April 3, 2019

Payson Long, PE
Environmental Engineer
Division of Environmental Remediation
NYS Dept. of Environmental Conservation
625 Broadway, Albany, NY 12233-7012

Re: NYSDEC Standby Engineering Contract D007625-06.1
WA# 6 Stanton Cleaners - Site Management
NYSDEC Site# 130072
WAGNN Emerging Contaminants Sampling Summary Report

Dear Mr. Long,

Henningson, Durham & Richardson Architecture and Engineering, P.C. (HDR) has prepared this letter to summarize emerging contaminant (EC) groundwater sampling results related to the Stanton Cleaners site in Great Neck, New York (Figure 1). This sampling event was completed to determine the presence of ECs in raw, untreated water, of the Water Authority of Great Neck North (WAGNN) public supply wells (PWs).

Public Supply Well Sampling

In accordance with the New York State Department of Environmental Conservation (NYSDEC) approved *January 2019 WAGNN EC Sampling Workplan (Workplan*, HDR collected aqueous samples from the influent collection points of three PWs (PW-2A, PW-9, and PW-11A) on February 7, 2019. Raw water from PW-6, could not be collected due to a pump malfunction at the time of the event. It should be noted that post-treatment water samples were not collected from any PW during this effort.

Per the *January 2019 Workplan*, all samples were collected in general accordance with the NYSDEC's *July 2017 Collection of Drinking Water Samples for perfluorinated compounds (PFCs) from a Private Well with a Functioning Pump*. Raw water samples were collected within each PW's pump house following a 15-minute minimum purge cycle, completed by WAGNN staff. Upon inspection of the each sample collection point, HDR noted the presence of thread sealants, including Teflon tape, on various fittings and piping connections. A map showing the WAGNN PW

locations is provided on Figure 2 and a photographic log of the activities can be found in Attachment 1.

As a result of the February 7, 2019 sampling activities, a total of 3 raw water samples were collected and submitted to Con-Test Analytical Laboratories of East Longmeadow, Massachusetts (Con-Test) for the analysis of PFCs and 1,4-dioxane by United States Environmental Protection Agency (USEPA) Methods modified 537 and 8270 SIM, respectively. Additionally, in accordance with the *April 2011 Quality Assurance Project Plan (QAPP)* and Con-Test's quality assurance/quality control (QA/QC) protocol, one duplicate, one matrix spike, one matrix spike duplicate, and one field blank were collected. Laboratory deliverables are in accordance with NYSDEC Analytical Services Protocol (ASP) Category B and were subjected to data validation by HDR's independent contract validator, Data Validation Services of North Creek, New York (DVS).

Analytical Results

The groundwater analytical results were compared to the December 2018 New York State Drinking Water Quality Council (NYSDWC) recommendations to the New York State Department of Health (NYSDOH), of which are currently under consideration by the Commissioner of Health. A summary of the PW analytical results is presented on Table 1 and the summary laboratory analytical report is provided in Attachment 2. Additionally, the data usability summary report (DUSR), provided by DVS, can be found in Attachment 3.

As a result of the laboratory analysis, no detected EC concentrations were found to exceed the NYSDWC recommendations of 10 nanograms per liter (ng/L) for perfluorocotanesulfonic acid (PFAS)/perfluorooctanoic acid (PFOS) and/or 1 microgram per liter (µg/L) for 1,4-dioxane.

If you have any comments, questions, or concerns regarding this submittal, please do not hesitate to contact me at (518) 937-9509 or at Justin.King@hdrinc.com.

Sincerely,

Henningson, Durham & Richardson Architecture and Engineering P.C.

Justin King
Project Manager

Tables

Table 1	Summary of Emerging Contaminant Data from WAGNN Wells

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Attachment 1	Photographic Log
Attachment 2	Summary Laboratory Analytical Report, Con-Test Laboratories
Attachment 3	DUSR, Data Validation Services

TABLES

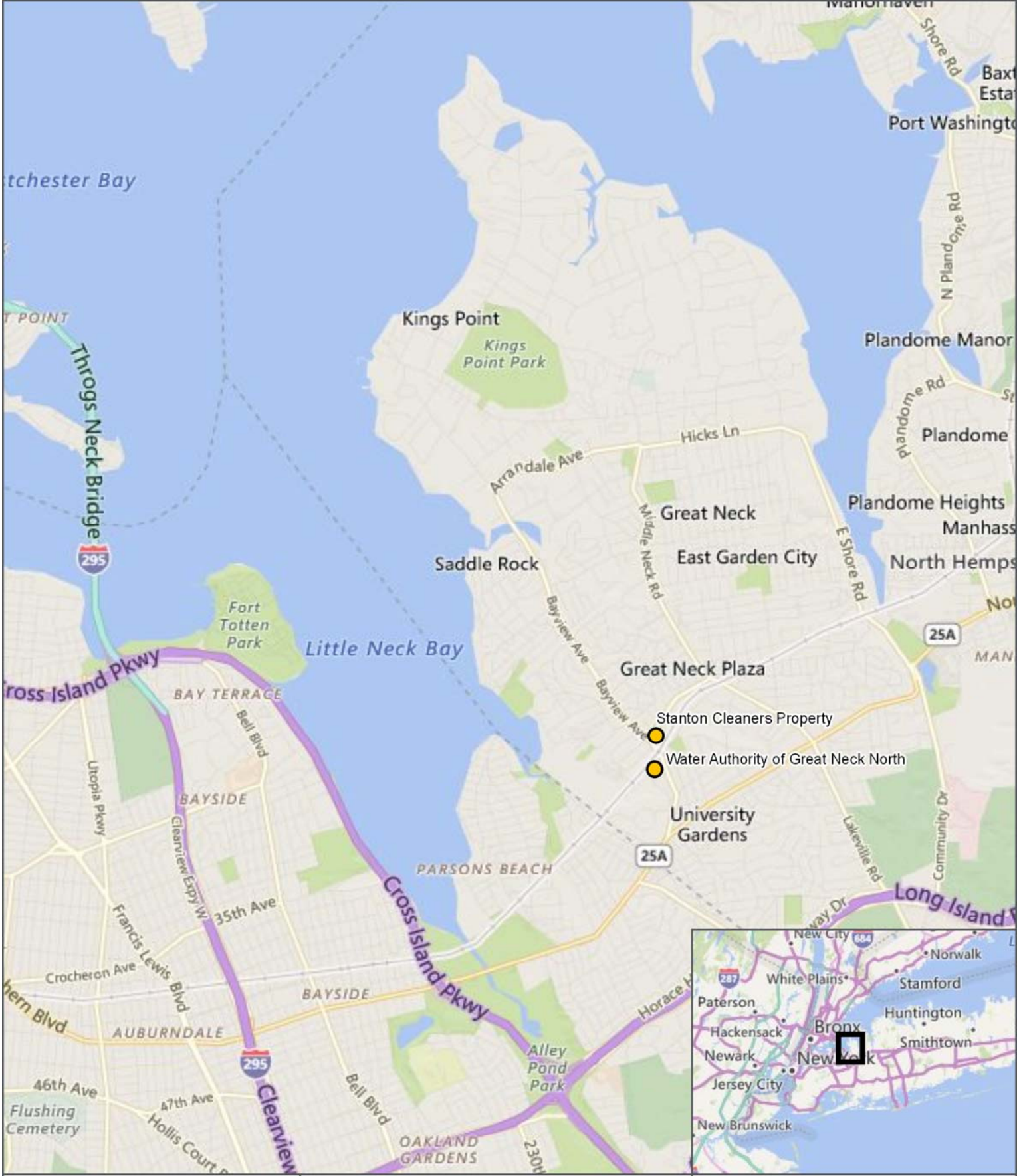
Table 1
Summary of Emerging Contaminant Data from WAGNN Wells
Stanton Cleaners
110 Cuttermill Road, Great Neck, NY

