

October 06, 2017

Bob Walker
H2GO Brunswick Regional Water & Sewer
516 Village Road, NE
Leland, North Carolina 28451

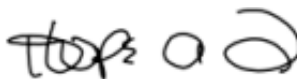
Re: Sample Analysis
Work Order: 431883

Dear Bob Walker:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 31, 2017. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4778.

Sincerely,



Hope Taylor
Project Manager

Purchase Order: signed quote
Enclosures

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis Report for

H2GO001 H2GO Brunswick Regional Water & Sewer

Client SDG: 431883 GEL Work Order: 431883

The Qualifiers in this report are defined as follows:

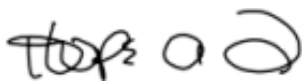
- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a Tracer compound
- ** Analyte is a surrogate compound
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Hope Taylor.

Reviewed by



GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : H2GO Brunswick Regional Water &
Sewer
Address : 516 Village Road, NE
Leland, North Carolina 28451
Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Lock & Dam #1
Sample ID: 431883001
Matrix: Water
Collect Date: 28-AUG-17 15:45
Receive Date: 31-AUG-17
Collector: Client

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
<i>NC 6 PFCs by LC-MS/MS "As Received"</i>												
Nafion Byproduct 1		7.33			ng/L	0.0184	1	JLS	09/08/17	0515	1698648	1
Nafion Byproduct 2		32.9			ng/L	0.0184	1					
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	X	9.73			ng/L	0.0184	1					
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	X	20.3			ng/L	0.0184	1					
Perfluoro-2-methoxyacetic acid (PFMOAA)	X	1.07			ng/L	0.0184	1					
Perfluoro-3-methoxypropanoic acid (PFMOPrA)	X	8.79			ng/L	0.0184	1					
Perfluoro-4-methoxybutanic acid (PFMOBA)	UX	ND			ng/L	0.0184	1					
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	X	45.9			ng/L	0.0184	5	JLS	09/08/17	0328	1698648	2
<i>PFOA, PFOS by LC-MS/MS "As Received"</i>												
Fluorotelomer sulfonate 4:2 (4:2 FTS)	U	ND	1.21	3.45	ng/L	0.0184	1	JLS	09/08/17	0515	1697486	3
Fluorotelomer sulfonate 6:2 (6:2 FTS)	U	ND	1.21	3.49	ng/L	0.0184	1					
Fluorotelomer sulfonate 8:2 (8:2 FTS)	U	ND	1.21	3.53	ng/L	0.0184	1					
Perfluorobutanesulfonate (PFBS)		4.16	0.606	1.63	ng/L	0.0184	1					
Perfluorobutyric acid (PFBA)		10.2	0.606	1.84	ng/L	0.0184	1					
Perfluorodecanesulfonate (PFDS)	U	ND	0.606	1.78	ng/L	0.0184	1					
Perfluorodecanoic acid (PFDA)		3.31	0.606	1.84	ng/L	0.0184	1					

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Address : 516 Village Road, NE
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Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Lock & Dam #1 Project: H2GO00117
Sample ID: 431883001 Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
<i>PFOA, PFOS by LC-MS/MS "As Received"</i>												
Perfluorododecanoic acid (PFDoA)		2.14	0.606	1.84	ng/L	0.0184	1					
Perfluoroheptanesulfonate (PFHpS)	U	ND	0.606	1.74	ng/L	0.0184	1					
Perfluoroheptanoic acid (PFHpA)		12.9	0.606	1.84	ng/L	0.0184	1					
Perfluorohexanesulfonate (PFHxS)		12.8	0.606	1.67	ng/L	0.0184	1					
Perfluorohexanoic acid (PFHxA)		20.7	0.606	1.84	ng/L	0.0184	1					
Perfluorononanesulfonate (PFNS)	U	ND	0.606	1.76	ng/L	0.0184	1					
Perfluorononanoic acid (PFNA)		2.66	0.606	1.84	ng/L	0.0184	1					
Perfluorooctanesulfonamide (PFOSA)	U	ND	0.606	1.71	ng/L	0.0184	1					
Perfluorooctanesulfonate (PFOS)		28.7	0.606	1.84	ng/L	0.0184	1					
Perfluorooctanoic acid (PFOA)		9.89	0.606	1.84	ng/L	0.0184	1					
Perfluoropentanesulfonate (PFPeS)		1.79	0.606	1.73	ng/L	0.0184	1					
Perfluoropentanoic acid (PFPeA)		21.2	0.606	1.84	ng/L	0.0184	1					
Perfluorotetradecanoic acid (PFTeDA)	U	ND	0.606	1.84	ng/L	0.0184	1					
Perfluorotridecanoic acid (PFTTrDA)	U	ND	0.606	1.84	ng/L	0.0184	1					
Perfluoroundecanoic acid (PFUdA)		3.17	0.606	1.84	ng/L	0.0184	1					
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)		37.1	3.03	9.18	ng/L	0.0184	5	JLS	09/08/17	0328	1697486	4
Semi-Volatile-GC/MS												
<i>SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"</i>												
1,1'-Biphenyl	U	ND	2.91	9.71	ug/L	0.000971	1	JLD1	09/05/17	0130	1697480	5
1,2,4,5-	U	ND	2.91	9.71	ug/L	0.000971	1					

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Certificate of Analysis

Company : H2GO Brunswick Regional Water &
Sewer

Address : 516 Village Road, NE
Leland, North Carolina 28451

Report Date: October 6, 2017

Contact: Bob Walker

Project: **Sample Analysis**

Client Sample ID: Lock & Dam #1
Sample ID: 431883001

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS												
SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"												
Tetrachlorobenzene												
2,3,4,6-	U	ND	2.91	9.71	ug/L	0.000971	1					
Tetrachlorophenol												
2,4,5-Trichlorophenol	U	ND	2.91	9.71	ug/L	0.000971	1					
2,4,6-Trichlorophenol	U	ND	2.91	9.71	ug/L	0.000971	1					
2,4-Dichlorophenol	U	ND	2.91	9.71	ug/L	0.000971	1					
2,4-Dimethylphenol	U	ND	2.91	9.71	ug/L	0.000971	1					
2,4-Dinitrophenol	U	ND	4.85	19.4	ug/L	0.000971	1					
2,4-Dinitrotoluene	U	ND	2.91	9.71	ug/L	0.000971	1					
2,6-Dinitrotoluene	U	ND	2.91	9.71	ug/L	0.000971	1					
2-Chloronaphthalene	U	ND	0.398	0.971	ug/L	0.000971	1					
2-Chlorophenol	U	ND	2.91	9.71	ug/L	0.000971	1					
2-Methyl-4,6-	U	ND	2.91	9.71	ug/L	0.000971	1					
dinitrophenol												
2-Methylnaphthalene	U	ND	0.291	0.971	ug/L	0.000971	1					
2-Nitrophenol	U	ND	2.91	9.71	ug/L	0.000971	1					
3,3'-Dichlorobenzidine	U	ND	2.91	9.71	ug/L	0.000971	1					
4-	U	ND	2.91	9.71	ug/L	0.000971	1					
Bromophenylphenylethe												
r												
4-Chloro-3-	U	ND	2.91	9.71	ug/L	0.000971	1					
methylphenol												
4-Chloroaniline	U	ND	3.20	9.71	ug/L	0.000971	1					
4-	U	ND	2.91	9.71	ug/L	0.000971	1					
Chlorophenylphenylethe												
r												
4-Nitrophenol	U	ND	2.91	9.71	ug/L	0.000971	1					
Acenaphthene	U	ND	0.291	0.971	ug/L	0.000971	1					
Acenaphthylene	U	ND	0.291	0.971	ug/L	0.000971	1					
Acetophenone	U	ND	2.91	9.71	ug/L	0.000971	1					
Anthracene	U	ND	0.291	0.971	ug/L	0.000971	1					
Atrazine	U	ND	2.91	9.71	ug/L	0.000971	1					
Benzaldehyde	U	ND	2.91	9.71	ug/L	0.000971	1					
Benzo(a)anthracene	U	ND	0.291	0.971	ug/L	0.000971	1					
Benzo(a)pyrene	U	ND	0.291	0.971	ug/L	0.000971	1					
Benzo(b)fluoranthene	U	ND	0.291	0.971	ug/L	0.000971	1					
Benzo(ghi)perylene	U	ND	0.291	0.971	ug/L	0.000971	1					
Benzo(k)fluoranthene	U	ND	0.291	0.971	ug/L	0.000971	1					
Butylbenzylphthalate	U	ND	2.91	9.71	ug/L	0.000971	1					

