Maxxam
A Bureau Veritas Group Company

Your Project #: PFC
Site Location: BFTA
Your C.O.C. #: 558437-08-01

Attention:Tom Cambareri

Cape Cod Comission
Cape Cod Commission
3225 Main Street
Barnstable, MA
USA 02630

Report Date: 2016/12/13
Report #: R4285790
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6Q3488
Received: 2016/12/02, 14:51

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
PFOS and PFOA in water	2	2016/12/12	2016/12/13	CAM SOP-00894	EPA 537 m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods. Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key M Di Grazia Melissa DiGrazia
Project Manager - ATUT
15 Dec 2016 14:13:58

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Melissa DiGrazia, Project Manager - ATUT
Email: MDiGrazia@maxxam.ca
Phone# (905) 817-5700

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

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RESULTS OF ANALYSES OF WATER

Maxxam ID		DOJ247			DOJ248			
Sampling Date		2016/12/01 14:15			2016/12/01 14:15			
COC Number		558437-08-01			558437-08-01			
	UNITS	**INFLUENT,PRW-4**	**RDL**	**MDL**	**MID POINT**	**RDL**	**MDL**	**QC Batch**
Miscellaneous Parameters								
6:2 Fluorotelomer sulfonate	ug/L	0.30	0.020	0.0065	0.043	0.020	0.0065	4788743
8:2 Fluorotelomer sulfonate	ug/L	0.19	0.020	0.0055	0.011	0.020	0.0055	4788743
N-ethylperfluorooctane sulfonamide	ug/L	<0.0053	0.020	0.0053	<0.0053	0.020	0.0053	4788743
N-ethylperfluorooctane sulfonamidoe	ug/L	<0.0049	0.020	0.0049	<0.0049	0.020	0.0049	4788743
N-methylperfluorooctane sulfonamide	ug/L	<0.0040	0.020	0.0040	<0.0040	0.020	0.0040	4788743
N-methylperfluorooctanesulfonamidol	ug/L	<0.0061	0.020	0.0061	<0.0061	0.020	0.0061	4788743
Perfluorobutane Sulfonate (PFBS)	ug/L	0.044	0.020	0.0019	0.0058	0.020	0.0019	4788743
Perfluorobutanoic acid	ug/L	0.043	0.020	0.0066	0.012	0.020	0.0066	4788743
Perfluorodecane Sulfonate	ug/L	<0.0043	0.020	0.0043	<0.0043	0.020	0.0043	4788743
Perfluorodecanoic Acid (PFDA)	ug/L	0.011	0.020	0.0066	<0.0066	0.020	0.0066	4788743
Perfluorododecanoic Acid (PFDoA)	ug/L	<0.0057	0.020	0.0057	<0.0057	0.020	0.0057	4788743
Perfluoroheptane sulfonate	ug/L	0.078	0.020	0.0036	0.011	0.020	0.0036	4788743
Perfluoroheptanoic Acid (PFHpA)	ug/L	0.097	0.020	0.0047	0.016	0.020	0.0047	4788743
Perfluorohexane Sulfonate (PFHxS)	ug/L	0.65	0.020	0.0040	0.067	0.020	0.0040	4788743
Perfluorohexanoic Acid (PFHxA)	ug/L	0.25	0.020	0.0046	0.038	0.020	0.0046	4788743
Perfluoro-n-Octanoic Acid (PFOA)	ug/L	0.10	0.020	0.0053	0.014	0.020	0.0053	4788743
Perfluorononanoic Acid (PFNA)	ug/L	0.064	0.020	0.0046	0.0076	0.020	0.0046	4788743
Perfluorooctane Sulfonamide (PFOSA)	ug/L	0.0099	0.020	0.0058	<0.0058	0.020	0.0058	4788743
Perfluorooctane Sulfonate (PFOS)	ug/L	5.3 (1)	0.40	0.066	0.40	0.020	0.0033	4788743
Perfluoropentanoic Acid (PFPeA)	ug/L	0.16	0.020	0.0036	0.029	0.020	0.0036	4788743
Perfluorotetradecanoic Acid	ug/L	<0.0052	0.020	0.0052	<0.0052	0.020	0.0052	4788743
Perfluorotridecanoic Acid	ug/L	<0.0032	0.020	0.0032	<0.0032	0.020	0.0032	4788743
Perfluoroundecanoic Acid (PFUnA)	ug/L	0.087	0.020	0.0037	<0.0037	0.020	0.0037	4788743
Surrogate Recovery (%)								
13C4-Perfluorooctanesulfonate	%	108	N/A	N/A	95	N/A	N/A	4788743
13C4-Perfluorooctanoic acid	%	93	N/A	N/A	109	N/A	N/A	4788743
13C8-Perfluorooctanesulfonamide	%	90	N/A	N/A	94	N/A	N/A	4788743

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Due to high concentration of the target analyte, sample required 20x dilution. Detection limit was adjusted accordingly.