			Sample:	PW-11A-20190207		PW-2A-20190207		PW-9-20190207		PW-9-20190207-1	
			Sample Location:	PW-11A		PW-2A		PW-9		PW-9 (DUP)	
			Sample Date:	2/7/2019		2/7/2019		2/7/2019		2/7/2019	
Analyte	**CAS Number**	**Units**	**NYSDWC Recom.***	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**
PFCs											
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
Perfluoropentanoic Acid (PFPeA)	2706-90-3	ng/l	-	*2*	*U*	*1*	*U*	2.4		3.1	
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
Perfluorohexanoic acid (PFHxA)	307-24-4	ng/l	-	*2*	*U*	*1*	*U*	2.5		3	
Perfluorododecanoic acid (PFDoA)	307-55-1	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
Perfluorodecanoic acid (PFDA)	335-76-2	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
Perfluorodecane Sulfonic Acid	335-77-3	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	ng/l	-	*2*	*UJ*	*1*	*UJ*	2.5	J-	2.5	J-
Perfluorobutanoic Acid	375-22-4	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
Perfluorobutanesulfonic acid (PFBS)	375-73-5	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
Perfluoroheptanoic acid (PFHpA)	375-85-9	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	2.5	
Perfluoroheptane Sulfonate (PFHPS)	375-92-8	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
Perfluorononanoic acid (PFNA)	375-95-1	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
Perfluorotetradecanoic acid (PFTA)	376-06-7	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
Perfluorooctane Sulfonamide (FOSA)	754-91-6	ng/l	-	*2*	*UJ*	*1*	*UJ*	*2*	*UJ*	*2*	*UJ*
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-octane sulfonate (6:2)	M2-6:2FTS	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-decane sulfonate (8:2)	M2-8:2FTS	ng/l	-	*2*	*U*	*1*	*U*	*2*	*U*	*2*	*U*
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	ng/l	10	*2*	*U*	*1*	*U*	2.8		2.4	
Perfluorooctanoic acid (PFOA)	335-67-1	ng/l	10	*2*	*U*	*1*	*U*	6.4		6.1	
Sum of PFOS & PFOA		ng/l	-	*4*	*U*	*2*	*U*	9.2		8.5	
1,4-Dioxane											
1,4-Dioxane (P-Dioxane)	123-91-1	ug/l	1	0.8		0.35		*0.036*	*U*	*0.034*	*U*

Notes:
All samples collected from raw pre-treatment water for the indicated public water supply wells
All samples were submitted to Con-Test Laboratories
*New York State Drinking Water Quality Council recommendations are for PFOA, PFOS, and 1,4-dioxane
https://www.health.ny.gov/press/releases/2018/2018-12-18_drinking_water_quality_council_recommendations.htm

ng/l : nanograms per liter
ug/l : micrograms per liter
PFC : perfluorinated compounds
U : not detected at the indicated concentration
J : value is estimated
Q : Qualifier