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Sewer
Address : 516 Village Road, NE
Leland, North Carolina 28451
Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Lock & Dam #1
Sample ID: 431883001

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS												
<i>SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"</i>												
Caprolactam	U	ND	2.91	9.71	ug/L	0.000971	1					
Carbazole	U	ND	0.291	0.971	ug/L	0.000971	1					
Chrysene	U	ND	0.291	0.971	ug/L	0.000971	1					
Di-n-butylphthalate	U	ND	2.91	9.71	ug/L	0.000971	1					
Di-n-octylphthalate	U	ND	2.91	9.71	ug/L	0.000971	1					
Dibenzo(a,h)anthracene	U	ND	0.291	0.971	ug/L	0.000971	1					
Dibenzofuran	U	ND	2.91	9.71	ug/L	0.000971	1					
Diethylphthalate	U	ND	2.91	9.71	ug/L	0.000971	1					
Dimethylphthalate	U	ND	2.91	9.71	ug/L	0.000971	1					
Diphenylamine	U	ND	2.91	9.71	ug/L	0.000971	1					
Fluoranthene	U	ND	0.291	0.971	ug/L	0.000971	1					
Fluorene	U	ND	0.291	0.971	ug/L	0.000971	1					
Hexachlorobenzene	U	ND	2.91	9.71	ug/L	0.000971	1					
Hexachlorobutadiene	U	ND	2.91	9.71	ug/L	0.000971	1					
Hexachlorocyclopentadiene	U	ND	2.91	9.71	ug/L	0.000971	1					
Hexachloroethane	U	ND	2.91	9.71	ug/L	0.000971	1					
Indeno(1,2,3-cd)pyrene	U	ND	0.291	0.971	ug/L	0.000971	1					
Isophorone	U	ND	3.40	9.71	ug/L	0.000971	1					
N-Nitrosodipropylamine	U	ND	2.91	9.71	ug/L	0.000971	1					
Naphthalene	U	ND	0.291	0.971	ug/L	0.000971	1					
Nitrobenzene	U	ND	2.91	9.71	ug/L	0.000971	1					
Pentachlorophenol	U	ND	2.91	9.71	ug/L	0.000971	1					
Phenanthrene	U	ND	0.291	0.971	ug/L	0.000971	1					
Phenol	U	ND	2.91	9.71	ug/L	0.000971	1					
Pyrene	U	ND	0.291	0.971	ug/L	0.000971	1					
bis(2-Chloro-1-methylethyl)ether	U	ND	2.91	9.71	ug/L	0.000971	1					
bis(2-Chloroethoxy)methane	U	ND	2.91	9.71	ug/L	0.000971	1					
bis(2-Chloroethyl) ether	U	ND	2.91	9.71	ug/L	0.000971	1					
bis(2-Ethylhexyl)phthalate	U	ND	2.91	9.71	ug/L	0.000971	1					
m,p-Cresols	U	ND	3.59	9.71	ug/L	0.000971	1					
m-Nitroaniline	U	ND	2.91	9.71	ug/L	0.000971	1					
o-Cresol	U	ND	2.91	9.71	ug/L	0.000971	1					
o-Nitroaniline	U	ND	2.91	9.71	ug/L	0.000971	1					
p-Nitroaniline	U	ND	2.91	9.71	ug/L	0.000971	1					

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Certificate of Analysis

Company : H2GO Brunswick Regional Water &
Sewer
Address : 516 Village Road, NE
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Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Lock & Dam #1
Sample ID: 431883001

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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Semi-Volatile-GC/MS

SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits	Date Time:	09/05/17 01 30
Phenol-d5	24.2 ug/L	97.1	25	(15%-91%)		
Nitrobenzene-d5	31.6 ug/L	48.5	65	(36%-115%)		
2-Fluorobiphenyl	32.6 ug/L	48.5	67	(32%-112%)		
p-Terphenyl-d14	34.9 ug/L	48.5	72	(36%-121%)		
2-Fluorophenol	38.6 ug/L	97.1	40	(15%-88%)		
2,4,6-Tribromophenol	62.0 ug/L	97.1	64	(32%-124%)		

Tentatively Identified Compound (TIC)	CAS No.	RT	Est. Concentration	Fit	Qual	Date Time:	09/05/17 01 30
unknown		2.035	41.3 ug/L	0	J		
unknown		2.072	14.1 ug/L	0	J		
Cyclopentene, 1,2,3,4,5-pentamethy	1000154-28-6	4.671	8.01 ug/L	87	NJ		

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537	PFCs Extraction in Drinking Water	GXC1	08/31/17	1230	1697485
SW846 3510C	3510C BNA Liq. Prep-8270 Analysis	SJW1	09/01/17	1200	1697479

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 537	
2	EPA 537	
3	EPA 537	
4	EPA 537	
5	SW846 3510C/8270D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

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Certificate of Analysis

Company : H2GO Brunswick Regional Water & Sewer

Address : 516 Village Road, NE
Leland, North Carolina 28451

Report Date: October 6, 2017

Contact: Bob Walker

Project: **Sample Analysis**

Client Sample ID: Lock & Dam #1 Trip Blank
Sample ID: 431883002
Matrix: Water
Collect Date: 28-AUG-17 15:45
Receive Date: 31-AUG-17
Collector: Client

