes
Internal Standards

The laboratory may also use various letters and symbols to flag analytical results generated when QC limits were exceeded. The meanings of these flags may differ from those used by the independent data validator. Those used by the laboratory are provided with the analytical results.

NOTE: The assignment of data qualifiers by the data reviewer (validator) to laboratory analytical results should not necessarily be interpreted by the data user as a measure of laboratory ability or proficiency. Rather, the qualifiers are intended to provide a measure of data accuracy and precision to the data user, which, for example, may provide a level of confidence in determining whether or not standards or cleanup objectives have been met.

U The analyte was analyzed for but was not detected at or above the sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the *approximate* concentration of the analyte in the sample. (The magnitude of any ± value associated with the result is not determined by data validation).

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is *approximate* and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample result is rejected (i.e., is unusable) due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

JN The analyte is considered to be "presumptively present." The associated numerical value represents its *approximate* concentration.

The validated analytical results are attached to this report. Validation qualifiers (flags) are indicated using red ink. Data sheets having qualified data are signed and dated by the data reviewer.

6.0 RESULTS OF THE DATA REVIEW

The results of the data review are summarized in Tables 6-1 and 6-2. The table lists the samples where QC criteria were found to exceed acceptable limits and the actions taken to qualify the associated analytical results.

7.0 TOTAL USABLE DATA

For SDG 202606, eleven samples were analyzed and results were reported for 241 analytes. All results (100 %) are considered usable. See the summary table for any associated QC issues.

Table 6-1 1,4-Dioxane

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
none			none	

Table 6-2 PFAAs – EPA 537 (modified)

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
MW-34	8:2FTS	J detects UJ non-detects	MS/MSD < QC limit	Data are estimated
All samples	PFHxA	CRQL-U	Detected in Method Blank	All data < 10X blank contamination changed to non-detect
MW-35 20200609-FD-1	PFBA PFHxA PFHpA PFOA	J detects	% RPD for Field Dups > 50 %	Data are estimated

ACRONYMS

BSP	Blank Spike
CCAL	Continuing Calibration
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
%D	Percent Difference
ICAL	Initial Calibration
ICB	Initial Calibration Blank
IS	Internal Standard
LCS	Laboratory Control Sample
MS/MSD	Matrix Spike/Matrix Spike Duplicate
QA	Quality Assurance
QC	Quality Control
%R	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
%RSD	Percent Relative Standard Deviation
TAL	Target Analyte List (metals)
TCL	Target Compound List (organics)

Appendix A

Validated Analytical Results

LAB PROJECT NARRATIVE: 202606
PROJECT NAME: Westinghouse / NFTA
SDG: 2606-01
CLIENT: BE3

Eight Groundwater samples were collected by the client between June 09 and June 10, 2020. The samples were received by the Paradigm Laboratory on June 12, 2020. Samples were accompanied by a Field Duplicate, a Field Blank, and an Equipment Blank. Containers and holding times were acceptable at time of receipt, samples were received at 4° C and were on ice. The samples were submitted with the Chains-of-Custody requesting PFAAs and 1,4-Dioxane. All analyses were performed using EPA SW-846 Methods and the associated holding times.

The items noted in this case narrative address compliance with the referenced methods, NYSDOH ELAP rules, and any project specific data quality requirements. These may be different from the usability criteria referenced in any "Functional Guidelines" or other data review standards used by data validators.

GENERAL NOTES

ALL ANALYSES

The initial and continuing calibration reports are only evaluated for compounds that are on the sample summary report.

Regarding results on QC summary forms versus included raw data, due to calculations made at the instrument where many significant figures may be used, there may be slight discrepancies between the summary report result and that recorded on the raw data. This does not affect data usability.

SEMIVOLATILES – 1,4-Dioxane

Regarding initial calibrations, it should be noted that the Quantitation Report concentrations supplied for the initial calibration reflect the calibration prior to updating. The response factors and areas are correct.

Regarding Quantitation Reports, it should be noted that the "#" symbol that appears on some of the Quantitation Reports is a software artifact and should be disregarded.

Compounds flagged with an "*" on the summary table have been calibrated using a non-average Response Factor calibration curve. The supporting curves are located after the initial calibration table.

Holding times were met for all samples.

Site specific QC was requested on MW-34 and recovered within acceptance limits. The Laboratory Control Sample recovered within acceptance limits.

The Method Blank was free from contamination within reportable ranges.

The instrument tunes passed all criteria and samples were within a 12-hour window.

The internal standard (1,4-Dichlorobenzene) areas and retentions time were within acceptance limits for the samples and the associated QC. The deuterated version of 1,4-Dioxane (1,4-Dioxane-d8) is an isotope, added and

extracted during the preparation of the samples, and therefore area acceptance criteria is not applicable, but the retention times were within acceptance limits. The quantification of 1,4-Dioxane is based on the area of 1,4-Dioxane-d8.

All data for initial calibrations were within acceptance limits.

All data for continuing calibrations were within acceptance limits.

SUBCONTRACTED ANALYSES

PFAAs by EPA 537 were subcontracted to Alpha Analytical of Westborough, MA. Their reports are provided in their entirety as a separate entity after the Paradigm Environmental Services, Inc. report. Separate case narratives addressing the above parameters are included with their reports.

(signed) Steven DeVito (date) 7/31/2020

Steven DeVito – Technical Director

BATCH LOG

Lab Name: Paradigm Environmental Services
Lab Project #: 202606
Client Name: BE3
Client Project Name: Westinghouse / NFTA
Client Project #: N/A
SDG No.: 2606-01

Protocol: SW846 Report Due Date: 6/25/2020 Batch Due Date: 7/12/2020

LAB SAMPLE NO.	MATRIX	CLIENT SAMPLE ID	REQUESTED ANALYSIS	DATE SAMPLED	DATE REC'D
202606-01	Groundwater	MW-5	PFAs, Dioxane	6/9/2020	6/12/2020
202606-02	Groundwater	MW-28	PFAs, Dioxane	6/9/2020	6/12/2020
202606-03	Groundwater	MW-31	PFAs, Dioxane	6/9/2020	6/12/2020
202606-04	Groundwater	MW-35	PFAs, Dioxane	6/9/2020	6/12/2020
202606-05	Groundwater	20200609-FD-1	PFAs, Dioxane	6/9/2020	6/12/2020
202606-06	Aq Liquid	Field Blank	PFAs	6/10/2020	6/12/2020
202606-07	Groundwater	MW-34	PFAs, Dioxane	6/10/2020	6/12/2020
202606-08	Groundwater	Equipment Blank	PFAs, Dioxane	6/10/2020	6/12/2020
202606-09	Groundwater	MW-30	PFAs, Dioxane	6/10/2020	6/12/2020
202606-10	Groundwater	MW-32	PFAs, Dioxane	6/10/2020	6/12/2020
202606-11	Groundwater	MW-34D	PFAs, Dioxane	6/10/2020	6/12/2020

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

PARADIGM

CHAIN OF CUSTODY

REPORT TO:		INVOICE TO:		LAB PROJECT ID
CLIENT:	BE3 Corp	CLIENT:	SAME AS Report	202606
ADDRESS:	1270 NIAGARA ST	ADDRESS:		Quotation #:
CITY:	BUFFALO STATE: NY ZIP 14213	CITY: STATE: ZIP:		Email:
PHONE:	716-462-7401	PHONE:		
ATTN:	Jason Bridges	ATTN:		

PROJECT REFERENCE

Westinghouse/NFTA

Matrix Codes:
AQ - Aqueous Liquid **NQ** - Non-Aqueous Liquid **WA** - Water **WG** - Groundwater **DW** - Drinking Water **WW** - Wastewater **SO** - Soil **SL** - Sludge **SD** - Solid **PT** - Paint **WP** - Wipe **CK** - Caulk **OL** - Oil **AR** - Air

REQUESTED ANALYSIS

DATE COLLECTED	TIME COLLECTED	COMPOSITE	GRAB	SAMPLE IDENTIFIER	MATRIX CODES	NUMBER OF CONTAINERS	1,4 Dioxane	~~PFOA~~ PFAS/PFOS	REMARKS	PARADIGM LAB SAMPLE NUMBER
6/9/2020	0950		✓	MW-5	WG	3	1	2	PFAS sent to Alpha	01
	1135		✓	MW-28	WG	3	1	2		02
	1355		✓	MW-31	WG	3	1	2		03
	1535		✓	MW-35	WG	3	1	2		04
	—		✓	20200609-FD-1	WG	3	1	2		05
6/10/20	0840		—	Field Blank	AQ	2		2		06
	0930		✓	MW-34	WG	3	1	2		07
	0930		✓	MW-34 MS	WG	3	1	2		07
	0930		✓	MW-34 MSD	WG	3	1	2		07
	1300		—	Equipment Blank	—	3	1	2	Silicone + HDPE Tubing	08

Turnaround Time		Report Supplements		
Availability contingent upon lab approval; additional fees may apply.				
Standard 5 day	☒	None Required	☐	None Required ☐
10 day	☐	Batch QC	☐	Basic EDD ☒
Rush 3 day	☐	Category A	☐	NYSDEC EDD ☒
Rush 2 day	☐	Category B	☒	
Rush 1 day	☐			
Date Needed _____ please indicate date needed		Other please indicate package needed	☐	Other EDD please indicate EDD needed ☐

Jesse Zientek 6/9 - 6/10/2020
Sampled By Date/Time

Jesse Zientek 6/11/2020 9:47 AM
Relinquished By Date/Time

Brian Yuck 6-11-2020 9:47
Received By Date/Time

[signature] 6/12/2020 10:09
Received @ Lab By Date/Time

4°C iced 6/11/2020 16:08

Total Cost:

P.I.F.

By signing this form, client agrees to Paradigm Terms and Conditions (reverse).

Custody Seal N/A, samples delivered by Paradigm 6/11/2020

See additional page for sample additions.