FIGURES



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FEET

LEGEND

Site Locations

SITE LOCATION MAP

STANTON CLEANERS
NYSDEC SITE# 130072

WAGNN EMERGENT CONTAMINANTS SAMPLING

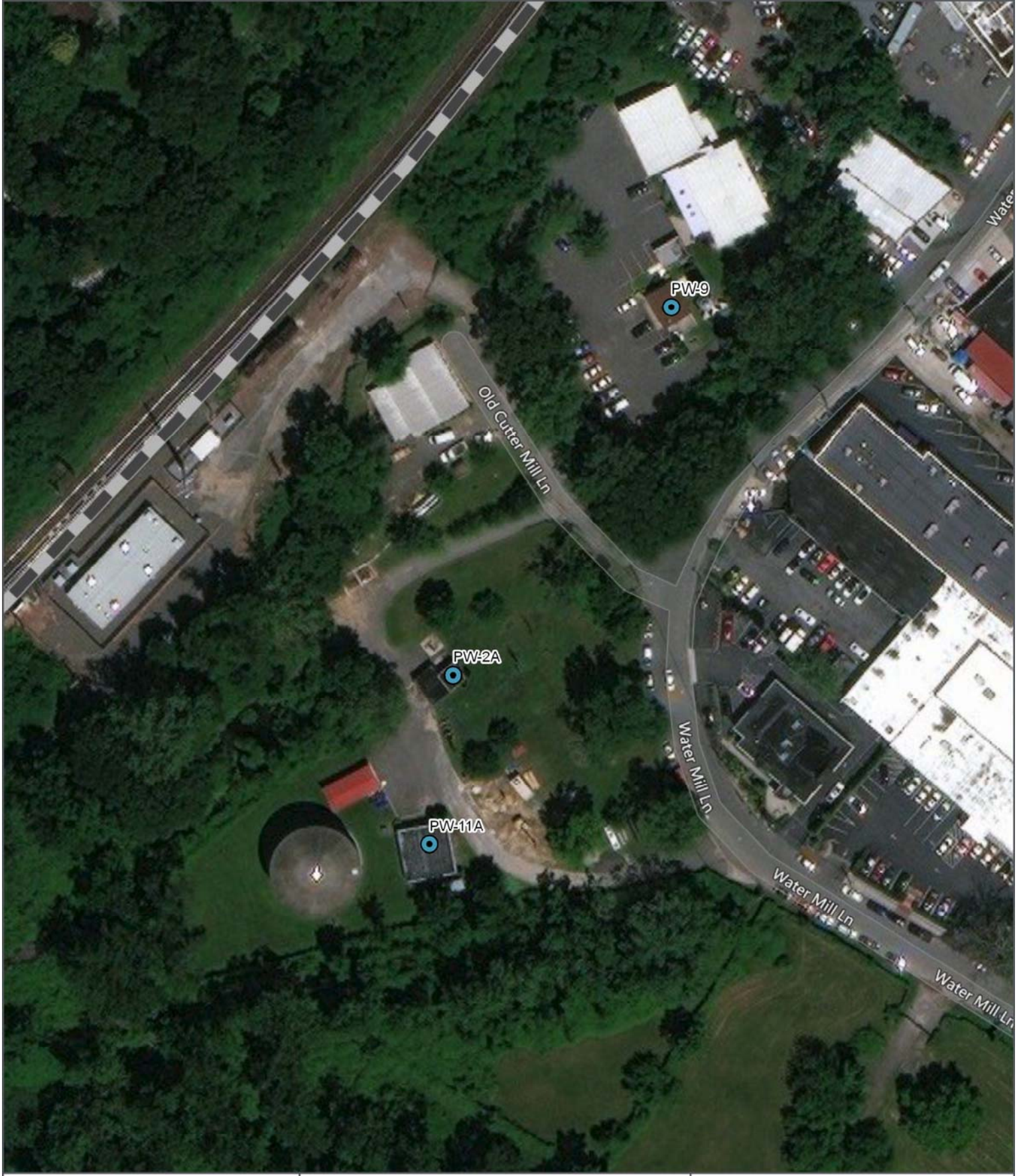
NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation

FDR

DATA SOURCES: © 2019 Microsoft Corporation © 2019 HERE

FIGURE 1

PATH: \\MAHPI-FILE01\GIS_PROJECTS\202315_NEW YORK STATE DEPT OF ENVIRONMENTAL CON\0191231_NYSDEC_ML_WA6_STANTON_CLNR\GIS\MAP_DOCS\DRAFT\REPORTS_2019\PFC-DIOXANE-REPORT\PFC-DIOXANE-REPORT.APRX - USER: MKEAVENE - DATE: 3/1/2019



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Public Supply Wells

SITE LOCATION MAP

STANTON CLEANERS
NYSDEC SITE# 130072

WAGNN EMERGENT CONTAMINANTS SAMPLING

NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation

HDR

DATA SOURCES: © 2019 Microsoft Corporation © 2019 DigitalGlobe ©CNES (2019) Distribution Airbus DS © 2019 HERE

FIGURE 2

ATTACHMENT 1

PHOTOGRAPHIC LOG

Client Name/Contract	Site Location:	Project No.
NYSDEC / D007625-06	Stanton Cleaners – WAGNN Well EC Sampling	10018218

Photo No.	Date:
1	2/7/2019

Public supply well PW-2A

Photo No.	Date:
2	2/7/2019

Description:

Close-up view of the sample port for PW-2A

Client Name/Contract	Site Location:	Project No.
NYSDEC / D007625-06	Stanton Cleaners – WAGNN Well EC Sampling	10018218

Photo No.	Date:
3	2/7/2019

Description:

Public supply well PW-11A

Photo No.	Date:
4	2/7/2019

Description:

Close-up view of the sample port for PW-11A

PHOTOGRAPHIC LOG

Client Name/Contract	Site Location:	Project No.
NYSDEC / D007625-06	Stanton Cleaners – WAGNN Well EC Sampling	10018218

Photo No.	Date:
5	2/7/2019

Description:

Public supply well PW-9

Photo No.	Date:
6	2/7/2019

Description:

Close-up view of the sample port for PW-9

ATTACHMENT 2

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

February 25, 2019

Justin King
HDR, Inc.
16 Corporate Woods, Suite 104
Albany, NY 12211

Project Location: Great Neck, NY
Client Job Number:
Project Number: 10018218-004
Laboratory Work Order Number: 19B0355

Enclosed are results of analyses for samples received by the laboratory on February 8, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

Table of Contents

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

HDR, Inc.
16 Corporate Woods, Suite 104
Albany, NY 12211
ATTN: Justin King

REPORT DATE: 2/25/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 10018218-004

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19B0355

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Great Neck, NY

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PW-2A-20190207	19B0355-01	Ground Water		SOP 434-PFAAS	
				SW-846 8270D	
PW-9-20190207	19B0355-02	Ground Water		SOP 434-PFAAS	
				SW-846 8270D	
PW-11A-20190207	19B0355-03	Ground Water		SOP 434-PFAAS	
				SW-846 8270D	
PW-9-20190207-1	19B0355-04	Ground Water		SOP 434-PFAAS	
				SW-846 8270D	
FB-20190207	19B0355-05	Field Blank		SOP 434-PFAAS	

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SOP 434-PFAAS

Qualifications:

L-03

Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the low side.