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
<i>NC 6 PFCs by LC-MS/MS "As Received"</i>												
Nafion Byproduct 1	U	ND			ng/L	0.0201	1	JLS	09/08/17	0349	1698648	1
Nafion Byproduct 2	U	ND			ng/L	0.0201	1					
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	UX	ND			ng/L	0.0201	1					
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	UX	ND			ng/L	0.0201	1					
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	UX	ND			ng/L	0.0201	1					
Perfluoro-2-methoxyacetic acid (PFMOAA)	UX	ND			ng/L	0.0201	1					
Perfluoro-3-methoxypropanoic acid (PFMOPrA)	UX	ND			ng/L	0.0201	1					
Perfluoro-4-methoxybutanic acid (PFMOBA)	UX	ND			ng/L	0.0201	1					
<i>PFOA, PFOS by LC-MS/MS "As Received"</i>												
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)	U	ND	0.662	2.01	ng/L	0.0201	1	JLS	09/08/17	0349	1697486	2
Fluorotelomer sulfonate 4:2 (4:2 FTS)	U	ND	1.32	3.77	ng/L	0.0201	1					
Fluorotelomer sulfonate 6:2 (6:2 FTS)	U	ND	1.32	3.81	ng/L	0.0201	1					
Fluorotelomer sulfonate 8:2 (8:2 FTS)	U	ND	1.32	3.85	ng/L	0.0201	1					
Perfluorobutanesulfonate (PFBS)	U	ND	0.662	1.79	ng/L	0.0201	1					
Perfluorobutyric acid	U	ND	0.662	2.01	ng/L	0.0201	1					

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Sewer
Address : 516 Village Road, NE
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Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Lock & Dam #1 Trip Blank
Sample ID: 431883002

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
<i>PFOA, PFOS by LC-MS/MS "As Received"</i>												
(PFBA)												
Perfluorodecanesulfonate (PFDS)	U	ND	0.662	1.95	ng/L	0.0201	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.662	2.01	ng/L	0.0201	1					
Perfluorododecanoic acid (PFDoA)	U	ND	0.662	2.01	ng/L	0.0201	1					
Perfluoroheptanesulfonate (PFHpS)	U	ND	0.662	1.91	ng/L	0.0201	1					
Perfluoroheptanoic acid (PFHpA)	U	ND	0.662	2.01	ng/L	0.0201	1					
Perfluorohexanesulfonate (PFHxS)	U	ND	0.662	1.83	ng/L	0.0201	1					
Perfluorohexanoic acid (PFHxA)	U	ND	0.662	2.01	ng/L	0.0201	1					
Perfluorononanesulfonate (PFNS)	U	ND	0.662	1.93	ng/L	0.0201	1					
Perfluorononanoic acid (PFNA)	U	ND	0.662	2.01	ng/L	0.0201	1					
Perfluorooctanesulfonamide (PFOSA)	U	ND	0.662	1.87	ng/L	0.0201	1					
Perfluorooctanesulfonate (PFOS)	U	ND	0.662	2.01	ng/L	0.0201	1					
Perfluorooctanoic acid (PFOA)	U	ND	0.662	2.01	ng/L	0.0201	1					
Perfluoropentanesulfonate (PFPeS)	U	ND	0.662	1.89	ng/L	0.0201	1					
Perfluoropentanoic acid (PFPeA)	U	ND	0.662	2.01	ng/L	0.0201	1					
Perfluorotetradecanoic acid (PFTeDA)	U	ND	0.662	2.01	ng/L	0.0201	1					
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.662	2.01	ng/L	0.0201	1					
Perfluoroundecanoic acid (PFUdA)	U	ND	0.662	2.01	ng/L	0.0201	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537	PFCs Extraction in Drinking Water	GXC1	08/31/17	1230	1697485

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Sewer
Address : 516 Village Road, NE
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Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Lock & Dam #1 Trip Blank
Sample ID: 431883002

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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The following Analytical Methods were performed

Method	Description	Analyst	Comments
1	EPA 537		
2	EPA 537		

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

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Certificate of Analysis

Company : H2GO Brunswick Regional Water &
Sewer
Address : 516 Village Road, NE
Leland, North Carolina 28451
Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Buckeye Vault
Sample ID: 431883003
Matrix: Water
Collect Date: 30-AUG-17 13:15
Receive Date: 31-AUG-17
Collector: Client

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
<i>NC 6 PFCs by LC-MS/MS "As Received"</i>												
Nafion Byproduct 1		4.64			ng/L	0.0197	1	JLS	09/08/17	0411	1698648	1
Nafion Byproduct 2		24.6			ng/L	0.0197	1					
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	X	6.13			ng/L	0.0197	1					
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	X	14.2			ng/L	0.0197	1					
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	X	32.1			ng/L	0.0197	1					
Perfluoro-2-methoxyacetic acid (PFMOAA)	X	0.943			ng/L	0.0197	1					
Perfluoro-3-methoxypropanoic acid (PFMOPrA)	X	9.00			ng/L	0.0197	1					
Perfluoro-4-methoxybutanic acid (PFMOBA)	X	2.56			ng/L	0.0197	1					
<i>PFOA, PFOS by LC-MS/MS "As Received"</i>												
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)		35.9	0.650	1.97	ng/L	0.0197	1	JLS	09/08/17	0411	1697486	2
Fluorotelomer sulfonate 4:2 (4:2 FTS)	U	ND	1.30	3.70	ng/L	0.0197	1					
Fluorotelomer sulfonate 6:2 (6:2 FTS)	U	ND	1.30	3.74	ng/L	0.0197	1					
Fluorotelomer sulfonate 8:2 (8:2 FTS)	U	ND	1.30	3.78	ng/L	0.0197	1					
Perfluorobutanesulfonate (PFBS)		4.00	0.650	1.75	ng/L	0.0197	1					
Perfluorobutyric acid		10.4	0.650	1.97	ng/L	0.0197	1					

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Certificate of Analysis

Company : H2GO Brunswick Regional Water &
Sewer
Address : 516 Village Road, NE
Leland, North Carolina 28451
Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Buckeye Vault
Sample ID: 431883003

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
<i>PFOA, PFOS by LC-MS/MS "As Received"</i>												
(PFBA)												
Perfluorodecanesulfonate (PFDS)	U	ND	0.650	1.91	ng/L	0.0197	1					
Perfluorodecanoic acid (PFDA)	J	1.33	0.650	1.97	ng/L	0.0197	1					
Perfluorododecanoic acid (PFDoA)	U	ND	0.650	1.97	ng/L	0.0197	1					
Perfluoroheptanesulfonate (PFHpS)	U	ND	0.650	1.87	ng/L	0.0197	1					
Perfluoroheptanoic acid (PFHpA)		13.0	0.650	1.97	ng/L	0.0197	1					
Perfluorohexanesulfonate (PFHxS)		9.74	0.650	1.79	ng/L	0.0197	1					
Perfluorohexanoic acid (PFHxA)		20.6	0.650	1.97	ng/L	0.0197	1					
Perfluorononanesulfonate (PFNS)	U	ND	0.650	1.89	ng/L	0.0197	1					
Perfluorononanoic acid (PFNA)	J	1.66	0.650	1.97	ng/L	0.0197	1					
Perfluorooctanesulfonamide (PFOSA)	U	ND	0.650	1.83	ng/L	0.0197	1					
Perfluorooctanesulfonate (PFOS)		15.3	0.650	1.97	ng/L	0.0197	1					
Perfluorooctanoic acid (PFOA)		9.11	0.650	1.97	ng/L	0.0197	1					
Perfluoropentanesulfonate (PFPeS)	J	1.38	0.650	1.85	ng/L	0.0197	1					
Perfluoropentanoic acid (PFPeA)		20.9	0.650	1.97	ng/L	0.0197	1					
Perfluorotetradecanoic acid (PFTeDA)	U	ND	0.650	1.97	ng/L	0.0197	1					
Perfluorotridecanoic acid (PFTTrDA)	U	ND	0.650	1.97	ng/L	0.0197	1					
Perfluoroundecanoic acid (PFUdA)	U	ND	0.650	1.97	ng/L	0.0197	1					
Semi-Volatile-GC/MS												
<i>SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"</i>												
1,1'-Biphenyl	U	ND	2.94	9.80	ug/L	0.00098	1	JLD1	09/05/17	1626	1697480	3
1,2,4,5-	U	ND	2.94	9.80	ug/L	0.00098	1					