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

CHAIN OF CUSTODY

PARADIGM

REPORT TO:		INVOICE TO:		
CLIENT:	BE 3 CORP	CLIENT:	SAME AS Report	LAB PROJECT ID: 202606
ADDRESS:	1270 NIAGARA ST	ADDRESS:		
CITY:	BUFFALO STATE: NY ZIP: 14213	CITY:	STATE: ZIP:	Quotation #:
PHONE:	716-462-7401	PHONE:		Email:
ATTN:	JASon Brydges	ATTN:		

PROJECT REFERENCE: Westing house/NFTA

Matrix Codes:
AQ - Aqueous Liquid; NQ - Non-Aqueous Liquid; WA - Water; WG - Groundwater; DW - Drinking Water; WW - Wastewater; SO - Soil; SL - Sludge; SD - Solid; PT - Paint; WP - Wipe; CK - Caulk; OL - Oil; AR - Air

REQUESTED ANALYSIS

DATE COLLECTED	TIME COLLECTED	COMPOSITE	GRAB	SAMPLE IDENTIFIER	MATRIX CODES	NUMBER OF CONTAINERS	1,4 Dioxane	PFAS/PFOS	REMARKS	PARADIGM LAB SAMPLE NUMBER
									PFAS sent to Alpha	
6/10/2020	1340		✓	MW-30	WG	3	1	2		09
	1545		✓	MW 32	WG	3	1	2		10
↓	1150		✓	MW-34D	WG	3	1	2		11
				~~Trip Blank NFTA~~	WA	1				
				~~per sample label~~	Trip Blank not needed per JT					
				~~GP 6/12/2020~~	GP 6/12/2020					

Turnaround Time		Report Supplements			
Availability contingent upon lab approval; additional fees may apply.					
Standard 5 day	☒	None Required	☐	None Required	☐
10 day	☐	Batch QC	☐	Basic EDD	☒
Rush 3 day	☐	Category A	☐	NYSDEC EDD	☒
Rush 2 day	☐	Category B	☒		
Rush 1 day	☐				
Date Needed _____ please indicate date needed:	☐	Other please indicate package needed	☐	Other EDD please indicate EDD needed :	☐

Jesse Zrenkek	6/10/2020	Total Cost:
Sampled By	Date/Time	
Relinquished By	6/11/2020 9:47AM Date/Time	
Received By	6-11-2020 9:47am Date/Time	P.I.F.
Received @ Lab By	6/12/2020 10:09 Date/Time	

By signing this form, client agrees to Paradigm Terms and Conditions (reverse).

See additional page for sample conditions.

1,4-DIOXANE

SAMPLE DATA

No Data Validation Qualifiers Were Added

MKP 8/18/2020

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 202606

Client: **BE3**

Project Reference: Westinghouse / NFTA

Sample Identifier:	MW-5		
Lab Sample ID:	202606-01	**Date Sampled:**	6/9/2020
Matrix:	Groundwater	**Date Received:**	6/12/2020

Dioxane

Analyte	Result	Units	Qualifier	Date Analyzed
1,4-Dioxane	< 0.209	ug/L		6/16/2020 14:18

Method Reference(s): EPA 8270D SIM
EPA 3510C
Preparation Date: 6/16/2020
Data File: B47146.D

Report Prepared Wednesday, June 24, 2020

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 202606

Client: **BE3**

Project Reference: Westinghouse / NFTA

Sample Identifier:	MW-28		
Lab Sample ID:	202606-02	**Date Sampled:**	6/9/2020
Matrix:	Groundwater	**Date Received:**	6/12/2020

Dioxane

Analyte	Result	Units	Qualifier	Date Analyzed
1,4-Dioxane	< 0.189	ug/L		6/16/2020 14:29

Method Reference(s): EPA 8270D SIM
EPA 3510C
Preparation Date: 6/16/2020
Data File: B47147.D

Report Prepared Wednesday, June 24, 2020

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 202606

Client: **BE3**

Project Reference: Westinghouse / NFTA

Sample Identifier:	MW-31		
Lab Sample ID:	202606-03	**Date Sampled:**	6/9/2020
Matrix:	Groundwater	**Date Received:**	6/12/2020

Dioxane

Analyte	Result	Units	Qualifier	Date Analyzed
1,4-Dioxane	< 0.190	ug/L		6/16/2020 14:40

Method Reference(s): EPA 8270D SIM
EPA 3510C
Preparation Date: 6/16/2020
Data File: B47148.D

Report Prepared Wednesday, June 24, 2020

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 202606

Client: **BE3**

Project Reference: Westinghouse / NFTA

Sample Identifier:	MW-35		
Lab Sample ID:	202606-04	**Date Sampled:**	6/9/2020
Matrix:	Groundwater	**Date Received:**	6/12/2020

Dioxane

Analyte	Result	Units	Qualifier	Date Analyzed
1,4-Dioxane	< 0.191	ug/L		6/16/2020 14:51

Method Reference(s): EPA 8270D SIM
EPA 3510C
Preparation Date: 6/16/2020
Data File: B47149.D

This report is part of a multipage document and should only be evaluated in its entirety. The Chain of Custody provides additional sample information, including compliance with the sample condition requirements upon receipt.

Report Prepared Wednesday, June 24, 2020

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 202606

Client: **BE3**

Project Reference: Westinghouse / NFTA

Sample Identifier:	20200609-FD-1		
Lab Sample ID:	202606-05	**Date Sampled:**	6/9/2020
Matrix:	Groundwater	**Date Received:**	6/12/2020

Dioxane

Analyte	Result	Units	Qualifier	Date Analyzed
1,4-Dioxane	< 0.202	ug/L		6/16/2020 15:02

Method Reference(s): EPA 8270D SIM
EPA 3510C
Preparation Date: 6/16/2020
Data File: B47150.D

Report Prepared Wednesday, June 24, 2020

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 202606

Client: **BE3**

Project Reference: Westinghouse / NFTA

Sample Identifier:	MW-34		
Lab Sample ID:	202606-07	**Date Sampled:**	6/10/2020
Matrix:	Groundwater	**Date Received:**	6/12/2020

Dioxane

Analyte	Result	Units	Qualifier	Date Analyzed
1,4-Dioxane	< 0.192	ug/L		6/16/2020 15:13

Method Reference(s): EPA 8270D SIM
EPA 3510C
Preparation Date: 6/16/2020
Data File: B47152.D

Report Prepared Wednesday, June 24, 2020

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 202606

Client: **BE3**

Project Reference: Westinghouse / NFTA

Sample Identifier:	Equipment Blank		
Lab Sample ID:	202606-08	**Date Sampled:**	6/10/2020
Matrix:	Groundwater	**Date Received:**	6/12/2020

Dioxane

Analyte	Result	Units	Qualifier	Date Analyzed
1,4-Dioxane	< 0.198	ug/L		6/16/2020 15:46

Method Reference(s): EPA 8270D SIM
EPA 3510C
Preparation Date: 6/16/2020
Data File: B47155.D

Report Prepared Wednesday, June 24, 2020

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 202606

Client: **BE3**

Project Reference: Westinghouse / NFTA

Sample Identifier:	MW-30		
Lab Sample ID:	202606-09	**Date Sampled:**	6/10/2020
Matrix:	Groundwater	**Date Received:**	6/12/2020

Dioxane

Analyte	Result	Units	Qualifier	Date Analyzed
1,4-Dioxane	< 0.193	ug/L		6/16/2020 15:57

Method Reference(s): EPA 8270D SIM
EPA 3510C
Preparation Date: 6/16/2020
Data File: B47156.D

Report Prepared Wednesday, June 24, 2020

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 202606

Client: **BE3**

Project Reference: Westinghouse / NFTA

Sample Identifier:	MW-32		
Lab Sample ID:	202606-10	**Date Sampled:**	6/10/2020
Matrix:	Groundwater	**Date Received:**	6/12/2020

Dioxane

Analyte	Result	Units	Qualifier	Date Analyzed
1,4-Dioxane	**0.238**	ug/L		6/16/2020 16:08

Method Reference(s): EPA 8270D SIM
EPA 3510C
Preparation Date: 6/16/2020
Data File: B47157.D

Report Prepared Wednesday, June 24, 2020

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 202606

Client: **BE3**

Project Reference: Westinghouse / NFTA

Sample Identifier:	MW-34D		
Lab Sample ID:	202606-11	**Date Sampled:**	6/10/2020
Matrix:	Groundwater	**Date Received:**	6/12/2020

Dioxane

Analyte	Result	Units	Qualifier	Date Analyzed
1,4-Dioxane	< 0.203	ug/L		6/16/2020 16:19

Method Reference(s): EPA 8270D SIM
EPA 3510C
Preparation Date: 6/16/2020
Data File: B47158.D

Report Prepared Wednesday, June 24, 2020

www.alphalab.com

Alpha Analytical

Laboratory Code: 11148

SDG Number: L2024311

Project Name: WESTINGHOUSE/NFTA
Project Number: WESTINGHOUSE/NFTA

Lab Number: L2024311
Report Date: 06/23/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2024311-01	MW-5	WATER	Not Specified	06/09/20 09:50	06/11/20
L2024311-02	MW-28	WATER	Not Specified	06/09/20 11:35	06/11/20
L2024311-03	MW-31	WATER	Not Specified	06/09/20 13:55	06/11/20
L2024311-04	MW-35	WATER	Not Specified	06/09/20 15:35	06/11/20
L2024311-05	20200609-FD-1	WATER	Not Specified	06/09/20 00:00	06/11/20
L2024311-06	FIELD BLANK	WATER	Not Specified	06/10/20 08:40	06/11/20
L2024311-07	MW-34	WATER	Not Specified	06/10/20 09:30	06/11/20
L2024311-08	EQUIPMENT BLANK	WATER	Not Specified	06/10/20 13:00	06/11/20
L2024311-09	MW-30	WATER	Not Specified	06/10/20 13:40	06/11/20
L2024311-10	MW-32	WATER	Not Specified	06/10/20 15:45	06/11/20
L2024311-11	MW-34D	WATER	Not Specified	06/10/20 11:50	06/11/20

Case Narrative (continued)

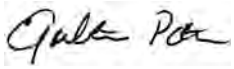
Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by Isotope Dilution

The WG1381997-4/-5 MS/MSD recoveries, performed on L2024311-07, are outside the acceptance criteria for 1h,1h,2h,2h-perfluorodecanesulfonic acid (8:2fts) (47%/39%) and perfluorotridecanoic acid (pftrda) (160%-MS only).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Report Date: 06/23/20

Title: Technical Director/Representative

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

PARADIGM

CHAIN OF CUSTODY

L2024311

11148

REPORT TO:		INVOICE TO:	
COMPANY:	Paradigm Environmental	COMPANY:	Same
ADDRESS:	179 Lake Avenue	ADDRESS:	
CITY:	Rochester STATE: NY ZIP: 14608	CITY:	STATE: ZIP:
PHONE:	FAX:	PHONE:	FAX:
ATTN:	Reporting	ATTN:	Accounts Payable
COMMENTS:	Please email results to reporting@paradigmenv.com		

LAB PROJECT #:

CLIENT PROJECT #:

TURNAROUND TIME: (WORKING DAYS) 1 2 3 STD 5 [X] OTHER

Date Due:

PROJECT NAME/SITE NAME: Westinghouse/NFTA

REQUESTED ANALYSIS

	DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER OF CONTAINERS	PFAS	REMARKS	PARADIGM LAB SAMPLE NUMBER
-01	6-9-20	0950		✓	MW-5	WG	2	X		
-02	↓	1135		✓	MW-28	WG	2	X		
-03		1355		✓	MW-31	WG	2	X	Category B,	
-04		1535		✓	MW-35	WG	2	X	Basic EDD and	
-05	6-9-20			✓	20200609-FD-1	WG	2	X	NYSDEC EDD required	
06	6-10-20	0840			Field Blank	AQ	2	X		
07	↓	0930		✓	MW-34	WG	2	X		
07		0930		✓	MW-34 MS	WG	2	X		
-07		0930		✓	MW-34 MSD	WG	2	X		
-08		1300		—	Equipment Blank	—		X	Silicone + HDPE	

LAB USE ONLY BELOW THIS LINE

Sample Condition: Per NELAC/ELAP 210/241/242/243/244

Receipt Parameter	NELAC Compliance	
Container Type:	Y ☐	N ☐
Comments:		
Preservation:	Y ☐	N ☐
Comments:		
Holding Time:	Y ☐	N ☐
Comments:		
Temperature:	Y ☐	N ☐
Comments:		

Client	Date/Time
Sampled By: Brian Zeal	6-11-2020 10:25
Relinquished By: Jocelyn Foley (AAL)	6/11/20 10:25
Received By: Jocelyn Foley (AAL)	6/11/20 10:25
Received By: [signature]	6/12/20 00:50
Received @ Lab By: T. Huddle 6/12/20 0400	

Total Cost:

P.I.F.