Analyte & Samples(s) Qualified:

Perfluorooctanesulfonamide (FOS/
B223578-BS1

MS-22

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonate (6:2 FT
B223578-MSD1

Perfluorobutanoic acid (PFBA)
B223578-MSD1

Perfluorononanoic acid (PFNA)
B223578-MSD1

MS-23

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is outside of the method specified criteria. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:

8:2 Fluorotelomersulfonate (8:2 FT
B223578-MSD1

NEtFOSAA
B223578-MS1, B223578-MSD1

Perfluorooctanesulfonamide (FOS/
B223578-MSD1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Great Neck, NY
Sample Description:
Work Order: 19B0355

Date Received: 2/8/2019

Field Sample #: PW-2A-20190207

Sample ID: 19B0355-01
Start Date/Time: 2/7/2019 10:15:00AM

Sample Matrix: Ground Water
Stop Date/Time: 2/7/2019 10:20:00AM

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	0.35	0.20	0.033	µg/L	1		SW-846 8270D	2/14/19	2/18/19 13:25	CLA

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,4-Dioxane-d8	28.2	15-110		2/18/19 13:25

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Great Neck, NY | Sample Description: | Work Order: 19B0355

Date Received: 2/8/2019

Field Sample #: PW-2A-20190207

Sample ID: 19B0355-01 | Start Date/Time: 2/7/2019 10:15:00AM

Sample Matrix: Ground Water | Stop Date/Time: 2/7/2019 10:20:00AM

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluorohexanoic acid (PFHxA)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluoroheptanoic acid (PFHpA)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluorobutanoic acid (PFBA)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluorooctanesulfonamide (FOSA)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluoropentanoic acid (PFPeA)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
6:2 Fluorotelomersulfonate (6:2 FTS)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
8:2 Fluorotelomersulfonate (8:2 FTS)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluorooctanoic acid (PFOA)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluorononanoic acid (PFNA)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluorodecanoic acid (PFDA)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
NMeFOSAA	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluoroundecanoic acid (PFUnA)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
NEtFOSAA	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluorododecanoic acid (PFDoA)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF
Perfluorotetradecanoic acid (PFTA)	ND	2.0	1.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:45	KAF

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
13C-PFHxA	97.6	70-130			2/24/19 18:45
13C-PFDA	105	70-130			2/24/19 18:45
d5-NEtFOSAA	93.1	70-130			2/24/19 18:45

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Great Neck, NY | Sample Description: | Work Order: 19B0355

Date Received: 2/8/2019

Field Sample #: PW-9-20190207

Sample ID: 19B0355-02 | Start Date/Time: 2/7/2019 10:45:00AM

Sample Matrix: Ground Water | Stop Date/Time: 2/7/2019 10:50:00AM

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	0.055	0.22	0.036	µg/L	1	J	SW-846 8270D	2/14/19	2/18/19 13:45	CLA

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,4-Dioxane-d8	29.9	15-110		2/18/19 13:45

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Great Neck, NY | Sample Description: | Work Order: 19B0355

Date Received: 2/8/2019

Field Sample #: PW-9-20190207

Sample ID: 19B0355-02 | Start Date/Time: 2/7/2019 10:45:00AM

Sample Matrix: Ground Water | Stop Date/Time: 2/7/2019 10:50:00AM

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluorohexanoic acid (PFHxA)	2.5	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluoroheptanoic acid (PFHpA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluorobutanoic acid (PFBA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluorooctanesulfonamide (FOSA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluoropentanoic acid (PFPeA)	2.4	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
6:2 Fluorotelomersulfonate (6:2 FTS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
8:2 Fluorotelomersulfonate (8:2 FTS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluorohexanesulfonic acid (PFHxS)	2.5	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluorooctanoic acid (PFOA)	6.4	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluorooctanesulfonic acid (PFOS)	2.8	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluorononanoic acid (PFNA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluorodecanoic acid (PFDA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
NMeFOSAA	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluoroundecanoic acid (PFUnA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
NEtFOSAA	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluorododecanoic acid (PFDoA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF
Perfluorotetradecanoic acid (PFTA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 18:58	KAF

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
13C-PFHxA	109	70-130		2/24/19	18:58
13C-PFDA	96.6	70-130		2/24/19	18:58
d5-NEtFOSAA	87.1	70-130		2/24/19	18:58

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Great Neck, NY | Sample Description: | Work Order: 19B0355

Date Received: 2/8/2019

Field Sample #: PW-11A-20190207

Sample ID: 19B0355-03 | Start Date/Time: 2/7/2019 10:30:00AM

Sample Matrix: Ground Water | Stop Date/Time: 2/7/2019 10:35:00AM

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	0.80	0.21	0.034	µg/L	1		SW-846 8270D	2/14/19	2/15/19 19:52	IMR

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,4-Dioxane-d8	26.1	15-110		2/15/19 19:52

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Great Neck, NY | Sample Description: | Work Order: 19B0355

Date Received: 2/8/2019

Field Sample #: PW-11A-20190207

Sample ID: 19B0355-03 | Start Date/Time: 2/7/2019 10:30:00AM

Sample Matrix: Ground Water | Stop Date/Time: 2/7/2019 10:35:00AM

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluorohexanoic acid (PFHxA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluoroheptanoic acid (PFHpA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluorobutanoic acid (PFBA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluorooctanesulfonamide (FOSA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluoropentanoic acid (PFPeA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
6:2 Fluorotelomersulfonate (6:2 FTS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
8:2 Fluorotelomersulfonate (8:2 FTS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluorooctanoic acid (PFOA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluorononanoic acid (PFNA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluorodecanoic acid (PFDA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
NMeFOSAA	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluoroundecanoic acid (PFUnA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
NEtFOSAA	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluorododecanoic acid (PFDoA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF
Perfluorotetradecanoic acid (PFTA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:11	KAF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	106	70-130		2/24/19 19:11
13C-PFDA	98.9	70-130		2/24/19 19:11
d5-NEtFOSAA	83.6	70-130		2/24/19 19:11

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Great Neck, NY | Sample Description: | Work Order: 19B0355

Date Received: 2/8/2019

Field Sample #: PW-9-20190207-1

Sample ID: 19B0355-04 | Start Date/Time: 2/7/2019 10:45:00AM

Sample Matrix: Ground Water | Stop Date/Time: 2/7/2019 10:50:00AM

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	0.040	0.21	0.034	µg/L	1	J	SW-846 8270D	2/14/19	2/18/19 14:04	CLA

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,4-Dioxane-d8	24.4	15-110		2/18/19 14:04

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Great Neck, NY | Sample Description: | Work Order: 19B0355