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Maxxam Job #: B6Q3488
Report Date: 2016/12/13

Cape Cod Comission
Client Project #: PFC
Site Location: BFTA

TEST SUMMARY

Maxxam ID: DOJ247
Sample ID: INFLUENT,PRW-4
Matrix: Water

Collected: 2016/12/01
Shipped:
Received: 2016/12/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4788743	2016/12/12	2016/12/13	Colm McNamara

Maxxam ID: DOJ248
Sample ID: MID POINT
Matrix: Water

Collected: 2016/12/01
Shipped:
Received: 2016/12/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4788743	2016/12/12	2016/12/13	Colm McNamara

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GENERAL COMMENTS

Due to lab accident, EFFLUENT sample cancelled.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4788743	CM5	Spiked Blank	13C4-Perfluorooctanesulfonate	2016/12/13		71	%	70 - 130
			13C4-Perfluorooctanoic acid	2016/12/13		70	%	70 - 130
			13C8-Perfluorooctanesulfonamide	2016/12/13		66	%	60 - 120
			6:2 Fluorotelomer sulfonate	2016/12/13		95	%	70 - 130
			8:2 Fluorotelomer sulfonate	2016/12/13		103	%	70 - 130
			N-ethylperfluorooctane sulfonamide	2016/12/13		106	%	70 - 130
			N-ethylperfluorooctane sulfonamidoe	2016/12/13		101	%	70 - 130
			N-methylperfluorooctane sulfonamide	2016/12/13		114	%	70 - 130
			N-methylperfluorooctanesulfonamidol	2016/12/13		101	%	70 - 130
			Perfluorobutane Sulfonate (PFBS)	2016/12/13		100	%	70 - 130
			Perfluorobutanoic acid	2016/12/13		94	%	70 - 130
			Perfluorodecane Sulfonate	2016/12/13		99	%	70 - 130
			Perfluoroheptane sulfonate	2016/12/13		102	%	70 - 130
			Perfluoroheptanoic Acid (PFHpA)	2016/12/13		103	%	70 - 130
			Perfluorohexane Sulfonate (PFHxS)	2016/12/13		100	%	70 - 130
			Perfluorohexanoic Acid (PFHxA)	2016/12/13		105	%	70 - 130
			Perfluorononanoic Acid (PFNA)	2016/12/13		99	%	70 - 130
			Perfluorooctane Sulfonamide (PFOSA)	2016/12/13		107	%	70 - 130
			Perfluoropentanoic Acid (PFPeA)	2016/12/13		105	%	70 - 130
			Perfluorotetradecanoic Acid	2016/12/13		103	%	70 - 130
			Perfluorotridecanoic Acid	2016/12/13		114	%	70 - 130
			Perfluoroundecanoic Acid (PFUnA)	2016/12/13		107	%	70 - 130
			Perfluorodecanoic Acid (PFDA)	2016/12/13		104	%	70 - 130
			Perfluorododecanoic Acid (PFDoA)	2016/12/13		101	%	70 - 130
			Perfluoro-n-Octanoic Acid (PFOA)	2016/12/13		113	%	70 - 130
			Perfluorooctane Sulfonate (PFOS)	2016/12/13		102	%	70 - 130
4788743	CM5	Spiked Blank DUP	13C4-Perfluorooctanesulfonate	2016/12/13		86	%	70 - 130
			13C4-Perfluorooctanoic acid	2016/12/13		90	%	70 - 130
			13C8-Perfluorooctanesulfonamide	2016/12/13		87	%	60 - 120
			6:2 Fluorotelomer sulfonate	2016/12/13		96	%	70 - 130
			8:2 Fluorotelomer sulfonate	2016/12/13		101	%	70 - 130
			N-ethylperfluorooctane sulfonamide	2016/12/13		105	%	70 - 130
			N-ethylperfluorooctane sulfonamidoe	2016/12/13		89	%	70 - 130
			N-methylperfluorooctane sulfonamide	2016/12/13		101	%	70 - 130
			N-methylperfluorooctanesulfonamidol	2016/12/13		93	%	70 - 130
			Perfluorobutane Sulfonate (PFBS)	2016/12/13		90	%	70 - 130
			Perfluorobutanoic acid	2016/12/13		91	%	70 - 130
			Perfluorodecane Sulfonate	2016/12/13		93	%	70 - 130
			Perfluoroheptane sulfonate	2016/12/13		100	%	70 - 130
			Perfluoroheptanoic Acid (PFHpA)	2016/12/13		104	%	70 - 130
			Perfluorohexane Sulfonate (PFHxS)	2016/12/13		94	%	70 - 130
			Perfluorohexanoic Acid (PFHxA)	2016/12/13		106	%	70 - 130
			Perfluorononanoic Acid (PFNA)	2016/12/13		97	%	70 - 130
			Perfluorooctane Sulfonamide (PFOSA)	2016/12/13		99	%	70 - 130
			Perfluoropentanoic Acid (PFPeA)	2016/12/13		98	%	70 - 130
			Perfluorotetradecanoic Acid	2016/12/13		94	%	70 - 130
			Perfluorotridecanoic Acid	2016/12/13		103	%	70 - 130
			Perfluoroundecanoic Acid (PFUnA)	2016/12/13		104	%	70 - 130
			Perfluorodecanoic Acid (PFDA)	2016/12/13		101	%	70 - 130
			Perfluorododecanoic Acid (PFDoA)	2016/12/13		103	%	70 - 130
			Perfluoro-n-Octanoic Acid (PFOA)	2016/12/13		107	%	70 - 130
			Perfluorooctane Sulfonate (PFOS)	2016/12/13		100	%	70 - 130
4788743	CM5	RPD	6:2 Fluorotelomer sulfonate	2016/12/13	1.9		%	30