[signature] 6/12/20 0510

[signature] 6/12/20 0400

Rel: T. Huddle 6/12/20 0510

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

L2024311

11148

CHAIN OF COUSTODY

PARADIGM

REPORT TO:		INVOICE TO:			
COMPANY:	Paradigm Environmental	COMPANY:	Same	LAB PROJECT #:	CLIENT PROJECT #:
ADDRESS:	179 Lake Avenue	ADDRESS:		TURNAROUND TIME: (WORKING DAYS)	
CITY: Rochester	STATE: NY ZIP: 14608	CITY:	STATE: ZIP:	STD ☐1 ☐2 ☐3 ☒5	OTHER ☐
PHONE:	FAX:	PHONE:	FAX:		
ATTN:	Reporting	ATTN:	Accounts Payable		
COMMENTS:	Please email results to reporting@paradigmenv.com			Date Due:	

PROJECT NAME/SITE NAME: Westinghouse/NFTA

REQUESTED ANALYSIS

	DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER OF CONTAINERS	PFAS	REMARKS	PARADIGM LAB SAMPLE NUMBER
-09	6-10-20	1340		✓	MW-30	WG	2	X		
-10	6-10-20	1545		✓	MW-32	WG	2	X		
-11	6-10-20	1150		✓	MW-34D	WG	2	X	Category B, Basic EDD, and NYSDEC EDD required	

LAB USE ONLY BELOW THIS LINE

Sample Condition: Per NELAC/ELAP 210/241/242/243/244

Receipt Parameter	NELAC Compliance	
Container Type: Comments:	Y ☐	N ☐
Preservation: Comments:	Y ☐	N ☐
Holding Time: Comments:	Y ☐	N ☐
Temperature: Comments:	Y ☐	N ☐

Client	Date/Time
Sampled By: Brian Zyluch	6-11-2020 10:25
Relinquished By: Jocelyn Filey (AAL)	6/11/20 10:25
Received By: Jocelyn Filey (AAL)	6/11/20 10:25
Received By: [illegible]	6/12/20 00:50
Received @ Lab By: T. Hudak	6/12/20 0400 Rel: T. Hudak 6/12/20 0510

[illegible] 6/13/20 0400

[illegible] 6/12/20 0510

Total Cost: ☐

P.I.F. ☐

PFAAs

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2024311
Project Name	: WESTINGHOUSE/NFTA	Project Number	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-01	Date Collected	: 06/09/20 09:50
Client ID	: MW-5	Date Received	: 06/11/20
Sample Location	:	Date Analyzed	: 06/18/20 22:38
Sample Matrix	: WATER	Date Extracted	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I22808	Analyst	: RS
Sample Amount	: 266.488 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

CAS NO.	Parameter		ng/l Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)		5.54	1.88	0.383	
2706-90-3	Perfluoropentanoic Acid (PFPeA)		6.43	1.88	0.371	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)		ND	1.88	0.223	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	3.31 U	~~3.31~~	1.88	0.308	
375-85-9	Perfluoroheptanoic Acid (PFHpA)		0.848	1.88	0.211	J
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)		ND	1.88	0.353	U
335-67-1	Perfluorooctanoic Acid (PFOA)		0.469	1.88	0.221	J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)		ND	1.88	1.25	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)		ND	1.88	0.645	U
375-95-1	Perfluorononanoic Acid (PFNA)		ND	1.88	0.293	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)		ND	1.88	0.473	U
335-76-2	Perfluorodecanoic Acid (PFDA)		ND	1.88	0.285	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)		ND	1.88	1.14	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)		ND	1.88	0.608	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)		ND	1.88	0.244	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)		ND	1.88	0.919	U
754-91-6	Perfluorooctanesulfonamide (FOSA)		ND	1.88	0.544	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)		ND	1.88	0.754	U

MKP 8/18/2020

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-01	**Date Collected**	: 06/09/20 09:50
Client ID	: MW-5	**Date Received**	: 06/11/20
Sample Location	:	**Date Analyzed**	: 06/18/20 22:38
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22808	**Analyst**	: RS
Sample Amount	: 266.488 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.88	0.349	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.88	0.307	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.88	0.233	U
NONE	PFOA/PFOS, Total	0.469	1.88	0.221	J

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-02	**Date Collected**	: 06/09/20 11:35
Client ID	: MW-28	**Date Received**	: 06/11/20
Sample Location	:	**Date Analyzed**	: 06/18/20 22:54
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22809	**Analyst**	: RS
Sample Amount	: 288.628 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
375-22-4	Perfluorobutanoic Acid (PFBA)	25.7	1.73	0.353	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	18.6	1.73	0.343	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	0.305	1.73	0.206	J
307-24-4	Perfluorohexanoic Acid (PFHxA)	5.19	1.73	0.284	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	2.88	1.73	0.195	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.73	0.326	U
335-67-1	Perfluorooctanoic Acid (PFOA)	1.68	1.73	0.204	J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.73	1.15	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.73	0.596	U
375-95-1	Perfluorononanoic Acid (PFNA)	0.478	1.73	0.270	J
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	0.991	1.73	0.436	J
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.73	0.263	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.73	1.05	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.73	0.561	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.73	0.225	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.73	0.849	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.73	0.502	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.73	0.696	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-02	**Date Collected**	: 06/09/20 11:35
Client ID	: MW-28	**Date Received**	: 06/11/20
Sample Location	:	**Date Analyzed**	: 06/18/20 22:54
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22809	**Analyst**	: RS
Sample Amount	: 288.628 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.73	0.322	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.73	0.283	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.73	0.215	U
NONE	PFOA/PFOS, Total	2.67	1.73	0.204	J

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2024311
Project Name	: WESTINGHOUSE/NFTA	Project Number	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-03	Date Collected	: 06/09/20 13:55
Client ID	: MW-31	Date Received	: 06/11/20
Sample Location	:	Date Analyzed	: 06/18/20 23:11
Sample Matrix	: WATER	Date Extracted	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I22810	Analyst	: RS
Sample Amount	: 288.508 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

CAS NO.	Parameter		ng/l Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)		3.02	1.73	0.354	
2706-90-3	Perfluoropentanoic Acid (PFPeA)		3.50	1.73	0.343	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)		ND	1.73	0.206	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	1.77 U	1.77	1.73	0.284	
375-85-9	Perfluoroheptanoic Acid (PFHpA)		0.776	1.73	0.195	J
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)		ND	1.73	0.326	U
335-67-1	Perfluorooctanoic Acid (PFOA)		1.02	1.73	0.204	J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)		ND	1.73	1.15	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)		ND	1.73	0.596	U
375-95-1	Perfluorononanoic Acid (PFNA)		0.423	1.73	0.270	J
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)		0.697	1.73	0.437	J
335-76-2	Perfluorodecanoic Acid (PFDA)		ND	1.73	0.263	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)		ND	1.73	1.05	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)		ND	1.73	0.562	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)		ND	1.73	0.225	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)		ND	1.73	0.849	U
754-91-6	Perfluorooctanesulfonamide (FOSA)		ND	1.73	0.502	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)		ND	1.73	0.697	U

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Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-03	**Date Collected**	: 06/09/20 13:55
Client ID	: MW-31	**Date Received**	: 06/11/20
Sample Location	:	**Date Analyzed**	: 06/18/20 23:11
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22810	**Analyst**	: RS
Sample Amount	: 288.508 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.73	0.322	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.73	0.284	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.73	0.215	U
NONE	PFOA/PFOS, Total	1.72	1.73	0.204	J

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2024311
Project Name	: WESTINGHOUSE/NFTA	Project Number	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-04	Date Collected	: 06/09/20 15:35
Client ID	: MW-35	Date Received	: 06/11/20
Sample Location	:	Date Analyzed	: 06/18/20 23:27
Sample Matrix	: WATER	Date Extracted	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I22811	Analyst	: RS
Sample Amount	: 289.208 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	11.8 J	1.73	0.353	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	23.9	1.73	0.342	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	0.249	1.73	0.206	J
307-24-4	Perfluorohexanoic Acid (PFHxA)	12.1 J	1.73	0.284	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	8.07 J	1.73	0.195	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	0.328	1.73	0.325	J
335-67-1	Perfluorooctanoic Acid (PFOA)	6.54 J	1.73	0.204	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.73	1.15	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.73	0.595	U
375-95-1	Perfluorononanoic Acid (PFNA)	0.996	1.73	0.270	J
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	1.54	1.73	0.436	J
335-76-2	Perfluorodecanoic Acid (PFDA)	1.10	1.73	0.263	J
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.73	1.05	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.73	0.560	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	0.387	1.73	0.225	J
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.73	0.847	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.73	0.501	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.73	0.695	U

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Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-04	**Date Collected**	: 06/09/20 15:35
Client ID	: MW-35	**Date Received**	: 06/11/20
Sample Location	:	**Date Analyzed**	: 06/18/20 23:27
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22811	**Analyst**	: RS
Sample Amount	: 289.208 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.73	0.322	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.73	0.283	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.73	0.214	U
NONE	PFOA/PFOS, Total	8.08	1.73	0.204	J