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Address : 516 Village Road, NE
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Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Buckeye Vault
Sample ID: 431883003

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS												
SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"												
Tetrachlorobenzene												
2,3,4,6-	U	ND	2.94	9.80	ug/L	0.00098	1					
Tetrachlorophenol												
2,4,5-Trichlorophenol	U	ND	2.94	9.80	ug/L	0.00098	1					
2,4,6-Trichlorophenol	U	ND	2.94	9.80	ug/L	0.00098	1					
2,4-Dichlorophenol	U	ND	2.94	9.80	ug/L	0.00098	1					
2,4-Dimethylphenol	U	ND	2.94	9.80	ug/L	0.00098	1					
2,4-Dinitrophenol	U	ND	4.90	19.6	ug/L	0.00098	1					
2,4-Dinitrotoluene	U	ND	2.94	9.80	ug/L	0.00098	1					
2,6-Dinitrotoluene	U	ND	2.94	9.80	ug/L	0.00098	1					
2-Chloronaphthalene	U	ND	0.402	0.980	ug/L	0.00098	1					
2-Chlorophenol	U	ND	2.94	9.80	ug/L	0.00098	1					
2-Methyl-4,6-	U	ND	2.94	9.80	ug/L	0.00098	1					
dinitrophenol												
2-Methylnaphthalene	U	ND	0.294	0.980	ug/L	0.00098	1					
2-Nitrophenol	U	ND	2.94	9.80	ug/L	0.00098	1					
3,3'-Dichlorobenzidine	U	ND	2.94	9.80	ug/L	0.00098	1					
4-	U	ND	2.94	9.80	ug/L	0.00098	1					
Bromophenylphenylethe												
r												
4-Chloro-3-	U	ND	2.94	9.80	ug/L	0.00098	1					
methylphenol												
4-Chloroaniline	U	ND	3.24	9.80	ug/L	0.00098	1					
4-	U	ND	2.94	9.80	ug/L	0.00098	1					
Chlorophenylphenylethe												
r												
4-Nitrophenol	U	ND	2.94	9.80	ug/L	0.00098	1					
Acenaphthene	U	ND	0.294	0.980	ug/L	0.00098	1					
Acenaphthylene	U	ND	0.294	0.980	ug/L	0.00098	1					
Acetophenone	U	ND	2.94	9.80	ug/L	0.00098	1					
Anthracene	U	ND	0.294	0.980	ug/L	0.00098	1					
Atrazine	U	ND	2.94	9.80	ug/L	0.00098	1					
Benzaldehyde	U	ND	2.94	9.80	ug/L	0.00098	1					
Benzo(a)anthracene	U	ND	0.294	0.980	ug/L	0.00098	1					
Benzo(a)pyrene	U	ND	0.294	0.980	ug/L	0.00098	1					
Benzo(b)fluoranthene	U	ND	0.294	0.980	ug/L	0.00098	1					
Benzo(ghi)perylene	U	ND	0.294	0.980	ug/L	0.00098	1					
Benzo(k)fluoranthene	U	ND	0.294	0.980	ug/L	0.00098	1					
Butylbenzylphthalate	U	ND	2.94	9.80	ug/L	0.00098	1					

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Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Buckeye Vault
Sample ID: 431883003

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS												
<i>SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"</i>												
Caprolactam	U	ND	2.94	9.80	ug/L	0.00098	1					
Carbazole	U	ND	0.294	0.980	ug/L	0.00098	1					
Chrysene	U	ND	0.294	0.980	ug/L	0.00098	1					
Di-n-butylphthalate	U	ND	2.94	9.80	ug/L	0.00098	1					
Di-n-octylphthalate	U	ND	2.94	9.80	ug/L	0.00098	1					
Dibenzo(a,h)anthracene	U	ND	0.294	0.980	ug/L	0.00098	1					
Dibenzofuran	U	ND	2.94	9.80	ug/L	0.00098	1					
Diethylphthalate	U	ND	2.94	9.80	ug/L	0.00098	1					
Dimethylphthalate	U	ND	2.94	9.80	ug/L	0.00098	1					
Diphenylamine	U	ND	2.94	9.80	ug/L	0.00098	1					
Fluoranthene	U	ND	0.294	0.980	ug/L	0.00098	1					
Fluorene	U	ND	0.294	0.980	ug/L	0.00098	1					
Hexachlorobenzene	U	ND	2.94	9.80	ug/L	0.00098	1					
Hexachlorobutadiene	U	ND	2.94	9.80	ug/L	0.00098	1					
Hexachlorocyclopentadiene	U	ND	2.94	9.80	ug/L	0.00098	1					
Hexachloroethane	U	ND	2.94	9.80	ug/L	0.00098	1					
Indeno(1,2,3-cd)pyrene	U	ND	0.294	0.980	ug/L	0.00098	1					
Isophorone	U	ND	3.43	9.80	ug/L	0.00098	1					
N-Nitrosodipropylamine	U	ND	2.94	9.80	ug/L	0.00098	1					
Naphthalene	U	ND	0.294	0.980	ug/L	0.00098	1					
Nitrobenzene	U	ND	2.94	9.80	ug/L	0.00098	1					
Pentachlorophenol	U	ND	2.94	9.80	ug/L	0.00098	1					
Phenanthrene	U	ND	0.294	0.980	ug/L	0.00098	1					
Phenol	U	ND	2.94	9.80	ug/L	0.00098	1					
Pyrene	U	ND	0.294	0.980	ug/L	0.00098	1					
bis(2-Chloro-1-methylethyl)ether	U	ND	2.94	9.80	ug/L	0.00098	1					
bis(2-Chloroethoxy)methane	U	ND	2.94	9.80	ug/L	0.00098	1					
bis(2-Chloroethyl) ether	U	ND	2.94	9.80	ug/L	0.00098	1					
bis(2-Ethylhexyl)phthalate	U	ND	2.94	9.80	ug/L	0.00098	1					
m,p-Cresols	U	ND	3.63	9.80	ug/L	0.00098	1					
m-Nitroaniline	U	ND	2.94	9.80	ug/L	0.00098	1					
o-Cresol	U	ND	2.94	9.80	ug/L	0.00098	1					
o-Nitroaniline	U	ND	2.94	9.80	ug/L	0.00098	1					
p-Nitroaniline	U	ND	2.94	9.80	ug/L	0.00098	1					

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Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Buckeye Vault
Sample ID: 431883003

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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Semi-Volatile-GC/MS

SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits	Date Time:	09/05/17 16 26
Phenol-d5	14.0 ug/L	98.0	14	(15%-91%) *		
Nitrobenzene-d5	36.8 ug/L	49.0	75	(36%-115%)		
2-Fluorophenol	40.9 ug/L	98.0	42	(15%-88%)		
2-Fluorobiphenyl	41.0 ug/L	49.0	84	(32%-112%)		
p-Terphenyl-d14	41.5 ug/L	49.0	85	(36%-121%)		
2,4,6-Tribromophenol	80.6 ug/L	98.0	82	(32%-124%)		

Tentatively Identified Compound (TIC)	CAS No.	RT	Est. Concentration	Fit	Qual	Date Time:	09/05/17 16 26
No Tentatively Identified Compounds Found							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537	PFCs Extraction in Drinking Water	GXC1	08/31/17	1230	1697485
SW846 3510C	3510C BNA Liq. Prep-8270 Analysis	SJW1	09/01/17	1200	1697479

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 537	
2	EPA 537	
3	SW846 3510C/8270D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

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Certificate of Analysis

Company : H2GO Brunswick Regional Water &
Sewer
Address : 516 Village Road, NE
Leland, North Carolina 28451
Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Hoffer WTP
Sample ID: 431883004
Matrix: Water
Collect Date: 30-AUG-17 11:20
Receive Date: 31-AUG-17
Collector: Client

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
<i>NC 6 PFCs by LC-MS/MS "As Received"</i>												
Nafion Byproduct 1		0.00			ng/L	0.0197	1	JLS	09/08/17	0536	1698648	1
Nafion Byproduct 2		2.55			ng/L	0.0197	1					
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	X	0.351			ng/L	0.0197	1					
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	X	0.373			ng/L	0.0197	1					
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	X	0.882			ng/L	0.0197	1					
Perfluoro-2-methoxyacetic acid (PFMOAA)	UX	ND			ng/L	0.0197	1					
Perfluoro-3-methoxypropanoic acid (PFMOPrA)	UX	ND			ng/L	0.0197	1					
Perfluoro-4-methoxybutanic acid (PFMOBA)	UX	ND			ng/L	0.0197	1					
<i>PFOA, PFOS by LC-MS/MS "As Received"</i>												
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)		2.76	0.650	1.97	ng/L	0.0197	1	JLS	09/08/17	0536	1697486	2
Fluorotelomer sulfonate 4:2 (4:2 FTS)	U	ND	1.30	3.70	ng/L	0.0197	1					
Fluorotelomer sulfonate 6:2 (6:2 FTS)	U	ND	1.30	3.74	ng/L	0.0197	1					
Fluorotelomer sulfonate 8:2 (8:2 FTS)	U	ND	1.30	3.78	ng/L	0.0197	1					
Perfluorobutanesulfonate (PFBS)		6.62	0.650	1.75	ng/L	0.0197	1					
Perfluorobutyric acid		31.1	0.650	1.97	ng/L	0.0197	1					

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Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Hoffer WTP
Sample ID: 431883004

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
<i>PFOA, PFOS by LC-MS/MS "As Received"</i>												
(PFBA)												
Perfluorodecanesulfonate (PFDS)	U	ND	0.650	1.91	ng/L	0.0197	1					
Perfluorodecanoic acid (PFDA)		6.13	0.650	1.97	ng/L	0.0197	1					
Perfluorododecanoic acid (PFDoA)	U	ND	0.650	1.97	ng/L	0.0197	1					
Perfluoroheptanesulfonate (PFHpS)	J	0.657	0.650	1.87	ng/L	0.0197	1					
Perfluorohexanesulfonate (PFHxS)		11.6	0.650	1.79	ng/L	0.0197	1					
Perfluorononanesulfonate (PFNS)	U	ND	0.650	1.89	ng/L	0.0197	1					
Perfluorononanoic acid (PFNA)		7.23	0.650	1.97	ng/L	0.0197	1					
Perfluorooctanesulfonamide (PFOSA)	U	ND	0.650	1.83	ng/L	0.0197	1					
Perfluorooctanesulfonate (PFOS)		25.1	0.650	1.97	ng/L	0.0197	1					
Perfluorooctanoic acid (PFOA)		33.3	0.650	1.97	ng/L	0.0197	1					
Perfluoropentanesulfonate (PFPeS)		1.90	0.650	1.85	ng/L	0.0197	1					
Perfluorotetradecanoic acid (PFTeDA)	U	ND	0.650	1.97	ng/L	0.0197	1					
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.650	1.97	ng/L	0.0197	1					
Perfluoroundecanoic acid (PFUdA)	J	0.787	0.650	1.97	ng/L	0.0197	1					
Perfluoroheptanoic acid (PFHpA)		60.4	3.25	9.84	ng/L	0.0197	5	JLS	09/08/17	0432	1697486	3
Perfluorohexanoic acid (PFHxA)		82.9	3.25	9.84	ng/L	0.0197	5					
Perfluoropentanoic acid (PFPeA)		73.6	3.25	9.84	ng/L	0.0197	5					
Semi-Volatile-GC/MS												
<i>SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"</i>												
1,1'-Biphenyl	U	ND	2.88	9.62	ug/L	0.000962	1	JLD1	09/05/17	1657	1697480	4
1,2,4,5-	U	ND	2.88	9.62	ug/L	0.000962	1					

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Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Hoffer WTP
Sample ID: 431883004

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS												
<i>SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"</i>												
Tetrachlorobenzene												
2,3,4,6-	U	ND	2.88	9.62	ug/L	0.000962	1					
Tetrachlorophenol												
2,4,5-Trichlorophenol	U	ND	2.88	9.62	ug/L	0.000962	1					
2,4,6-Trichlorophenol	U	ND	2.88	9.62	ug/L	0.000962	1					
2,4-Dichlorophenol	U	ND	2.88	9.62	ug/L	0.000962	1					
2,4-Dimethylphenol	U	ND	2.88	9.62	ug/L	0.000962	1					
2,4-Dinitrophenol	U	ND	4.81	19.2	ug/L	0.000962	1					
2,4-Dinitrotoluene	U	ND	2.88	9.62	ug/L	0.000962	1					
2,6-Dinitrotoluene	U	ND	2.88	9.62	ug/L	0.000962	1					
2-Chloronaphthalene	U	ND	0.394	0.962	ug/L	0.000962	1					
2-Chlorophenol	U	ND	2.88	9.62	ug/L	0.000962	1					
2-Methyl-4,6-	U	ND	2.88	9.62	ug/L	0.000962	1					
dinitrophenol												
2-Methylnaphthalene	U	ND	0.288	0.962	ug/L	0.000962	1					
2-Nitrophenol	U	ND	2.88	9.62	ug/L	0.000962	1					
3,3'-Dichlorobenzidine	U	ND	2.88	9.62	ug/L	0.000962	1					
4-	U	ND	2.88	9.62	ug/L	0.000962	1					
Bromophenylphenylethe												
r												
4-Chloro-3-	U	ND	2.88	9.62	ug/L	0.000962	1					
methylphenol												
4-Chloroaniline	U	ND	3.17	9.62	ug/L	0.000962	1					
4-	U	ND	2.88	9.62	ug/L	0.000962	1					
Chlorophenylphenylethe												
r												
4-Nitrophenol	U	ND	2.88	9.62	ug/L	0.000962	1					
Acenaphthene	U	ND	0.288	0.962	ug/L	0.000962	1					
Acenaphthylene	U	ND	0.288	0.962	ug/L	0.000962	1					
Acetophenone	U	ND	2.88	9.62	ug/L	0.000962	1					
Anthracene	U	ND	0.288	0.962	ug/L	0.000962	1					
Atrazine	U	ND	2.88	9.62	ug/L	0.000962	1					
Benzaldehyde	U	ND	2.88	9.62	ug/L	0.000962	1					
Benzo(a)anthracene	U	ND	0.288	0.962	ug/L	0.000962	1					
Benzo(a)pyrene	U	ND	0.288	0.962	ug/L	0.000962	1					
Benzo(b)fluoranthene	U	ND	0.288	0.962	ug/L	0.000962	1					
Benzo(ghi)perylene	U	ND	0.288	0.962	ug/L	0.000962	1					
Benzo(k)fluoranthene	U	ND	0.288	0.962	ug/L	0.000962	1					
Butylbenzylphthalate	U	ND	2.88	9.62	ug/L	0.000962	1					