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			8:2 Fluorotelomer sulfonate	2016/12/13	2.7		%	30
			N-ethylperfluorooctane sulfonamide	2016/12/13	0.38		%	30
			N-ethylperfluorooctane sulfonamidoe	2016/12/13	12		%	30
			N-methylperfluorooctane sulfonamide	2016/12/13	12		%	30
			N-methylperfluorooctanesulfonamidol	2016/12/13	8.0		%	30
			Perfluorobutane Sulfonate (PFBS)	2016/12/13	10		%	30
			Perfluorobutanoic acid	2016/12/13	4.1		%	30
			Perfluorodecane Sulfonate	2016/12/13	6.7		%	30
			Perfluoroheptane sulfonate	2016/12/13	2.4		%	30
			Perfluoroheptanoic Acid (PFHpA)	2016/12/13	0.39		%	30
			Perfluorohexane Sulfonate (PFHxS)	2016/12/13	6.2		%	30
			Perfluorohexanoic Acid (PFHxA)	2016/12/13	0.38		%	30
			Perfluorononanoic Acid (PFNA)	2016/12/13	1.6		%	30
			Perfluorooctane Sulfonamide (PFOSA)	2016/12/13	7.9		%	30
			Perfluoropentanoic Acid (PFPeA)	2016/12/13	6.7		%	30
			Perfluorotetradecanoic Acid	2016/12/13	9.1		%	30
			Perfluorotridecanoic Acid	2016/12/13	10		%	30
			Perfluoroundecanoic Acid (PFUnA)	2016/12/13	3.4		%	30
			Perfluorodecanoic Acid (PFDA)	2016/12/13	3.7		%	30
			Perfluorododecanoic Acid (PFDoA)	2016/12/13	2.0		%	30
			Perfluoro-n-Octanoic Acid (PFOA)	2016/12/13	5.5		%	30
			Perfluorooctane Sulfonate (PFOS)	2016/12/13	2.8		%	30
4788743	CM5	Method Blank	13C4-Perfluorooctanesulfonate	2016/12/13		91	%	70 - 130
			13C4-Perfluorooctanoic acid	2016/12/13		96	%	70 - 130
			13C8-Perfluorooctanesulfonamide	2016/12/13		92	%	60 - 120
			6:2 Fluorotelomer sulfonate	2016/12/13	<0.0065		ug/L	
			8:2 Fluorotelomer sulfonate	2016/12/13	<0.0055		ug/L	
			N-ethylperfluorooctane sulfonamide	2016/12/13	<0.0053		ug/L	
			N-ethylperfluorooctane sulfonamidoe	2016/12/13	<0.0049		ug/L	
			N-methylperfluorooctane sulfonamide	2016/12/13	<0.0040		ug/L	
			N-methylperfluorooctanesulfonamidol	2016/12/13	<0.0061		ug/L	
			Perfluorobutane Sulfonate (PFBS)	2016/12/13	<0.0019		ug/L	
			Perfluorobutanoic acid	2016/12/13	<0.0066		ug/L	
			Perfluorodecane Sulfonate	2016/12/13	<0.0043		ug/L	
			Perfluoroheptane sulfonate	2016/12/13	<0.0036		ug/L	
			Perfluoroheptanoic Acid (PFHpA)	2016/12/13	<0.0047		ug/L	
			Perfluorohexane Sulfonate (PFHxS)	2016/12/13	<0.0040		ug/L	
			Perfluorohexanoic Acid (PFHxA)	2016/12/13	<0.0046		ug/L	
			Perfluorononanoic Acid (PFNA)	2016/12/13	<0.0046		ug/L	
			Perfluorooctane Sulfonamide (PFOSA)	2016/12/13	<0.0058		ug/L	
			Perfluoropentanoic Acid (PFPeA)	2016/12/13	<0.0036		ug/L	
			Perfluorotetradecanoic Acid	2016/12/13	<0.0052		ug/L	
			Perfluorotridecanoic Acid	2016/12/13	<0.0032		ug/L	
			Perfluoroundecanoic Acid (PFUnA)	2016/12/13	<0.0037		ug/L	
			Perfluorodecanoic Acid (PFDA)	2016/12/13	<0.0066		ug/L	
			Perfluorododecanoic Acid (PFDoA)	2016/12/13	<0.0057		ug/L	
			Perfluoro-n-Octanoic Acid (PFOA)	2016/12/13	<0.0053		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Perfluorooctane Sulfonate (PFOS)	2016/12/13	<0.0033		ug/L	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Sin Chii Chia, Scientific Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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