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2024311
Project Name	: WESTINGHOUSE/NFTA	Project Number	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-05	Date Collected	: 06/09/20 00:00
Client ID	: 20200609-FD-1	Date Received	: 06/11/20
Sample Location	:	Date Analyzed	: 06/18/20 23:44
Sample Matrix	: WATER	Date Extracted	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I22812	Analyst	: RS
Sample Amount	: 280.438 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	24.1 J	1.78	0.364	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	16.8	1.78	0.353	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	0.314	1.78	0.212	J
307-24-4	Perfluorohexanoic Acid (PFHxA)	4.74 J	1.78	0.292	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	2.70 J	1.78	0.201	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.78	0.335	U
335-67-1	Perfluorooctanoic Acid (PFOA)	1.51 J	1.78	0.210	J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.78	1.19	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.78	0.613	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.78	0.278	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	0.806	1.78	0.449	J
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.78	0.271	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.78	1.08	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.78	0.578	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.78	0.232	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.78	0.874	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.78	0.517	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.78	0.717	U

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Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-05	**Date Collected**	: 06/09/20 00:00
Client ID	: 20200609-FD-1	**Date Received**	: 06/11/20
Sample Location	:	**Date Analyzed**	: 06/18/20 23:44
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22812	**Analyst**	: RS
Sample Amount	: 280.438 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.78	0.332	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.78	0.292	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.78	0.221	U
NONE	PFOA/PFOS, Total	2.32	1.78	0.210	J

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2024311
Project Name	: WESTINGHOUSE/NFTA	Project Number	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-06	Date Collected	: 06/10/20 08:40
Client ID	: FIELD BLANK	Date Received	: 06/11/20
Sample Location	:	Date Analyzed	: 06/19/20 00:01
Sample Matrix	: WATER	Date Extracted	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I22813	Analyst	: RS
Sample Amount	: 260.878 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

CAS NO.	Parameter		ng/l Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)		ND	1.92	0.391	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)		ND	1.92	0.379	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)		ND	1.92	0.228	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	1.92 U	~~0.337~~	1.92	0.314	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)		ND	1.92	0.216	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)		ND	1.92	0.360	U
335-67-1	Perfluorooctanoic Acid (PFOA)		ND	1.92	0.226	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)		ND	1.92	1.28	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)		ND	1.92	0.659	U
375-95-1	Perfluorononanoic Acid (PFNA)		ND	1.92	0.299	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)		ND	1.92	0.483	U
335-76-2	Perfluorodecanoic Acid (PFDA)		ND	1.92	0.291	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)		ND	1.92	1.16	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)		ND	1.92	0.621	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)		ND	1.92	0.249	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)		ND	1.92	0.939	U
754-91-6	Perfluorooctanesulfonamide (FOSA)		ND	1.92	0.556	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)		ND	1.92	0.770	U

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Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-06	**Date Collected**	: 06/10/20 08:40
Client ID	: FIELD BLANK	**Date Received**	: 06/11/20
Sample Location	:	**Date Analyzed**	: 06/19/20 00:01
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22813	**Analyst**	: RS
Sample Amount	: 260.878 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.92	0.356	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.92	0.314	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.92	0.238	U
NONE	PFOA/PFOS, Total	ND	1.92	0.226	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2024311
Project Name	: WESTINGHOUSE/NFTA	Project Number	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-07	Date Collected	: 06/10/20 09:30
Client ID	: MW-34	Date Received	: 06/11/20
Sample Location	:	Date Analyzed	: 06/19/20 00:17
Sample Matrix	: WATER	Date Extracted	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I22814	Analyst	: RS
Sample Amount	: 283.038 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

CAS NO.	Parameter	ng/l Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	14.0	1.77	0.360	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	16.0	1.77	0.350	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.77	0.210	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	8.37	1.77	0.290	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	1.36	1.77	0.199	J
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.77	0.332	U
335-67-1	Perfluorooctanoic Acid (PFOA)	2.41	1.77	0.208	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.77	1.18	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.77	0.608	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.77	0.276	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.77	0.445	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.77	0.268	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND UJ	1.77	1.07	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.77	0.572	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.77	0.230	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.77	0.866	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.77	0.512	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.77	0.710	U

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Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-07	**Date Collected**	: 06/10/20 09:30
Client ID	: MW-34	**Date Received**	: 06/11/20
Sample Location	:	**Date Analyzed**	: 06/19/20 00:17
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22814	**Analyst**	: RS
Sample Amount	: 283.038 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.77	0.328	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.77	0.289	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.77	0.219	U
NONE	PFOA/PFOS, Total	2.41	1.77	0.208	

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2024311
Project Name	: WESTINGHOUSE/NFTA	Project Number	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-08	Date Collected	: 06/10/20 13:00
Client ID	: EQUIPMENT BLANK	Date Received	: 06/11/20
Sample Location	:	Date Analyzed	: 06/19/20 01:07
Sample Matrix	: WATER	Date Extracted	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I22817	Analyst	: RS
Sample Amount	: 282.038 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

CAS NO.	Parameter		ng/l Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)		ND	1.77	0.362	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)		ND	1.77	0.351	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)		ND	1.77	0.211	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	1.77 U	~~0.291~~	1.77	0.291	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)		ND	1.77	0.200	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)		ND	1.77	0.333	U
335-67-1	Perfluorooctanoic Acid (PFOA)		ND	1.77	0.209	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)		ND	1.77	1.18	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)		ND	1.77	0.610	U
375-95-1	Perfluorononanoic Acid (PFNA)		ND	1.77	0.276	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)		ND	1.77	0.447	U
335-76-2	Perfluorodecanoic Acid (PFDA)		ND	1.77	0.269	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)		ND	1.77	1.07	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)		ND	1.77	0.574	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)		ND	1.77	0.230	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)		ND	1.77	0.869	U
754-91-6	Perfluorooctanesulfonamide (FOSA)		ND	1.77	0.514	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)		ND	1.77	0.713	U

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Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-08	**Date Collected**	: 06/10/20 13:00
Client ID	: EQUIPMENT BLANK	**Date Received**	: 06/11/20
Sample Location	:	**Date Analyzed**	: 06/19/20 01:07
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22817	**Analyst**	: RS
Sample Amount	: 282.038 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.77	0.330	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.77	0.290	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.77	0.220	U
NONE	PFOA/PFOS, Total	ND	1.77	0.209	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2024311
Project Name	: WESTINGHOUSE/NFTA	Project Number	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-09	Date Collected	: 06/10/20 13:40
Client ID	: MW-30	Date Received	: 06/11/20
Sample Location	:	Date Analyzed	: 06/18/20 03:00
Sample Matrix	: WATER	Date Extracted	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I22763	Analyst	: SG
Sample Amount	: 253.09 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

CAS NO.	Parameter		ng/l Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)		3.40	1.98	0.403	
2706-90-3	Perfluoropentanoic Acid (PFPeA)		2.62	1.98	0.391	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)		0.632	1.98	0.235	J
307-24-4	Perfluorohexanoic Acid (PFHxA)	1.96 U	~~1.96~~	1.98	0.324	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)		0.897	1.98	0.222	J
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)		1.22	1.98	0.371	J
335-67-1	Perfluorooctanoic Acid (PFOA)		1.94	1.98	0.233	J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)		ND	1.98	1.32	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)		ND	1.98	0.680	U
375-95-1	Perfluorononanoic Acid (PFNA)		0.367	1.98	0.308	J
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)		4.10	1.98	0.498	
335-76-2	Perfluorodecanoic Acid (PFDA)		0.367	1.98	0.300	J
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)		ND	1.98	1.20	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)		ND	1.98	0.640	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)		ND	1.98	0.257	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)		ND	1.98	0.968	U
754-91-6	Perfluorooctanesulfonamide (FOSA)		ND	1.98	0.573	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)		ND	1.98	0.794	U

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Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-09	**Date Collected**	: 06/10/20 13:40
Client ID	: MW-30	**Date Received**	: 06/11/20
Sample Location	:	**Date Analyzed**	: 06/18/20 03:00
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22763	**Analyst**	: SG
Sample Amount	: 253.09 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.98	0.367	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.98	0.323	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.98	0.245	U
NONE	PFOA/PFOS, Total	6.04	1.98	0.233	J

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-10	**Date Collected**	: 06/10/20 15:45
Client ID	: MW-32	**Date Received**	: 06/11/20
Sample Location	:	**Date Analyzed**	: 06/18/20 04:23
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22768	**Analyst**	: SG
Sample Amount	: 249.11 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
375-22-4	Perfluorobutanoic Acid (PFBA)	15.5	2.01	0.409	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	30.6	2.01	0.397	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	1.95	2.01	0.239	J
307-24-4	Perfluorohexanoic Acid (PFHxA)	17.0	2.01	0.329	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	7.28	2.01	0.226	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	6.21	2.01	0.377	
335-67-1	Perfluorooctanoic Acid (PFOA)	8.03	2.01	0.237	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	3.32	2.01	1.34	
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	2.01	0.690	U
375-95-1	Perfluorononanoic Acid (PFNA)	1.42	2.01	0.313	J
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	6.58	2.01	0.506	
335-76-2	Perfluorodecanoic Acid (PFDA)	1.37	2.01	0.305	J
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	2.01	1.22	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	2.01	0.650	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	2.01	0.261	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	2.01	0.984	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	2.01	0.582	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	2.01	0.807	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-10	**Date Collected**	: 06/10/20 15:45
Client ID	: MW-32	**Date Received**	: 06/11/20
Sample Location	:	**Date Analyzed**	: 06/18/20 04:23
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22768	**Analyst**	: SG
Sample Amount	: 249.11 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	2.01	0.373	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	2.01	0.328	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	2.01	0.249	U
NONE	PFOA/PFOS, Total	14.6	2.01	0.237	

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2024311
Project Name	: WESTINGHOUSE/NFTA	Project Number	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-11	Date Collected	: 06/10/20 11:50
Client ID	: MW-34D	Date Received	: 06/11/20
Sample Location	:	Date Analyzed	: 06/18/20 04:56
Sample Matrix	: WATER	Date Extracted	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I22770	Analyst	: SG
Sample Amount	: 264.31 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

CAS NO.	Parameter		ng/l Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)		5.65	1.89	0.386	
2706-90-3	Perfluoropentanoic Acid (PFPeA)		4.53	1.89	0.374	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)		0.344	1.89	0.225	J
307-24-4	Perfluorohexanoic Acid (PFHxA)	3.09 U	~~3.09~~	1.89	0.310	
375-85-9	Perfluoroheptanoic Acid (PFHpA)		2.56	1.89	0.213	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)		ND	1.89	0.356	U
335-67-1	Perfluorooctanoic Acid (PFOA)		2.56	1.89	0.223	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)		ND	1.89	1.26	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)		ND	1.89	0.651	U
375-95-1	Perfluorononanoic Acid (PFNA)		1.80	1.89	0.295	J
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)		1.90	1.89	0.477	
335-76-2	Perfluorodecanoic Acid (PFDA)		1.08	1.89	0.288	J
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)		ND	1.89	1.15	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)		ND	1.89	0.613	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)		0.288	1.89	0.246	J
335-77-3	Perfluorodecanesulfonic Acid (PFDS)		ND	1.89	0.927	U
754-91-6	Perfluorooctanesulfonamide (FOSA)		ND	1.89	0.548	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)		ND	1.89	0.760	U