Date Received: 2/8/2019

Field Sample #: PW-9-20190207-1

Sample ID: 19B0355-04 | Start Date/Time: 2/7/2019 10:45:00AM

Sample Matrix: Ground Water | Stop Date/Time: 2/7/2019 10:50:00AM

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluorohexanoic acid (PFHxA)	3.0	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluoroheptanoic acid (PFHpA)	2.5	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluorobutanoic acid (PFBA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluorooctanesulfonamide (FOSA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluoropentanoic acid (PFPeA)	3.1	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
6:2 Fluorotelomersulfonate (6:2 FTS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
8:2 Fluorotelomersulfonate (8:2 FTS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluorohexanesulfonic acid (PFHxS)	2.5	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluorooctanoic acid (PFOA)	6.1	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluorooctanesulfonic acid (PFOS)	2.4	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluorononanoic acid (PFNA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluorodecanoic acid (PFDA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
NMeFOSAA	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluoroundecanoic acid (PFUnA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
NEtFOSAA	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluorododecanoic acid (PFDoA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF
Perfluorotetradecanoic acid (PFTA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:24	KAF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	102	70-130		2/24/19 19:24
13C-PFDA	95.4	70-130		2/24/19 19:24
d5-NEtFOSAA	83.1	70-130		2/24/19 19:24

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Great Neck, NY | Sample Description: | Work Order: 19B0355

Date Received: 2/8/2019

Field Sample #: FB-20190207 | Sampled: 2/7/2019 10:10

Sample ID: 19B0355-05

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluorohexanoic acid (PFHxA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluoroheptanoic acid (PFHpA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluorobutanoic acid (PFBA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluorooctanesulfonamide (FOSA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluoropentanoic acid (PFPeA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
6:2 Fluorotelomersulfonate (6:2 FTS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
8:2 Fluorotelomersulfonate (8:2 FTS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluorooctanoic acid (PFOA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluorononanoic acid (PFNA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluorodecanoic acid (PFDA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
NMeFOSAA	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluoroundecanoic acid (PFUnA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
NEtFOSAA	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluorododecanoic acid (PFDoA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF
Perfluorotetradecanoic acid (PFTA)	ND	2.0	2.0	ng/L	1		SOP 434-PFAAS	2/15/19	2/24/19 19:36	KAF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	105	70-130		2/24/19 19:36
13C-PFDA	94.8	70-130		2/24/19 19:36
d5-NEtFOSAA	79.3	70-130		2/24/19 19:36

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: EPA 537-SOP 434-PFAAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19B0355-01 [PW-2A-20190207]	B223578	250	1.00	02/15/19
19B0355-02 [PW-9-20190207]	B223578	250	1.00	02/15/19
19B0355-03 [PW-11A-20190207]	B223578	250	1.00	02/15/19
19B0355-04 [PW-9-20190207-1]	B223578	250	1.00	02/15/19
19B0355-05 [FB-20190207]	B223578	250	1.00	02/15/19

Prep Method: SW-846 3510C-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19B0355-01 [PW-2A-20190207]	B223584	1000	1.00	02/14/19
19B0355-02 [PW-9-20190207]	B223584	910	1.00	02/14/19
19B0355-03 [PW-11A-20190207]	B223584	960	1.00	02/14/19
19B0355-04 [PW-9-20190207-1]	B223584	960	1.00	02/14/19

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QUALITY CONTROL

1,4-Dioxane by isotope dilution GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B223584 - SW-846 3510C										
Blank (B223584-BLK1)				Prepared: 02/14/19 Analyzed: 02/15/19						
1,4-Dioxane	ND	0.20	µg/L							
Surrogate: 1,4-Dioxane-d8	*3.16*		µg/L	10.0		31.6	15-110			
LCS (B223584-BS1)				Prepared: 02/14/19 Analyzed: 02/15/19						
1,4-Dioxane	11.4	0.20	µg/L	10.0		114	40-140			
Surrogate: 1,4-Dioxane-d8	*2.56*		µg/L	10.0		25.6	15-110			
LCS Dup (B223584-BSD1)				Prepared: 02/14/19 Analyzed: 02/15/19						
1,4-Dioxane	10.8	0.20	µg/L	10.0		108	40-140	5.19	30	
Surrogate: 1,4-Dioxane-d8	*3.07*		µg/L	10.0		30.7	15-110			
Matrix Spike (B223584-MS1)	**Source: 19B0355-03**			Prepared: 02/14/19 Analyzed: 02/15/19						
1,4-Dioxane	12.2	0.20	µg/L	10.0	0.802	114	40-140			
Surrogate: 1,4-Dioxane-d8	*2.37*		µg/L	10.0		23.7	15-110			
Matrix Spike Dup (B223584-MSD1)	**Source: 19B0355-03**			Prepared: 02/14/19 Analyzed: 02/15/19						
1,4-Dioxane	11.9	0.21	µg/L	10.4	0.802	106	40-140	2.32	20	
Surrogate: 1,4-Dioxane-d8	*2.76*		µg/L	10.4		26.5	15-110			