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Certificate of Analysis

Company : H2GO Brunswick Regional Water &
Sewer
Address : 516 Village Road, NE
Leland, North Carolina 28451
Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Hoffer WTP
Sample ID: 431883004

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS												
<i>SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"</i>												
Caprolactam	U	ND	2.88	9.62	ug/L	0.000962	1					
Carbazole	U	ND	0.288	0.962	ug/L	0.000962	1					
Chrysene	U	ND	0.288	0.962	ug/L	0.000962	1					
Di-n-butylphthalate	U	ND	2.88	9.62	ug/L	0.000962	1					
Di-n-octylphthalate	U	ND	2.88	9.62	ug/L	0.000962	1					
Dibenzo(a,h)anthracene	U	ND	0.288	0.962	ug/L	0.000962	1					
Dibenzofuran	U	ND	2.88	9.62	ug/L	0.000962	1					
Diethylphthalate	U	ND	2.88	9.62	ug/L	0.000962	1					
Dimethylphthalate	U	ND	2.88	9.62	ug/L	0.000962	1					
Diphenylamine	U	ND	2.88	9.62	ug/L	0.000962	1					
Fluoranthene	U	ND	0.288	0.962	ug/L	0.000962	1					
Fluorene	U	ND	0.288	0.962	ug/L	0.000962	1					
Hexachlorobenzene	U	ND	2.88	9.62	ug/L	0.000962	1					
Hexachlorobutadiene	U	ND	2.88	9.62	ug/L	0.000962	1					
Hexachlorocyclopentadiene	U	ND	2.88	9.62	ug/L	0.000962	1					
Hexachloroethane	U	ND	2.88	9.62	ug/L	0.000962	1					
Indeno(1,2,3-cd)pyrene	U	ND	0.288	0.962	ug/L	0.000962	1					
Isophorone	U	ND	3.37	9.62	ug/L	0.000962	1					
N-Nitrosodipropylamine	U	ND	2.88	9.62	ug/L	0.000962	1					
Naphthalene	U	ND	0.288	0.962	ug/L	0.000962	1					
Nitrobenzene	U	ND	2.88	9.62	ug/L	0.000962	1					
Pentachlorophenol	U	ND	2.88	9.62	ug/L	0.000962	1					
Phenanthrene	U	ND	0.288	0.962	ug/L	0.000962	1					
Phenol	U	ND	2.88	9.62	ug/L	0.000962	1					
Pyrene	U	ND	0.288	0.962	ug/L	0.000962	1					
bis(2-Chloro-1-methylethyl)ether	U	ND	2.88	9.62	ug/L	0.000962	1					
bis(2-Chloroethoxy)methane	U	ND	2.88	9.62	ug/L	0.000962	1					
bis(2-Ethylhexyl)phthalate	U	ND	2.88	9.62	ug/L	0.000962	1					
m,p-Cresols	U	ND	3.56	9.62	ug/L	0.000962	1					
m-Nitroaniline	U	ND	2.88	9.62	ug/L	0.000962	1					
o-Cresol	U	ND	2.88	9.62	ug/L	0.000962	1					
o-Nitroaniline	U	ND	2.88	9.62	ug/L	0.000962	1					
p-Nitroaniline	U	ND	2.88	9.62	ug/L	0.000962	1					

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Address : 516 Village Road, NE
Leland, North Carolina 28451
Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Hoffer WTP
Sample ID: 431883004

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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Semi-Volatile-GC/MS

SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits	Date Time:	09/05/17 16 57
Phenol-d5	22.2 ug/L	96.2	23	(15%-91%)		
Nitrobenzene-d5	30.6 ug/L	48.1	64	(36%-115%)		
2-Fluorobiphenyl	34.2 ug/L	48.1	71	(32%-112%)		
2-Fluorophenol	34.8 ug/L	96.2	36	(15%-88%)		
p-Terphenyl-d14	36.8 ug/L	48.1	77	(36%-121%)		
2,4,6-Tribromophenol	63.6 ug/L	96.2	66	(32%-124%)		

Tentatively Identified Compound (TIC)	CAS No.	RT	Est. Concentration	Fit	Qual	Date Time:	09/05/17 16 57
No Tentatively Identified Compounds Found							

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537	PFCs Extraction in Drinking Water	GXC1	08/31/17	1230	1697485
SW846 3510C	3510C BNA Liq. Prep-8270 Analysis	SJW1	09/01/17	1200	1697479

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 537	
2	EPA 537	
3	EPA 537	
4	SW846 3510C/8270D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

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Certificate of Analysis

Company : H2GO Brunswick Regional Water & Sewer

Address : 516 Village Road, NE
Leland, North Carolina 28451

Report Date: October 6, 2017

Contact: Bob Walker

Project: **Sample Analysis**

Client Sample ID: Hoffer WTP Trip Blank
Sample ID: 431883005
Matrix: Water
Collect Date: 30-AUG-17 11:20
Receive Date: 31-AUG-17
Collector: Client

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
<i>NC 6 PFCs by LC-MS/MS "As Received"</i>												
Nafion Byproduct 1	U	ND			ng/L	0.0198	1	JLS	09/08/17	0454	1698648	1
Nafion Byproduct 2	U	ND			ng/L	0.0198	1					
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	UX	ND			ng/L	0.0198	1					
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	UX	ND			ng/L	0.0198	1					
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	UX	ND			ng/L	0.0198	1					
Perfluoro-2-methoxyacetic acid (PFMOAA)	UX	ND			ng/L	0.0198	1					
Perfluoro-3-methoxypropanoic acid (PFMOPrA)	UX	ND			ng/L	0.0198	1					
Perfluoro-4-methoxybutanic acid (PFMOBA)	UX	ND			ng/L	0.0198	1					
<i>PFOA, PFOS by LC-MS/MS "As Received"</i>												
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)	U	ND	0.653	1.98	ng/L	0.0198	1	JLS	09/08/17	0454	1697486	2
Fluorotelomer sulfonate 4:2 (4:2 FTS)	U	ND	1.31	3.72	ng/L	0.0198	1					
Fluorotelomer sulfonate 6:2 (6:2 FTS)	U	ND	1.31	3.76	ng/L	0.0198	1					
Fluorotelomer sulfonate 8:2 (8:2 FTS)	U	ND	1.31	3.80	ng/L	0.0198	1					
Perfluorobutanesulfonate (PFBS)	U	ND	0.653	1.76	ng/L	0.0198	1					
Perfluorobutyric acid	U	ND	0.653	1.98	ng/L	0.0198	1					