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Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: L2024311-11	**Date Collected**	: 06/10/20 11:50
Client ID	: MW-34D	**Date Received**	: 06/11/20
Sample Location	:	**Date Analyzed**	: 06/18/20 04:56
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22770	**Analyst**	: SG
Sample Amount	: 264.31 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	0.393	1.89	0.352	J
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.89	0.309	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.89	0.234	U
NONE	PFOA/PFOS, Total	4.46	1.89	0.223	

Appendix B

Laboratory QC Documentation

Matrix Spike Sample Summary
Form 3
Semivolatiles

Client	: Paradigm Environmental Services	Lab Number	: L2024311
Project Name	: WESTINGHOUSE/NFTA	Project Number	: WESTINGHOUSE/NFTA
Client Sample ID	: MW-34	Matrix	: WATER
Lab Sample ID	: L2024311-07	Analysis Date	: 06/19/20 00:17
Matrix Spike	: WG1381997-4	MS Analysis Date	: 06/19/20 00:34
Matrix Spike Dup	: WG1381997-5	MSD Analysis Date	: 06/19/20 00:50

		Matrix Spike Sample			Matrix Spike Duplicate					
Parameter	Sample Conc. (ng/l)	Spike Added (ng/l)	Spike Conc. (ng/l)	%R	Spike Added (ng/l)	Spike Conc. (ng/l)	%R	RPD	Recovery Limits	RPD Limit
Perfluorobutanoic Acid (PFBA)	14.0	34.4	47.6	98	35.4	48.0	96	1	67-148	30
Perfluoropentanoic Acid (PFPeA)	16.0	34.4	44.4	82	35.4	46.4	86	4	63-161	30
Perfluorobutanesulfonic Acid (PFBS)	ND	30.5	24.6	81	31.4	25.4	81	3	65-157	30
Perfluorohexanoic Acid (PFHxA)	8.37	34.4	45.9	109	35.4	47.2	110	3	69-168	30
Perfluoroheptanoic Acid (PFHpA)	1.36J	34.4	43.1	121	35.4	42.5	116	1	58-159	30
Perfluorohexanesulfonic Acid (PFHxS)	ND	31.4	27.8	88	32.3	29.3	91	5	69-177	30
Perfluorooctanoic Acid (PFOA)	2.41	34.4	30.8	82	35.4	34.5	91	11	63-159	30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	32.7	44.5	136	33.6	41.2	123	8	49-187	30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	32.7	41.2	126	33.6	43.0	128	4	61-179	30
Perfluorononanoic Acid (PFNA)	ND	34.4	40.5	118	35.4	37.8	107	7	68-171	30
Perfluorooctanesulfonic Acid (PFOS)	ND	31.9	31.3	98	32.8	33.4	102	6	52-151	30
Perfluorodecanoic Acid (PFDA)	ND	34.4	39.9	116	35.4	45.0	127	12	63-171	30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	33.1	15.5	47 Q	34	13.4	39 Q	15	56-173	30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	34.4	31.5	91	35.4	34.2	97	8	60-166	30
Perfluoroundecanoic Acid (PFUnA)	ND	34.4	41.1	119	35.4	39.8	112	3	60-153	30

Matrix Spike Sample Summary
Form 3
Semivolatiles

Client	: Paradigm Environmental Services	Lab Number	: L2024311
Project Name	: WESTINGHOUSE/NFTA	Project Number	: WESTINGHOUSE/NFTA
Client Sample ID	: MW-34	Matrix	: WATER
Lab Sample ID	: L2024311-07	Analysis Date	: 06/19/20 00:17
Matrix Spike	: WG1381997-4	MS Analysis Date	: 06/19/20 00:34
Matrix Spike Dup	: WG1381997-5	MSD Analysis Date	: 06/19/20 00:50

		Matrix Spike Sample			Matrix Spike Duplicate					
Parameter	Sample Conc. (ng/l)	Spike Added (ng/l)	Spike Conc. (ng/l)	%R	Spike Added (ng/l)	Spike Conc. (ng/l)	%R	RPD	Recovery Limits	RPD Limit
Perfluorodecanesulfonic Acid (PFDS)	ND	33.3	31.4	94	34.2	41.2	121	27	38-156	30
Perfluorooctanesulfonamide (FOSA)	ND	34.4	29.3	85	35.4	29.6	84	1	46-170	30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	34.4	34.6	100	35.4	36.8	104	6	45-170	30
Perfluorododecanoic Acid (PFDoA)	ND	34.4	46.5	135	35.4	47.6	135	2	67-153	30
Perfluorotridecanoic Acid (PFTrDA)	ND	34.4	55.0	160 Q	35.4	54.5	154	1	48-158	30
Perfluorotetradecanoic Acid (PFTA)	ND	34.4	48.4	141	35.4	48.7	138	1	59-182	30

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2024311
Project Name	: WESTINGHOUSE/NFTA	Project Number	: WESTINGHOUSE/NFTA
Lab ID	: WG1381997-1	Date Collected	: NA
Client ID	: WG1381997-1BLANK	Date Received	: NA
Sample Location	:	Date Analyzed	: 06/16/20 23:43
Sample Matrix	: WATER	Date Extracted	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I22686A	Analyst	: SG
Sample Amount	: 250 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	2.00	0.408	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	2.00	0.396	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	2.00	0.238	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.360	2.00	0.328	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	2.00	0.225	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	2.00	0.376	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	2.00	0.236	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	2.00	1.33	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	2.00	0.688	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	2.00	0.312	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	2.00	0.504	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	2.00	0.304	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	2.00	1.21	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	2.00	0.648	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	2.00	0.260	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	2.00	0.980	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	2.00	0.580	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	2.00	0.804	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: WG1381997-1	**Date Collected**	: NA
Client ID	: WG1381997-1BLANK	**Date Received**	: NA
Sample Location	:	**Date Analyzed**	: 06/16/20 23:43
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22686A	**Analyst**	: SG
Sample Amount	: 250 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	2.00	0.372	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	2.00	0.327	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	2.00	0.248	U
NONE	PFOA/PFOS, Total	ND	2.00	0.236	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2024311
Project Name	: WESTINGHOUSE/NFTA	Project Number	: WESTINGHOUSE/NFTA
Lab ID	: WG1382172-1	Date Collected	: NA
Client ID	: WG1382172-1BLANK	Date Received	: NA
Sample Location	:	Date Analyzed	: 06/18/20 02:11
Sample Matrix	: WATER	Date Extracted	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I22760	Analyst	: SG
Sample Amount	: 250 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	2.00	0.408	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	2.00	0.396	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	2.00	0.238	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.336	2.00	0.328	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	2.00	0.225	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	2.00	0.376	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	2.00	0.236	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	2.00	1.33	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	2.00	0.688	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	2.00	0.312	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	2.00	0.504	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	2.00	0.304	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	2.00	1.21	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	2.00	0.648	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	2.00	0.260	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	2.00	0.980	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	2.00	0.580	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	2.00	0.804	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2024311
Project Name	: WESTINGHOUSE/NFTA	**Project Number**	: WESTINGHOUSE/NFTA
Lab ID	: WG1382172-1	**Date Collected**	: NA
Client ID	: WG1382172-1BLANK	**Date Received**	: NA
Sample Location	:	**Date Analyzed**	: 06/18/20 02:11
Sample Matrix	: WATER	**Date Extracted**	: 06/16/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I22760	**Analyst**	: SG
Sample Amount	: 250 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	2.00	0.372	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	2.00	0.327	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	2.00	0.248	U
NONE	PFOA/PFOS, Total	ND	2.00	0.236	U

Appendix C

Validator Qualifications

KENNETH R. APPLIN
Geochemist/Data Validator

Ph.D., Geochemistry and Mineralogy, The Pennsylvania State University

M.S., Geochemistry and Mineralogy, The Pennsylvania State University

B.A., Geological Sciences, SUNY at Geneseo, NY

Dr. Applin has over 35 years of experience working with the geochemistry of natural waters. His prior experience includes working as an Assistant Professor of Geology at the University of Missouri-Columbia and as Chief Hydrogeologist and Geochemist with a leading engineering firm in Rochester, NY. In 1993, he established KR Applin and Associates, a small consulting business that focuses on the geochemistry of natural waters, especially as applied to problems involving the contamination of groundwater and surface water.

Dr. Applin is also an experienced analytical data validator and has provided data validation services since 1994 to a variety of clients performing brownfield cleanup projects, hazardous waste remediation, groundwater monitoring at solid waste facilities, and other projects requiring third-party data validation. Dr. Applin has several years of hands-on experience with the laboratory analysis of natural waters and has successfully completed the USEPA Region II certification courses for performing inorganic and organic analytical data validation.

MICHAEL K. PERRY
Chemist/Data Validator

B.S. Chemistry, Georgia State University, Atlanta, GA

A.A.S., Chemical Technology, Alfred State College, Alfred, NY

Mr. Perry has over 30 years of experience in the analytical laboratory business. During his early career, he spent several years as a laboratory analyst performing the analysis of soil, water, and air samples for inorganic and organic chemical parameters. During his last 20 years in the environmental laboratory business, he managed and directed two major analytical laboratories in Rochester, NY. His management responsibilities included oversight of the daily operations of the lab, staff training and supervision, the selection, purchase, and maintenance of analytical instruments, the introduction of new laboratory methods, analytical quality assurance and quality control, data acquisition and management, and other business-related activities.

Mr. Perry has an extensive working knowledge of the methods and procedures used for sampling and analyzing both inorganic and organic analytes in soil, water, and air. He is an accomplished laboratory chemist and is familiar with the analytical methods and procedures established under the USEPA Contract Laboratory Protocols (CLP), the NYSDEC Analytical Services Protocols (ASP), and the NYSDOH Environmental Laboratory Approval Program (ELAP).

DATA USABILITY SUMMARY REPORT (DUSR)

Westinghouse/NFTA
Buffalo, NY
Project #9-15-006

SDG: 202825
3 water samples

Prepared for:

BE3
1270 Niagara Street
Buffalo, NY 14213
Attention: John Berry

August 2020

EDU *Environmental Data Usability* *10028 Deerpark Dr. Dansville, NY 14437* *585-991-9156*

Table of Contents

Tables

REVIEWER'S NARRATIVE
BE3 SDG 202825: Doat Street

The data associated with this Sample Delivery Group (SDG) 202825, analyzed by Paradigm Environmental Services, Inc. Rochester, NY have been reviewed in accordance with assessment criteria provided by the New York State Department of Environmental Conservation following the review procedures provided in the USEPA Functional Guidelines for evaluating organic and inorganic data.