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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B223578 - EPA 537											
Blank (B223578-BLK1)				Prepared: 02/14/19 Analyzed: 02/24/19							
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L								
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L								
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L								
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L								
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L								
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L								
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L								
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L								
6:2 Fluorotelomersulfonate (6:2 FTS)	ND	2.0	ng/L								
8:2 Fluorotelomersulfonate (8:2 FTS)	ND	2.0	ng/L								
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L								
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L								
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L								
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L								
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L								
NMeFOSAA	ND	2.0	ng/L								
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L								
NEtFOSAA	ND	2.0	ng/L								
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L								
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L								
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L								
Surrogate: 13C-PFHxA	*40.8*		ng/L	40.0		102		70-130			
Surrogate: 13C-PFDA	*37.1*		ng/L	40.0		92.7		70-130			
Surrogate: d5-NEtFOSAA	*140*		ng/L	160		87.6		70-130			
LCS (B223578-BS1)				Prepared: 02/14/19 Analyzed: 02/24/19							
Perfluorobutanesulfonic acid (PFBS)	2.07	2.0	ng/L	1.77		117		50-150			
Perfluorohexanoic acid (PFHxA)	2.62	2.0	ng/L	2.00		131		50-150			
Perfluoroheptanoic acid (PFHpA)	2.33	2.0	ng/L	2.00		117		50-150			
Perfluorobutanoic acid (PFBA)	1.13	2.0	ng/L	2.00		56.7		30-110			J
Perfluorodecanesulfonic acid (PFDS)	2.18	2.0	ng/L	1.93		113		50-150			
Perfluoroheptanesulfonic acid (PFHpS)	2.21	2.0	ng/L	1.90		116		50-150			
Perfluorooctanesulfonamide (FOSA)	0.365	2.0	ng/L	2.00		**18.2**	*	30-110			L-03, J
Perfluoropentanoic acid (PFPeA)	2.55	2.0	ng/L	2.00		128		50-150			
6:2 Fluorotelomersulfonate (6:2 FTS)	1.55	2.0	ng/L	1.90		81.5		50-150			J
8:2 Fluorotelomersulfonate (8:2 FTS)	1.47	2.0	ng/L	1.92		76.6		50-150			J
Perfluorohexanesulfonic acid (PFHxS)	2.02	2.0	ng/L	1.82		111		50-150			
Perfluorooctanoic acid (PFOA)	2.85	2.0	ng/L	2.00		143		50-150			
Perfluorooctanesulfonic acid (PFOS)	1.34	2.0	ng/L	1.85		72.4		50-150			J
Perfluorononanoic acid (PFNA)	2.60	2.0	ng/L	2.00		130		50-150			
Perfluorodecanoic acid (PFDA)	1.82	2.0	ng/L	2.00		90.8		50-150			J
NMeFOSAA	2.27	2.0	ng/L	2.00		114		50-150			
Perfluoroundecanoic acid (PFUnA)	2.15	2.0	ng/L	2.00		108		50-150			
NEtFOSAA	1.34	2.0	ng/L	2.00		66.9		50-150			J
Perfluorododecanoic acid (PFDoA)	2.19	2.0	ng/L	2.00		109		50-150			
Perfluorotridecanoic acid (PFTrDA)	1.71	2.0	ng/L	2.00		85.3		50-150			J
Perfluorotetradecanoic acid (PFTA)	2.36	2.0	ng/L	2.00		118		50-150			
Surrogate: 13C-PFHxA	*45.1*		ng/L	40.0		113		70-130			
Surrogate: 13C-PFDA	*40.5*		ng/L	40.0		101		70-130			
Surrogate: d5-NEtFOSAA	*124*		ng/L	160		77.7		70-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD		RPD Limit	Notes
Batch B223578 - EPA 537												
Matrix Spike (B223578-MS1)	**Source: 19B0355-03**			Prepared: 02/14/19 Analyzed: 02/24/19								
Perfluorobutanesulfonic acid (PFBS)	1.42	2.0	ng/L	1.77	ND	80.3		50-150				J
Perfluorohexanoic acid (PFHxA)	2.09	2.0	ng/L	2.00	ND	104		50-150				
Perfluoroheptanoic acid (PFHpA)	2.11	2.0	ng/L	2.00	ND	106		50-150				
Perfluorobutanoic acid (PFBA)	0.797	2.0	ng/L	2.00	ND	39.9		30-110				J
Perfluorodecanesulfonic acid (PFDS)	2.89	2.0	ng/L	1.93	ND	150		50-150				
Perfluoroheptanesulfonic acid (PFHpS)	1.60	2.0	ng/L	1.90	ND	84.1		50-150				J
Perfluorooctanesulfonamide (FOSA)	0.666	2.0	ng/L	2.00	ND	33.3		30-110				J
Perfluoropentanoic acid (PFPeA)	1.85	2.0	ng/L	2.00	ND	92.3		50-150				J
6:2 Fluorotelomersulfonate (6:2 FTS)	2.26	2.0	ng/L	1.90	ND	119		50-150				
8:2 Fluorotelomersulfonate (8:2 FTS)	2.74	2.0	ng/L	1.92	ND	143		50-150				
Perfluorohexanesulfonic acid (PFHxS)	1.62	2.0	ng/L	1.82	ND	89.2		50-150				J
Perfluorooctanoic acid (PFOA)	2.26	2.0	ng/L	2.00	ND	113		50-150				
Perfluorooctanesulfonic acid (PFOS)	1.99	2.0	ng/L	1.85	ND	108		50-150				J
Perfluorononanoic acid (PFNA)	2.97	2.0	ng/L	2.00	ND	148		50-150				
Perfluorodecanoic acid (PFDA)	2.00	2.0	ng/L	2.00	ND	100		50-150				
NMeFOSAA	1.87	2.0	ng/L	2.00	ND	93.3		50-150				J
Perfluoroundecanoic acid (PFUnA)	2.19	2.0	ng/L	2.00	ND	109		50-150				
NEtFOSAA	3.49	2.0	ng/L	2.00	ND	**174**	*	50-150				MS-23
Perfluorododecanoic acid (PFDoA)	1.84	2.0	ng/L	2.00	ND	92.1		50-150				J
Perfluorotridecanoic acid (PFTrDA)	2.21	2.0	ng/L	2.00	ND	111		50-150				
Perfluorotetradecanoic acid (PFTA)	2.18	2.0	ng/L	2.00	ND	109		50-150				
Surrogate: 13C-PFHxA	*29.6*		ng/L	40.0		74.0		70-130				
Surrogate: 13C-PFDA	*40.8*		ng/L	40.0		102		70-130				
Surrogate: d5-NEtFOSAA	*140*		ng/L	160		87.6		70-130				
Matrix Spike Dup (B223578-MSD1)	**Source: 19B0355-03**			Prepared: 02/14/19 Analyzed: 02/24/19								
Perfluorobutanesulfonic acid (PFBS)	1.60	2.0	ng/L	1.77	ND	90.4		70-130			30	J
Perfluorohexanoic acid (PFHxA)	1.78	2.0	ng/L	2.00	ND	89.1		70-130	15.7		30	J
Perfluoroheptanoic acid (PFHpA)	1.80	2.0	ng/L	2.00	ND	90.0		70-130	15.9		30	J
Perfluorobutanoic acid (PFBA)	0.563	2.0	ng/L	2.00	ND	**28.1**	*	30-110			30	MS-22, J
Perfluorodecanesulfonic acid (PFDS)	2.17	2.0	ng/L	1.93	ND	113		70-130	28.2		30	
Perfluoroheptanesulfonic acid (PFHpS)	2.19	2.0	ng/L	1.90	ND	115		70-130			30	
Perfluorooctanesulfonamide (FOSA)	0.463	2.0	ng/L	2.00	ND	**23.1**	*	30-110			30	MS-23, J
Perfluoropentanoic acid (PFPeA)	2.06	2.0	ng/L	2.00	ND	103		70-130			30	
6:2 Fluorotelomersulfonate (6:2 FTS)	2.93	2.0	ng/L	1.90	ND	**154**	*	70-130	26.1		30	MS-22
8:2 Fluorotelomersulfonate (8:2 FTS)	1.85	2.0	ng/L	1.92	ND	96.3		70-130	**39.0**	*	30	MS-23, J
Perfluorohexanesulfonic acid (PFHxS)	1.63	2.0	ng/L	1.82	ND	89.4		70-130			30	J
Perfluorooctanoic acid (PFOA)	2.48	2.0	ng/L	2.00	ND	124		70-130	9.26		30	
Perfluorooctanesulfonic acid (PFOS)	1.52	2.0	ng/L	1.85	ND	82.3		70-130			30	J
Perfluorononanoic acid (PFNA)	2.76	2.0	ng/L	2.00	ND	**138**	*	70-130	7.37		30	MS-22
Perfluorodecanoic acid (PFDA)	2.25	2.0	ng/L	2.00	ND	113		70-130	11.7		30	
NMeFOSAA	1.46	2.0	ng/L	2.00	ND	73.1		70-130			30	J
Perfluoroundecanoic acid (PFUnA)	1.98	2.0	ng/L	2.00	ND	99.1		70-130	9.86		30	J
NEtFOSAA	2.14	2.0	ng/L	2.00	ND	107		70-130	**47.8**	*	30	MS-23
Perfluorododecanoic acid (PFDoA)	2.21	2.0	ng/L	2.00	ND	111		70-130			30	
Perfluorotridecanoic acid (PFTrDA)	2.30	2.0	ng/L	2.00	ND	115		70-130	3.62		30	
Perfluorotetradecanoic acid (PFTA)	2.22	2.0	ng/L	2.00	ND	111		70-130	1.96		30	
Surrogate: 13C-PFHxA	*32.1*		ng/L	40.0		80.1		70-130				
Surrogate: 13C-PFDA	*40.7*		ng/L	40.0		102		70-130				
Surrogate: d5-NEtFOSAA	*171*		ng/L	160		107		70-130				