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Certificate of Analysis

Company : H2GO Brunswick Regional Water &
Sewer
Address : 516 Village Road, NE
Leland, North Carolina 28451
Contact: Bob Walker
Project: **Sample Analysis**

Report Date: October 6, 2017

Client Sample ID: Hoffer WTP Trip Blank
Sample ID: 431883005
Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
<i>PFOA, PFOS by LC-MS/MS "As Received"</i>												
(PFBA)												
Perfluorodecanesulfonate (PFDS)	U	ND	0.653	1.92	ng/L	0.0198	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.653	1.98	ng/L	0.0198	1					
Perfluorododecanoic acid (PFDoA)	U	ND	0.653	1.98	ng/L	0.0198	1					
Perfluoroheptanesulfonate (PFHpS)	U	ND	0.653	1.88	ng/L	0.0198	1					
Perfluoroheptanoic acid (PFHpA)	U	ND	0.653	1.98	ng/L	0.0198	1					
Perfluorohexanesulfonate (PFHxS)	U	ND	0.653	1.80	ng/L	0.0198	1					
Perfluorohexanoic acid (PFHxA)	U	ND	0.653	1.98	ng/L	0.0198	1					
Perfluorononanesulfonate (PFNS)	U	ND	0.653	1.90	ng/L	0.0198	1					
Perfluorononanoic acid (PFNA)	U	ND	0.653	1.98	ng/L	0.0198	1					
Perfluorooctanesulfonamide (PFOSA)	U	ND	0.653	1.84	ng/L	0.0198	1					
Perfluorooctanesulfonate (PFOS)	U	ND	0.653	1.98	ng/L	0.0198	1					
Perfluorooctanoic acid (PFOA)	U	ND	0.653	1.98	ng/L	0.0198	1					
Perfluoropentanesulfonate (PFPeS)	U	ND	0.653	1.86	ng/L	0.0198	1					
Perfluoropentanoic acid (PFPeA)	U	ND	0.653	1.98	ng/L	0.0198	1					
Perfluorotetradecanoic acid (PFTeDA)	U	ND	0.653	1.98	ng/L	0.0198	1					
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.653	1.98	ng/L	0.0198	1					
Perfluoroundecanoic acid (PFUdA)	U	ND	0.653	1.98	ng/L	0.0198	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537	PFCs Extraction in Drinking Water	GXC1	08/31/17	1230	1697485

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Certificate of Analysis

Company : H2GO Brunswick Regional Water &
Sewer

Address : 516 Village Road, NE
Leland, North Carolina 28451

Report Date: October 6, 2017

Contact: Bob Walker

Project: **Sample Analysis**

Client Sample ID: Hoffer WTP Trip Blank
Sample ID: 431883005

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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The following Analytical Methods were performed

Method	Description	Analyst	Comments
1	EPA 537		
2	EPA 537		

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

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QC Summary

Report Date: October 6, 2017

Page 1 of 21

H2GO Brunswick Regional Water & Sewer
516 Village Road, NE
Leland, North Carolina

Contact: Bob Walker

Workorder: 431883

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch	1697486										
QC1203867216 LCS											
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)	19.7			20.8	ng/L		106	(70%-130%)	JLS	09/08/17	02:45
Fluorotelomer sulfonate 4:2 (4:2 FTS)	18.4			22.8	ng/L		124	(70%-130%)			
Fluorotelomer sulfonate 6:2 (6:2 FTS)	18.7			18.7	ng/L		100	(70%-130%)			
Fluorotelomer sulfonate 8:2 (8:2 FTS)	18.9			19.3	ng/L		102	(70%-130%)			
Perfluorobutanesulfonate (PFBS)	17.4			18.7	ng/L		107	(70%-130%)			
Perfluorobutyric acid (PFBA)	19.7			21.4	ng/L		109	(70%-130%)			
Perfluorodecanesulfonate (PFDS)	19.0			19.4	ng/L		102	(70%-130%)			
Perfluorodecanoic acid (PFDA)	19.7			20.6	ng/L		105	(70%-130%)			
Perfluorododecanoic acid (PFDoA)	19.7			20.8	ng/L		106	(70%-130%)			
Perfluoroheptanesulfonate (PFHpS)	18.7			20.2	ng/L		108	(70%-130%)			
Perfluoroheptanoic acid (PFHpA)	19.7			22.0	ng/L		112	(70%-130%)			
Perfluorohexanesulfonate (PFHxS)	17.9			20.3	ng/L		113	(70%-130%)			
Perfluorohexanoic acid (PFHxA)	19.7			23.0	ng/L		117	(70%-130%)			

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QC Summary

Workorder: 431883

Page 2 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 1697486											
Perfluorononanesulfonate (PFNS)	18.9			19.5	ng/L		104	(70%-130%)	JLS	09/08/17	02:45
Perfluorononanoic acid (PFNA)	19.7			22.1	ng/L		112	(70%-130%)			
Perfluorooctanesulfonamide (PFOSA)	18.2			18.3	ng/L		101	(70%-130%)			
Perfluorooctanesulfonate (PFOS)	19.7			20.3	ng/L		103	(70%-130%)			
Perfluorooctanoic acid (PFOA)	19.7			21.0	ng/L		107	(70%-130%)			
Perfluoropentanesulfonate (PFPeS)	18.5			20.4	ng/L		110	(70%-130%)			
Perfluoropentanoic acid (PFPeA)	19.7			21.7	ng/L		110	(70%-130%)			
Perfluorotetradecanoic acid (PFTeDA)	19.7			20.0	ng/L		101	(70%-130%)			
Perfluorotridecanoic acid (PFTrDA)	19.7			21.9	ng/L		111	(70%-130%)			
Perfluoroundecanoic acid (PFUdA)	19.7			22.2	ng/L		113	(70%-130%)			
QC1203867217 LCSD											
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)	19.6			20.7	ng/L	0	106	(0%-30%)		09/08/17	03:07
Fluorotelomer sulfonate 4:2 (4:2 FTS)	18.3			23.6	ng/L	4	129	(0%-30%)			
Fluorotelomer sulfonate 6:2 (6:2 FTS)	18.6			17.0	ng/L	9	91	(0%-30%)			
Fluorotelomer sulfonate 8:2 (8:2 FTS)	18.8			17.7	ng/L	9	94	(0%-30%)			
Perfluorobutanesulfonate (PFBS)	17.4			19.0	ng/L	2	110	(0%-30%)			