All analytical results reported by the laboratory are considered valid and acceptable except results that have been qualified as rejected, "R". Results qualified as estimated "J", or as non-detects, "U", are considered usable for the purpose of evaluating water and/or soil quality. However, these qualifiers indicate that the accuracy and/or precision of the analytical result is questionable. A summary of all data that have been qualified and the reasons for qualification are provided in the following data usability summary report (DUSR).

Two facts should be noted by all data users. First, the "R" qualifier means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Values qualified with an "R" should not appear on the final data tables because they cannot be relied upon, even as the last resort. Second, no analyte concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

Reviewer's Signature: _____ Date: 8/18/20

Michael K. Perry
Chemist

1.0 SUMMARY

SITE:	Westinghouse/NFTA Buffalo, NY
SAMPLING DATE:	June 23, 2020
AMPLE TYPE:	3 water samples
LABORATORY:	Paradigm Environmental Services, Inc. Rochester, NY
SDG No.:	202825

2.0 INTRODUCTION

This data usability summary report (DUSR) was prepared in accordance with guidance provided by the New York State Department of Environmental Conservation (NYSDEC). The DUSR is based on a review and evaluation of the laboratory analytical data package. Specifically, the NYSDEC guidance recommends review and evaluation of the following elements of the data package:

- Completeness of the data package as defined under the requirements of the NYSDEC Analytical Services Protocols (ASP) Category B or the United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) deliverables,
- Compliance with established analyte holding times,
- Adherence to quality control (QC) limits and specifications for blanks, instrument tuning and calibration, surrogate recoveries, spike recoveries, laboratory duplicate analyses, and other QC criteria,
- Adherence to established analytical protocols,
- Conformance of data summary sheets with raw analytical data, and
- Use of correct data qualifiers.

Data deficiencies, analytical protocol deviations, and quality control problems identified using the review criteria above and their effect on the analytical results are discussed in this report.

3.0 SAMPLE AND ANALYSIS SUMMARY

The data package consists of analytical results for three water samples collected on June 23, 2020. These samples were analyzed for the 1,4-Dioxane by 8270-SIM and PFASs by EPA 537 (modified).

All analyses were performed by Paradigm Environmental Services, Inc., Rochester, NY and analyzed as SDG 202825 except the PFASs were analyzed by Alpha Analytical of Westborough, MA as SDG L2026429. The analytical results were provided in NYSDEC ASP Category B format, which includes all raw analytical data and laboratory QC data.

4.0 GUIDANCE DOCUMENTS AND DATA REVIEW CRITERIA

The guidance documents used for reviewing laboratory quality control (QC) data and assigning data qualifiers (flags) to analytical results are listed in Table 4-1. The QC limits established in the documents applicable to this data review were used to assess the quality of the analytical results. In some cases, however, QC limits established internally by the laboratory were taken into account to determine data quality.

The QC criteria considered for assessing the usability of the reported analytical results provided for each analyte type (i.e. VOCs, SVOCs, metals, etc.) are listed in Table 4-2. These criteria may vary with the analytical method utilized by the laboratory. These criteria comply with the guidance recommended in Section 2.0 above.

5.0 DATA VALIDATION QUALIFIERS

The letter qualifiers (flags) used to define data usability are described briefly below. These letters are assigned by the data validator to analytical results having questionable accuracy and/or precision as determined by reviewing the laboratory QC data associated with the analytical results.

TABLE 4-1

DATA VALIDATION GUIDANCE DOCUMENTS

Analyte Type	Validation Guidance
VOCs	USEPA, 2008, Validating Volatile Organic Compounds By Gas Chromatography/Mass Spectrometry; SW-846 Method 8260B; SOP # HW-24, Rev. 2. USEPA, 2008, Statement of Work for Organic Analysis of Low/Medium Concentration of Volatile Organic Compounds SQM01.2; SOP HW-33, Rev. 2.
SVOCs	USEPA, 2007, Statement of Work for Organic Analysis of Low/Medium Concentration of Semivolatile Organic Compounds SQM01.2; SOP HW-35, Rev. 1.
Pesticides/PCBs	USEPA, 2006, CLP Organics Data Review and Preliminary Review (CLP/SOW OLMO 4.3); SOP # HW-6, Rev. 14, Part C.
Metals	USEPA, 2006, Validation of Metals for the Contract Laboratory Program (CLP) based on SOW ILMO 5.3 (SOP Revision 13), SOP # HW-2, Rev. 13.
Gen Chemistry	NYSDEC, 2005, Analytical Services Protocols (ASP)
VOCs (Ambient air)	USEPA, 2006, Validating Air Samples, Volatile Organic Analysis of Ambient Air in Canister by Method TO-15; SOP # HW-31, Rev. 4.
Perfluoroalkyl Substances (PFASs)	USEPA, 2018, Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537

TABLE 4-2

QUALITY CONTROL CRITERIA USED FOR VALIDATING LABORATORY ANALYTICAL DATA

VOCs	SVOCs	Pesticides/PCBs	Metals	Gen Chemistry	Method TO-15
Completeness of Pkg	Completeness of Pkg	Completeness of Pkg	Completeness of Pkg	Completeness of Pkg	Completeness of Pkg
Sample Preservation	Sample Preservation	Sample Preservation	Sample Preservation	Sample Preservation	Sample Preservation
Holding Time	Holding Time	Holding Time	Holding Time	Holding Times	Holding Time
System Monitoring Compounds	Surrogate Recoveries	Surrogate Recoveries	Initial/Continuing Calibration	Calibration	Canister Certification
Lab Control Sample	Lab Control Sample	Matrix Spikes	CRDL Standards	Lab Control Samples	Lab Control Sample
Matrix Spikes	Matrix Spikes	Blanks	Blanks	Blanks	Instrument Tuning
Blanks	Blanks	Instrument Calibration & Verification	Interference Check Sample	Spike Recoveries	Blanks
Instrument Tuning	Instrument Tuning	Analyte ID	Spike Recoveries	Lab Duplicates	Initial Calibration & System Performance
Internal Standards	Internal Standards	Lab Qualifiers	Lab Duplicate		Daily Calibration
Initial Calibration	Initial Calibration	Field Duplicate	Lab Control Sample		Field Duplicate
Continuing Calibration	Continuing Calibration		ICP Serial Dilutions		
Lab Qualifiers	Lab Qualifiers		Lab Qualifiers		
Field Duplicate	Field Duplicate		Field Duplicate		

PFASs
Completeness of Pkg
Sample Preservation
Holding Time
Instr Performance Check
Initial Calibration
Continuing Calibration
Blanks
Surrogates
Lab Fortified Blank
Matrix Spikes
Internal Standards

The laboratory may also use various letters and symbols to flag analytical results generated when QC limits were exceeded. The meanings of these flags may differ from those used by the independent data validator. Those used by the laboratory are provided with the analytical results.

NOTE: The assignment of data qualifiers by the data reviewer (validator) to laboratory analytical results should not necessarily be interpreted by the data user as a measure of laboratory ability or proficiency. Rather, the qualifiers are intended to provide a measure of data accuracy and precision to the data user, which, for example, may provide a level of confidence in determining whether or not standards or cleanup objectives have been met.

U The analyte was analyzed for but was not detected at or above the sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the *approximate* concentration of the analyte in the sample. (The magnitude of any ± value associated with the result is not determined by data validation).

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is *approximate* and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample result is rejected (i.e., is unusable) due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

JN The analyte is considered to be "presumptively present." The associated numerical value represents its *approximate* concentration.

The validated analytical results are attached to this report. Validation qualifiers (flags) are indicated using red ink. Data sheets having qualified data are signed and dated by the data reviewer.

6.0 RESULTS OF THE DATA REVIEW

The results of the data review are summarized in Tables 6-1 and 6-2. The table lists the samples where QC criteria were found to exceed acceptable limits and the actions taken to qualify the associated analytical results.

7.0 TOTAL USABLE DATA

For SDG 202825, three samples were analyzed and results were reported for 66 analytes. All results (100 %) are considered usable. See the summary table for any associated QC issues.

Table 6-1 1,4-Dioxane

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
MW-3A	1,4-Dioxane	J detects	Data reported is over the calibration range	Data are estimated

Table 6-2 PFAAs – EPA 537 (modified)

SAMPLES AFFECTED	ANALYTES	ACTION	QC VIOLATION	COMMENTS
MH-2A	All analytes	J detects UJ non-detects	Internal Standard Areas < QC limit	Data are estimated
All samples	PFHxA 6:2FTS	CRQL-U	Detected in Method Blank	All data < 10X blank contamination changed to non-detect

ACRONYMS

BSP	Blank Spike
CCAL	Continuing Calibration
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
%D	Percent Difference
ICAL	Initial Calibration
ICB	Initial Calibration Blank
IS	Internal Standard
LCS	Laboratory Control Sample
MS/MSD	Matrix Spike/Matrix Spike Duplicate
QA	Quality Assurance
QC	Quality Control
%R	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
%RSD	Percent Relative Standard Deviation
TAL	Target Analyte List (metals)
TCL	Target Compound List (organics)

Appendix A

Validated Analytical Results

LAB PROJECT NARRATIVE: 202825
PROJECT NAME: NFTA - Westinghouse
SDG: 2825-01
CLIENT: BE3

Three Groundwater samples were collected by the client on June 23, 2020. The samples were received by the Paradigm Laboratory on June 24, 2020. Containers and holding times were acceptable at time of receipt, samples were received at 4° C and were on ice. The samples were submitted with the Chains-of-Custody requesting PFAs and 1,4-Dioxane. All analyses were performed using EPA SW-846 Methods and the associated holding times.

The items noted in this case narrative address compliance with the referenced methods, NYSDOH ELAP rules, and any project specific data quality requirements. These may be different from the usability criteria referenced in any "Functional Guidelines" or other data review standards used by data validators.

GENERAL NOTES

ALL ANALYSES

The initial and continuing calibration reports are only evaluated for compounds that are on the sample summary report.

Regarding results on QC summary forms versus included raw data, due to calculations made at the instrument where many significant figures may be used, there may be slight discrepancies between the summary report result and that recorded on the raw data. This does not affect data usability.

SEMIVOLATILES – 1,4-Dioxane

Regarding initial calibrations, it should be noted that the Quantitation Report concentrations supplied for the initial calibration reflect the calibration prior to updating. The response factors and areas are correct.

Regarding Quantitation Reports, it should be noted that the "#" symbol that appears on some of the Quantitation Reports is a software artifact and should be disregarded.

Compounds flagged with an "*" on the summary table have been calibrated using a non-average Response Factor calibration curve. The supporting curves are located after the initial calibration table.

Holding times were met for all samples.

Site specific QC was not requested on this SDG. The Laboratory Control Sample recovered within acceptance limits.

The Method Blank was free from contamination within reportable ranges.