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
L-03	Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the low side.
MS-22	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.
MS-23	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is outside of the method specified criteria. Reduced precision anticipated for any reported result for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP 434-PFAAS in Water	
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
Perfluoroheptanoic acid (PFHpA)	NH-P
Perfluorobutanoic acid (PFBA)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
6:2 Fluorotelomersulfonate (6:2 FTS)	NH-P
8:2 Fluorotelomersulfonate (8:2 FTS)	NH-P
Perfluorohexanesulfonic acid (PFHxS)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
Perfluorononanoic acid (PFNA)	NH-P
Perfluorodecanoic acid (PFDA)	NH-P
NMeFOSAA	NH-P
Perfluoroundecanoic acid (PFUnA)	NH-P
NEtFOSAA	NH-P
Perfluorododecanoic acid (PFDoA)	NH-P
Perfluorotridecanoic acid (PFTrDA)	NH-P
Perfluorotetradecanoic acid (PFTA)	NH-P
SW-846 8270D in Water	
1,4-Dioxane	NY

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

1980355

con-test ANALYTICAL LABORATORY

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com Doc # 381 Rev 1_03242017

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: HDR, INC
Address: 16 Corporate Woods Blvd, Albany, NY 12211
Phone: 518-937-9509
Project Name: WN Stanton Cleaners
Project Location: Great Neck, NY
Project Number: 10018218-004
Project Manager: Justin King
Con-Test Quote Name/Number: DW07825-06
Invoice Recipient: Justin King
Sampled By: Matthew T Kraveney

Requested Turnaround Time:
7-Day ☐ 10-Day ☒
Due Date:

Rush Approval Required:
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery:
Format: PDF ☒ EXCEL ☒
Other: Cat B + EDD
CLP Like Data Pkg Required: ☐
Email To: justin.king@hdrinc.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code	PCBs EPA 537	1,4 Dioxane 8270 SIM										# of Containers	Preservation Code	Container Code
								P	P										1	H	P
1	PW-2A-20190207	2/7/19 1015	2/7/19 1020		X	GW		U	U										2	I	A
	~~PW-6-20190207~~				~~X~~	~~GW~~		~~U~~	~~X~~												
2	PW-9-20190207	2/7/19 1045	2/7/19 1050		X	GW		U	U										2	I	A
3	PW-11A-20190207	2/7/19 1030	2/7/19 1035		X	GW		U	U										2	I	A
4	PW-9-20190207-1	2/7/19 1045	2/7/19 1050		X	GW		U	U										2	I	A
3S	PW-11A-20190207-MS	2/7/19 1030	2/7/19 1035		X	GW		U	U										2	I	A
3D	PW-11A-20190207-MSD	2/7/19 1032	2/7/19 1035		X	GW		U	U										2	I	A
5	FB-20190207	2/7/19 1010	2/7/19 1010		X	GW		U	U										2	I	A

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments: Samples in two coolers
MS/MSD sample for PW-11A-20190207-MS/MSD

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time: 2/7/19 1400	
Received by: (signature) 5.2/4.1	Date/Time: 2/8/19 9W	
Relinquished by: (signature)	Date/Time:	
Received by: (signature)	Date/Time:	
Relinquished by: (signature)	Date/Time:	
Received by: (signature)	Date/Time:	

Detection Limit Requirements
MA
RCP
Other

Special Requirements
☐ MA MCP Required
☐ MCP Certification Form Required
☐ CT RCP Required
☐ RCP Certification Form Required
☐ MA State DW Required
PWSID #

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NELAC and AIHA-LAP, LLC Accredited

Project Entity
☒ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ AIHA-LAP, LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

785371938957

Delivered
Friday 2/08/2019 at 9:00 am

DELIVERED

Signed for by: B.BECCA

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM	TO
MAHWAH, NJ US	EAST LONGMEADOW, MA US

Multiple-piece Shipment

2 Piece shipment

TRACKING NUMBER	SHIPPER CITY, STATE	SHIP DATE	STATUS	DELIVERY DATE	DESTINATION/RECIPIENT CITY, STATE
785371938946 (master)	GARDEN CITY, NY	2/07/2019		2/08/2019	EAST LONGMEADOW, MA
785371938957	GARDEN CITY, NY	2/07/2019		2/08/2019	EAST LONGMEADOW, MA

Shipment Facts

TRACKING NUMBER
785371938957

SERVICE
FedEx Priority Overnight

MASTER TRACKING NUMBER
785371938946

WEIGHT
57 lbs / 25.85 kgs

DIMENSIONS
24x14x14 in.