The instrument tunes passed all criteria and samples were within a 12-hour window.

The internal standard (1,4-Dichlorobenzene) areas and retentions time were within acceptance limits for the samples and the associated QC. The deuterated version of 1,4-Dioxane (1,4-Dioxane-d8) is an isotope, added and extracted during the preparation of the samples, and therefore area acceptance criteria is not applicable, but the

retention times were within acceptance limits. The quantification of 1,4-Dioxane is based on the area of 1,4-Dioxane-d8.

All data for initial calibrations were within acceptance limits.

All data for continuing calibrations were within acceptance limits.

SUBCONTRACTED ANALYSES

PFAAs by EPA 537 were subcontracted to Alpha Analytical of Westborough, MA. Their reports are provided in their entirety as a separate entity after the Paradigm Environmental Services, Inc. report. Separate case narratives addressing the above parameters are included with their reports.

(signed) Steven DeVito (date) 8/4/2020

Steven DeVito – Technical Director

BATCH LOG

Lab Name: Paradigm Environmental Services
Lab Project #: 202825
Client Name: BE3
Client Project Name: NFTA - Westinghouse
Client Project #: N/A
SDG No.: 2825-01

Protocol: SW846 Report Due Date: 7/9/2020 Batch Due Date: 7/24/2020

LAB SAMPLE NO.	MATRIX	CLIENT SAMPLE ID	REQUESTED ANALYSIS	DATE SAMPLED	DATE REC'D
202825-01	Groundwater	MH-1A	Dioxane, PFAs	6/23/2020	6/24/2020
202825-02	Groundwater	MH-2A	Dioxane, PFAs	6/23/2020	6/24/2020
202825-03	Groundwater	MH-3A	Dioxane, PFAs	6/23/2020	6/24/2020

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

PARADIGM

CHAIN OF CUSTODY

1 of 2

REPORT TO:		INVOICE TO:		
CLIENT: BE3 Corp		CLIENT:		LAB PROJECT ID: 202825
ADDRESS: 1770 NIAGARA ST		ADDRESS:		
CITY: BUFFALO STATE: NY ZIP: 14213		CITY: STATE: ZIP:		Quotation #:
PHONE: 716-462-7401		PHONE:		Email: jzientek@be3corp.com
ATTN: JESSE ZIENTEK		ATTN:		

PROJECT REFERENCE

NFTA-Westinghouse

Matrix Codes:
AQ - Aqueous Liquid; NQ - Non-Aqueous Liquid; WA - Water; WG - Groundwater; DW - Drinking Water; WW - Wastewater; SO - Soil; SL - Sludge; SD - Solid; PT - Paint; WP - Wipe; CK - Caulk; OL - Oil; AR - Air

REQUESTED ANALYSIS

DATE COLLECTED	TIME COLLECTED	COMPOSITE	GRAB	SAMPLE IDENTIFIER	MATRIX CODES	NUMBER OF CONTAINERS	1,4 - Dioxanes	PFAS / PFOS	REMARKS	PARADIGM LAB SAMPLE NUMBER
6/23/2020	10:00		X	MH-1A	WG	3	1	2		01
	10:30		X	MH-2A	WG	3	1	2		02
↓	11:00		X	MH-3A	WG	3	1	2		03
									Sub sent directly to sub lab. GP 6/24/2020	

Turnaround Time		Report Supplements			
Availability contingent upon lab approval; additional fees may apply.					
Standard 5 day	☒	None Required	☐	None Required	☐
10 day	☐	Batch QC	☐	Basic EDD	☒
Rush 3 day	☐	Category A	☐	NYSDEC EDD	☒
Rush 2 day	☐	Category B	☒		
Rush 1 day	☐				
Date Needed _____ please indicate date needed:	☐	Other please indicate package needed:	☐	Other EDD please indicate EDD needed:	☐

Jesse Zientek — Sampled By — 6-23-2020 — Date/Time

Relinquished By — 6-23-2020 1:13PM — Date/Time

Received By — 6-23-2020 4:13 — Date/Time

Received @ Lab By — 6/24/2020 10:02 — Date/Time

Total Cost:

P.I.F.

4°C iced 6/24/2020 09:37

By signing this form, client agrees to Paradigm Terms and Conditions (reverse).

Custody Seal N/A. Samples delivered by Paradigm. GP 6/24/2020

See additional page for sample conditions.

1,4-DIOXANE

SAMPLE DATA

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 202825

Client: **BE3**

Project Reference: NFTA - Westinghouse

Sample Identifier:	MH-1A		
Lab Sample ID:	202825-01	**Date Sampled:**	6/23/2020
Matrix:	Groundwater	**Date Received:**	6/24/2020

Dioxane

Analyte	Result	Units	Qualifier	Date Analyzed
1,4-Dioxane	< 0.192	ug/L		6/26/2020 01:56

Method Reference(s): EPA 8270D SIM
EPA 3510C
Preparation Date: 6/25/2020
Data File: B47462.D

Report Prepared Thursday, July 9, 2020

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 202825

Client: **BE3**

Project Reference: NFTA - Westinghouse

Sample Identifier:	MH-2A		
Lab Sample ID:	202825-02	**Date Sampled:**	6/23/2020
Matrix:	Groundwater	**Date Received:**	6/24/2020

Dioxane

Analyte	Result	Units	Qualifier	Date Analyzed
1,4-Dioxane	**1.30**	ug/L		6/26/2020 02:08

Method Reference(s): EPA 8270D SIM
EPA 3510C
Preparation Date: 6/25/2020
Data File: B47463.D

Report Prepared Thursday, July 9, 2020

PARADIGM

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 202825

Client: **BE3**

Project Reference: NFTA - Westinghouse

Sample Identifier:	MH-3A		
Lab Sample ID:	202825-03	**Date Sampled:**	6/23/2020
Matrix:	Groundwater	**Date Received:**	6/24/2020

Dioxane

Analyte	Result		Units	Qualifier	Date Analyzed
1,4-Dioxane	**3.85**	J	ug/L	E	6/26/2020 02:19

Method Reference(s): EPA 8270D SIM
EPA 3510C
Preparation Date: 6/25/2020
Data File: B47464.D

MKP 8/18/2020

www.alphalab.com

Alpha Analytical

Laboratory Code: 11148

SDG Number: L2026429

Project Name:	NFTA WESTINGHOUSE	**Lab Number:**	L2026429
Project Number:	NFTA WESTINGHOUSE	**Report Date:**	07/02/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2026429-01	MH-1A	WATER	Not Specified	06/23/20 10:00	06/23/20
L2026429-02	MH-2A	WATER	Not Specified	06/23/20 10:30	06/23/20
L2026429-03	MH-3A	WATER	Not Specified	06/23/20 11:00	06/23/20

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by Isotope Dilution

L2026429-02: The response of the internal standards are outside the acceptance criteria (CLP form 8) due to sample matrix.

WG1385880-2/-3: The LCS/LCSD RPD, associated with L2026429-01 through -03, is above the acceptance criteria for perfluorododecanoic acid (pfdoa) (31%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Report Date: 07/02/20

Title: Technical Director/Representative

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

L2026429
~~L2026434~~ EDD 6/24/20 11148

CHAIN OF CUSTODY

PARADIGM ENVIRONMENTAL SERVICES, INC.

REPORT TO:		INVOICE TO:			
COMPANY:	Paradigm Environmental	COMPANY:	Same	LAB PROJECT #:	CLIENT PROJECT #:
ADDRESS:	179 Lake Avenue	ADDRESS:			
CITY:	Rochester STATE: NY ZIP: 14608	CITY:	STATE: ZIP:	TURNAROUND TIME: (WORKING DAYS)	
PHONE:	FAX:	PHONE:	FAX:		
PROJECT NAME/SITE NAME:		ATTN:		STD	OTHER
NFTA westinghouse		ATTN:	Reporting / Accounts Payable	☐ 1 ☐ 2 ☐ 3 ☒ 5	
		COMMENTS:	Please email results to reporting@paradigmenv.com	Date Due:	

REQUESTED ANALYSIS

DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER OF CONTAINERS	PFAS									REMARKS	PARADIGM LAB SAMPLE NUMBER
6/23/20	10:00		X	MH-1A	WG	2	X										
↓	10:30		X	MH-2A	WG	2	X										
V	11:00		X	MH-3A	WG	2	X									Category B and Basic EDD and NYSDEC EDD required	

****LAB USE ONLY BELOW THIS LINE****

Sample Condition: Per NELAC/ELAP 210/241/242/243/244

Receipt Parameter	NELAC Compliance	
Container Type:	Y ☐	N ☐
Comments:		
Preservation:	Y ☐	N ☐
Comments:		
Holding Time:	Y ☐	N ☐
Comments:		
Temperature:	Y ☐	N ☐
Comments:		

Client

	Sampled By	Date/Time
	Brian Yuch	6-23-20 16:35
Relinquished By		Date/Time
	MAC	6/23/20 1635
Received By		Date/Time
		6/23/20 1635
~~Received By~~ Relinquished by		Date/Time
		6/24/20 0050
Received @ Lab By		Date/Time

Total Cost:

P.I.F.

PFAAs

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2026429
Project Name	: NFTA WESTINGHOUSE	Project Number	: NFTA WESTINGHOUSE
Lab ID	: L2026429-01	Date Collected	: 06/23/20 10:00
Client ID	: MH-1A	Date Received	: 06/23/20
Sample Location	:	Date Analyzed	: 06/28/20 06:37
Sample Matrix	: WATER	Date Extracted	: 06/25/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I23314	Analyst	: SG
Sample Amount	: 279.01 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	2.01	1.79	0.366	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	1.97	1.79	0.355	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	1.38	1.79	0.213	J
307-24-4	Perfluorohexanoic Acid (PFHxA)	2.02 U ~~2.02~~	1.79	0.294	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	1.04	1.79	0.202	J
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	0.921	1.79	0.337	J
335-67-1	Perfluorooctanoic Acid (PFOA)	2.12	1.79	0.211	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.79	1.19	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.79	0.616	U
375-95-1	Perfluorononanoic Acid (PFNA)	0.419	1.79	0.280	J
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	3.02	1.79	0.452	
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.79	0.272	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.79	1.08	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.79	0.581	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.79	0.233	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.79	0.878	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.79	0.520	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.79	0.720	U

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Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2026429
Project Name	: NFTA WESTINGHOUSE	**Project Number**	: NFTA WESTINGHOUSE
Lab ID	: L2026429-01	**Date Collected**	: 06/23/20 10:00
Client ID	: MH-1A	**Date Received**	: 06/23/20
Sample Location	:	**Date Analyzed**	: 06/28/20 06:37
Sample Matrix	: WATER	**Date Extracted**	: 06/25/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I23314	**Analyst**	: SG
Sample Amount	: 279.01 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.79	0.333	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.79	0.293	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.79	0.222	U
NONE	PFOA/PFOS, Total	5.14	1.79	0.211	