DELIVERED TO
Shipping/Receiving

TOTAL PIECES
2

TOTAL SHIPMENT WEIGHT
57 lbs / 25.85 kgs

TERMS
Third Party

PACKAGING
Your Packaging

SPECIAL HANDLING SECTION
Deliver Weekday, Additional Handling Surcharge

STANDARD TRANSIT
2/08/2019 by 10:30 am

SHIP DATE

ACTUAL DELIVERY
Fri 2/08/2019 9:00 am

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client HDR Inc

Received By RMP Date 2/8/19 Time 900

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____ Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 5.2 / 4.1 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? T

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers	#		#		#
Unp-		1 Liter Amb.	12	1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	7	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

ATTACHMENT 3

Data Validation Services

120 Cobble Creek Road P.O. Box 208
North Creek, NY 12853

Phone 518-251-4429
harry@frontiernet.net

March 28, 2019

Justin King
HDR
16 Corporate Woods Blvd
Albany, NY 12211

RE: Validation of the NYSDEC Stanton Cleaners Analytical Data Packages
Data Usability Summary Report (DUSR)
Con-test SDG No. 19B0355

Dear Mr. King:

Review has been completed for the data package generated by Con-test that pertains to samples collected 02/07/19 at the Stanton Cleaners site. Three aqueous samples, and a field duplicate were processed for per- and poly fluorinated alkyl substances (PFAS) and 1,4-dioxane. A field blank was also processed for PFAS. The analytical methodologies are those of the USEPA SW846 method 8270D SIM and a modified USEPA method 537.

The data packages submitted by the laboratory contain full deliverables for validation, but this usability report is generated from review of the QC summary form information, with full review of sample raw data and limited review of associated QC raw data. The reported QC summary forms and sample raw data have been reviewed for application of validation qualifiers, with guidance from the USEPA national and regional validation documents, and in consideration for the specific requirements of the analytical methodology. The following items were reviewed:

* Data Completeness
* Case Narrative
* Custody Documentation
* Holding Times
* Surrogate and Internal Standard Recoveries
* Method and Equipment Blanks
* Laboratory Control Sample (LCS)
* Matrix Spike Recoveries and Correlations
* Blind Field Duplicate Correlations
* Instrumental Tunes
* Initial and Continuing Calibration Standards
* Method Compliance
* Sample Result Verification

Those items listed above which show deficiencies are discussed within the text of this narrative. All of the other items were determined to be acceptable for the DUSR level review, as discussed in NYS DER-10 Appendix B Section 2.0 (c). Documentation of the outlying parameters cited in this report can be found in the laboratory data package.

In summary, results for the samples are usable either as reported or with minor qualification or edit. Data completeness, accuracy, precision, representativeness, reproducibility, and sensitivity are acceptable. Comparability issues are discussed in the section below.

The client sample identifications are attached to this text. Also included in this report is the EQuIS EDD with recommended qualifiers/edits applied in red.

Chain-of-Custody

Edits and scratchouts should have been dated and initialed.

1,4-Dioxane by EPA8270D SIM

The detections of 1,4-dioxane in PW-9-20190207 and PW-9-20190207-1 have been edited to reflect non-detection at the reporting limit due to poor fragment proportions and signal/noise ratios.

Holding times were met. Surrogate recoveries are within the laboratory acceptance range, and internal standard responses are compliant. Instrument tunes meet fragmentation requirements.

Matrix spike recoveries and correlations of PW-11A-20190207 are within the laboratory acceptance range/limit.

Blind field duplicate correlations for PW-9-20190207 are within validation guidelines.

The LCS recovery is within the acceptance range, and calibration standards show responses within analytical protocol requirements.

PFAS by Modified EPA Method 537

PFAS compounds are identified by their common acronyms in this report. The EDDs reference both the technical names and the acronyms.

Matrix spike recoveries and correlations of PW-11A-20190207 are within validation guidelines, as are the blind field duplicate correlations for PW-9-20190207.

Blanks show no contamination, and holding times were met.

Surrogate and internal standard recoveries are within laboratory acceptance ranges. It is noted that this laboratory utilizes only the three surrogate standards that are denoted in the original method 537 methodology for PFAS in drinking water. The modifications of method 537 used by most of the environmental laboratories typically include individual isotopic dilution surrogate standards that specifically correspond with almost all of the target analytes. The target analyte- specific surrogates allow for better evaluation of retention times and other raw data components that are often affected by matrix effects and interferences of more complex matrices than drinking water.

The results for FOSA in the samples and field blank are qualified as estimated due to the low recovery (18%) of that analyte in the associated LCS.

The results for PFHxS are qualified as estimated in the samples due to low response (33%D) in the associated calibration standard.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

Judy Harry

Attachments: Validation Qualifier Definitions
Sample Identifications
Qualified Laboratory EQuIS EDD

VALIDATION DATA QUALIFIER DEFINITIONS

U	The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J-	The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased low.
J+	The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased high.
UJ	The analyte was analyzed for, but was not detected. The associated reported quantitation limit is approximate and may be inaccurate or imprecise.
NJ	The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative value.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control limits. The analyte may or may not be present.
EMPC	The results do not meet all criteria for a confirmed identification. The quantitative value represents the Estimated Maximum Possible Concentration of the analyte in the sample.

Client and Laboratory Sample IDs

con-test®
ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

HDR, Inc.
16 Corporate Woods, Suite 104
Albany, NY 12211
ATTN: Justin King

REPORT DATE: 2/25/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 10018218-004

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19B0355

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Great Neck, NY

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PW-2A-20190207	19B0355-01	Ground Water		SOP 434-PFAAS SW-846 8270D	
PW-9-20190207	19B0355-02	Ground Water		SOP 434-PFAAS SW-846 8270D	
PW-11A-20190207	19B0355-03	Ground Water		SOP 434-PFAAS SW-846 8270D	
PW-9-20190207-I	19B0355-04	Ground Water		SOP 434-PFAAS SW-846 8270D	
FB-20190207	19B0355-05	Field Blank		SOP 434-PFAAS	