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2026429
Project Name	: NFTA WESTINGHOUSE	Project Number	: NFTA WESTINGHOUSE
Lab ID	: L2026429-02	Date Collected	: 06/23/20 10:30
Client ID	: MH-2A	Date Received	: 06/23/20
Sample Location	:	Date Analyzed	: 06/28/20 07:10
Sample Matrix	: WATER	Date Extracted	: 06/25/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I23316	Analyst	: SG
Sample Amount	: 281.28 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	366 J	1.78	0.363	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	8.58 J	1.78	0.352	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	0.650 J	1.78	0.212	J
307-24-4	Perfluorohexanoic Acid (PFHxA)	7.59 J	1.78	0.292	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	3.45 J	1.78	0.200	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	2.46 J	1.78	0.334	
335-67-1	Perfluorooctanoic Acid (PFOA)	10.2 J	1.78	0.210	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	3.58 J	1.78	1.18	
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND UJ	1.78	0.611	U
375-95-1	Perfluorononanoic Acid (PFNA)	1.28 J	1.78	0.277	J
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	23.3 J	1.78	0.448	
335-76-2	Perfluorodecanoic Acid (PFDA)	1.89 J	1.78	0.270	
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND UJ	1.78	1.08	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND UJ	1.78	0.576	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	0.732 J	1.78	0.231	J
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND UJ	1.78	0.871	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND UJ	1.78	0.516	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND UJ	1.78	0.714	U

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Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2026429
Project Name	: NFTA WESTINGHOUSE	Project Number	: NFTA WESTINGHOUSE
Lab ID	: L2026429-02	Date Collected	: 06/23/20 10:30
Client ID	: MH-2A	Date Received	: 06/23/20
Sample Location	:	Date Analyzed	: 06/28/20 07:10
Sample Matrix	: WATER	Date Extracted	: 06/25/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I23316	Analyst	: SG
Sample Amount	: 281.28 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND UJ	1.78	0.331	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND UJ	1.78	0.291	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND UJ	1.78	0.220	U
NONE	PFOA/PFOS, Total	33.5 J	1.78	0.210	

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Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2026429
Project Name	: NFTA WESTINGHOUSE	**Project Number**	: NFTA WESTINGHOUSE
Lab ID	: L2026429-03	**Date Collected**	: 06/23/20 11:00
Client ID	: MH-3A	**Date Received**	: 06/23/20
Sample Location	:	**Date Analyzed**	: 06/28/20 07:27
Sample Matrix	: WATER	**Date Extracted**	: 06/25/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I23317	**Analyst**	: SG
Sample Amount	: 289.08 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
375-22-4	Perfluorobutanoic Acid (PFBA)	12.1	1.73	0.353	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	8.61	1.73	0.342	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	1.79	1.73	0.206	
307-24-4	Perfluorohexanoic Acid (PFHxA)	5.36	1.73	0.284	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	2.92	1.73	0.195	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	6.33	1.73	0.325	
335-67-1	Perfluorooctanoic Acid (PFOA)	7.97	1.73	0.204	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.98	1.73	1.15	
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.73	0.595	U
375-95-1	Perfluorononanoic Acid (PFNA)	0.930	1.73	0.270	J
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	16.6	1.73	0.436	
335-76-2	Perfluorodecanoic Acid (PFDA)	0.823	1.73	0.263	J
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.73	1.05	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.73	0.560	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.73	0.225	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.73	0.848	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	0.609	1.73	0.502	J
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.73	0.695	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2026429
Project Name	: NFTA WESTINGHOUSE	**Project Number**	: NFTA WESTINGHOUSE
Lab ID	: L2026429-03	**Date Collected**	: 06/23/20 11:00
Client ID	: MH-3A	**Date Received**	: 06/23/20
Sample Location	:	**Date Analyzed**	: 06/28/20 07:27
Sample Matrix	: WATER	**Date Extracted**	: 06/25/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I23317	**Analyst**	: SG
Sample Amount	: 289.08 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.73	0.322	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.73	0.283	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.73	0.214	U
NONE	PFOA/PFOS, Total	24.6	1.73	0.204	

Appendix B

Laboratory QC Documentation

Internal Standard Area and RT Summary
Form 8a
Semivolatiles

Client	: Paradigm Environmental Services	**Lab Number**	: L2026429
Project Name	: NFTA WESTINGHOUSE	**Project Number**	: NFTA WESTINGHOUSE
Instrument ID	: LCMS01	**Analysis Date**	: 06/28/20 04:24
Sample No	: WG1386701-6	**Lab File ID**	: I23306

	M3PFBA		M2PFOA		M4PFOS	
	Area	RT	Area	RT	Area	RT
WG1386701-6	36795	2.01	69444	9.14	12807	9.96
Upper Limit	73590	2.51	138888	9.64	25614	10.46
Lower Limit	18398	1.51	34722	8.64	6404	9.46
Sample ID						
WG1385880-1 BLANK	31230	2.01	67470	9.14	12021	9.96
WG1385880-2 LCS	31713	2.01	64900	9.14	11883	9.96
WG1385880-3 LCSD	32862	2.01	70583	9.14	12398	9.96
MH-1A	28159	2.01	71542	9.15	12361	9.96
MH-1A DUP	25687	2.01	69860	9.14	11558	9.95
MH-2A	19667	1.94	19169*	9.09	5962*	9.92
MH-3A	24145	2.00	52788	9.14	11175	9.96

Area Upper Limit = +100% of internal standard area
Area Lower Limit = - 50% of internal standard area

RT Upper Limit = +0.50 minutes of internal standard RT
RT Lower Limit = -0.50 minutes of internal standard RT

* Values outside of QC limits

Internal Standard Area and RT Summary
Form 8a
Semivolatiles

Client	: Paradigm Environmental Services	**Lab Number**	: L2026429
Project Name	: NFTA WESTINGHOUSE	**Project Number**	: NFTA WESTINGHOUSE
Instrument ID	: LCMS01	**Analysis Date**	: 06/28/20 04:24
Sample No	: WG1386701-6	**Lab File ID**	: I23306

	M2PFDA					
	Area	RT	Area	RT	Area	RT
WG1386701-6	38308	10.52				
Upper Limit	76616	11.02				
Lower Limit	19154	10.02				
Sample ID						
WG1385880-1 BLANK	39778	10.52				
WG1385880-2 LCS	36787	10.53				
WG1385880-3 LCSD	40419	10.52				
MH-1A	41749	10.53				
MH-1A DUP	41759	10.51				
MH-2A	13933*	10.50				
MH-3A	35888	10.53				

Area Upper Limit = +100% of internal standard area
Area Lower Limit = - 50% of internal standard area

RT Upper Limit = +0.50 minutes of internal standard RT
RT Lower Limit = -0.50 minutes of internal standard RT

* Values outside of QC limits

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	Lab Number	: L2026429
Project Name	: NFTA WESTINGHOUSE	Project Number	: NFTA WESTINGHOUSE
Lab ID	: WG1385880-1	Date Collected	: NA
Client ID	: WG1385880-1BLANK	Date Received	: NA
Sample Location	:	Date Analyzed	: 06/28/20 04:41
Sample Matrix	: WATER	Date Extracted	: 06/25/20
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I23307	Analyst	: SG
Sample Amount	: 250 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	2.00	0.408	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	2.00	0.396	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	2.00	0.238	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.364	2.00	0.328	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	2.00	0.225	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	2.00	0.376	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	2.00	0.236	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.57	2.00	1.33	J
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	2.00	0.688	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	2.00	0.312	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	2.00	0.504	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	2.00	0.304	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	2.00	1.21	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	2.00	0.648	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	2.00	0.260	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	2.00	0.980	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	2.00	0.580	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	2.00	0.804	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: Paradigm Environmental Services	**Lab Number**	: L2026429
Project Name	: NFTA WESTINGHOUSE	**Project Number**	: NFTA WESTINGHOUSE
Lab ID	: WG1385880-1	**Date Collected**	: NA
Client ID	: WG1385880-1BLANK	**Date Received**	: NA
Sample Location	:	**Date Analyzed**	: 06/28/20 04:41
Sample Matrix	: WATER	**Date Extracted**	: 06/25/20
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I23307	**Analyst**	: SG
Sample Amount	: 250 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	2.00	0.372	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	2.00	0.327	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	2.00	0.248	U
NONE	PFOA/PFOS, Total	ND	2.00	0.236	U

Appendix C

Validator Qualifications

KENNETH R. APPLIN
Geochemist/Data Validator

Ph.D., Geochemistry and Mineralogy, The Pennsylvania State University

M.S., Geochemistry and Mineralogy, The Pennsylvania State University

B.A., Geological Sciences, SUNY at Geneseo, NY

Dr. Applin has over 35 years of experience working with the geochemistry of natural waters. His prior experience includes working as an Assistant Professor of Geology at the University of Missouri-Columbia and as Chief Hydrogeologist and Geochemist with a leading engineering firm in Rochester, NY. In 1993, he established KR Applin and Associates, a small consulting business that focuses on the geochemistry of natural waters, especially as applied to problems involving the contamination of groundwater and surface water.

Dr. Applin is also an experienced analytical data validator and has provided data validation services since 1994 to a variety of clients performing brownfield cleanup projects, hazardous waste remediation, groundwater monitoring at solid waste facilities, and other projects requiring third-party data validation. Dr. Applin has several years of hands-on experience with the laboratory analysis of natural waters and has successfully completed the USEPA Region II certification courses for performing inorganic and organic analytical data validation.

MICHAEL K. PERRY
Chemist/Data Validator

B.S. Chemistry, Georgia State University, Atlanta, GA

A.A.S., Chemical Technology, Alfred State College, Alfred, NY

Mr. Perry has over 30 years of experience in the analytical laboratory business. During his early career, he spent several years as a laboratory analyst performing the analysis of soil, water, and air samples for inorganic and organic chemical parameters. During his last 20 years in the environmental laboratory business, he managed and directed two major analytical laboratories in Rochester, NY. His management responsibilities included oversight of the daily operations of the lab, staff training and supervision, the selection, purchase, and maintenance of analytical instruments, the introduction of new laboratory methods, analytical quality assurance and quality control, data acquisition and management, and other business-related activities.

Mr. Perry has an extensive working knowledge of the methods and procedures used for sampling and analyzing both inorganic and organic analytes in soil, water, and air. He is an accomplished laboratory chemist and is familiar with the analytical methods and procedures established under the USEPA Contract Laboratory Protocols (CLP), the NYSDEC Analytical Services Protocols (ASP), and the NYSDOH Environmental Laboratory Approval Program (ELAP).