GEL LABORATORIES LLC

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QC Summary

Workorder: 431883

Page 3 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch	1697486										
Perfluorobutyric acid (PFBA)	19.6			21.1	ng/L	1	107	(0%-30%)	JLS	09/08/17	03:07
Perfluorodecanesulfonate (PFDS)	18.9			19.9	ng/L	3	105	(0%-30%)			
Perfluorodecanoic acid (PFDA)	19.6			20.8	ng/L	1	106	(0%-30%)			
Perfluorododecanoic acid (PFDoA)	19.6			20.9	ng/L	1	107	(0%-30%)			
Perfluoroheptanesulfonate (PFHpS)	18.6			20.0	ng/L	1	107	(0%-30%)			
Perfluoroheptanoic acid (PFHpA)	19.6			22.3	ng/L	1	114	(0%-30%)			
Perfluorohexanesulfonate (PFHxS)	17.9			20.9	ng/L	3	117	(0%-30%)			
Perfluorohexanoic acid (PFHxA)	19.6			22.3	ng/L	3	114	(0%-30%)			
Perfluorononanesulfonate (PFNS)	18.8			21.2	ng/L	8	113	(0%-30%)			
Perfluorononanoic acid (PFNA)	19.6			20.2	ng/L	9	103	(0%-30%)			
Perfluorooctanesulfonamide (PFOSA)	18.2			18.5	ng/L	1	102	(0%-30%)			
Perfluorooctanesulfonate (PFOS)	19.6			21.3	ng/L	5	109	(0%-30%)			
Perfluorooctanoic acid (PFOA)	19.6			21.6	ng/L	3	110	(0%-30%)			
Perfluoropentanesulfonate (PFPeS)	18.4			21.1	ng/L	3	114	(0%-30%)			
Perfluoropentanoic acid (PFPeA)	19.6			20.1	ng/L	8	102	(0%-30%)			

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QC Summary

Workorder: 431883

Page 4 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch	1697486										
Perfluorotetradecanoic acid (PFTeDA)	19.6			19.6	ng/L	2	100	(0%-30%)	JLS	09/08/17	03:07
Perfluorotridecanoic acid (PFTrDA)	19.6			21.7	ng/L	1	111	(0%-30%)			
Perfluoroundecanoic acid (PFUdA)	19.6			21.8	ng/L	2	111	(0%-30%)			
QC1203867215 MB											
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)			U	ND	ng/L					09/08/17	02:24
Fluorotelomer sulfonate 4:2 (4:2 FTS)			U	ND	ng/L						
Fluorotelomer sulfonate 6:2 (6:2 FTS)			U	ND	ng/L						
Fluorotelomer sulfonate 8:2 (8:2 FTS)			U	ND	ng/L						
Perfluorobutanesulfonate (PFBS)			U	ND	ng/L						
Perfluorobutyric acid (PFBA)			U	ND	ng/L						
Perfluorodecanesulfonate (PFDS)			U	ND	ng/L						
Perfluorodecanoic acid (PFDA)			U	ND	ng/L						
Perfluorododecanoic acid (PFDoA)			U	ND	ng/L						
Perfluoroheptanesulfonate (PFHpS)			U	ND	ng/L						
Perfluoroheptanoic acid (PFHpA)			U	ND	ng/L						
Perfluorohexanesulfonate (PFHxS)			U	ND	ng/L						

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QC Summary

Workorder: 431883

Page 5 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch	1697486										
Perfluorohexanoic acid (PFHxA)			U	ND	ng/L				JLS	09/08/17	02:24
Perfluorononanesulfonate (PFNS)			U	ND	ng/L						
Perfluorononanoic acid (PFNA)			U	ND	ng/L						
Perfluorooctanesulfonamide (PFOSA)			U	ND	ng/L						
Perfluorooctanesulfonate (PFOS)			U	ND	ng/L						
Perfluorooctanoic acid (PFOA)			U	ND	ng/L						
Perfluoropentanesulfonate (PFPeS)			U	ND	ng/L						
Perfluoropentanoic acid (PFPeA)			U	ND	ng/L						
Perfluorotetradecanoic acid (PFTeDA)			U	ND	ng/L						
Perfluorotridecanoic acid (PFTrDA)			U	ND	ng/L						
Perfluoroundecanoic acid (PFUdA)			U	ND	ng/L						

Semi-Volatile-GC/MS

Batch	1697480										
QC1203867207	LCS										
1,1'-Biphenyl	50.0			43.3	ug/L		87	(46%-110%)	JLD1	09/04/17	17:44
1,2,4,5-Tetrachlorobenzene	50.0			36.4	ug/L		73	(44%-102%)			
2,3,4,6-Tetrachlorophenol	50.0			46.8	ug/L		94	(54%-122%)			

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QC Summary

Workorder: 431883

Page 6 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
2,4,5-Trichlorophenol	50.0			44.1	ug/L		88	(55%-116%)	JLD1	09/04/17	17:44
2,4,6-Trichlorophenol	50.0			43.3	ug/L		87	(55%-120%)			
2,4-Dichlorophenol	50.0			41.6	ug/L		83	(53%-109%)			
2,4-Dimethylphenol	50.0			36.5	ug/L		73	(51%-104%)			
2,4-Dinitrophenol	50.0			45.1	ug/L		90	(34%-122%)			
2,4-Dinitrotoluene	50.0			48.4	ug/L		97	(57%-124%)			
2,6-Dinitrotoluene	50.0			48.8	ug/L		98	(59%-122%)			
2-Chloronaphthalene	50.0			35.1	ug/L		70	(44%-107%)			
2-Chlorophenol	50.0			38.5	ug/L		77	(49%-105%)			
2-Methyl-4,6-dinitrophenol	50.0			48.2	ug/L		96	(45%-124%)			
2-Methylnaphthalene	50.0			36.4	ug/L		73	(42%-103%)			
2-Nitrophenol	50.0			42.7	ug/L		85	(51%-113%)			
3,3'-Dichlorobenzidine	50.0			44.8	ug/L		90	(43%-127%)			
4-Bromophenylphenylether	50.0			41.7	ug/L		83	(54%-116%)			
4-Chloro-3-methylphenol	50.0			41.9	ug/L		84	(55%-115%)			

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QC Summary

Workorder: 431883

Page 7 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
4-Chloroaniline	50.0			48.9	ug/L		98	(65%-136%)	JLD1	09/04/17	17:44
4-Chlorophenylphenylether	50.0			41.8	ug/L		84	(52%-121%)			
4-Nitrophenol	50.0			18.0	ug/L		36	(15%-137%)			
Acenaphthene	50.0			44.6	ug/L		89	(49%-112%)			
Acenaphthylene	50.0			41.3	ug/L		83	(50%-113%)			
Acetophenone	50.0			39.8	ug/L		80	(55%-114%)			
Anthracene	50.0			41.5	ug/L		83	(56%-112%)			
Atrazine	50.0			47.1	ug/L		94	(60%-131%)			
Benzaldehyde	50.0			38.7	ug/L		77	(38%-113%)			
Benzo(a)anthracene	50.0			45.7	ug/L		91	(57%-112%)			
Benzo(a)pyrene	50.0			42.6	ug/L		85	(40%-118%)			
Benzo(b)fluoranthene	50.0			44.2	ug/L		88	(41%-118%)			
Benzo(ghi)perylene	50.0			41.5	ug/L		83	(33%-131%)			
Benzo(k)fluoranthene	50.0			44.4	ug/L		89	(42%-121%)			
Butylbenzylphthalate	50.0			46.2	ug/L		92	(52%-125%)			

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QC Summary

Workorder: 431883

Page 8 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
Caprolactam	50.0			15.9	ug/L		32	(30%-61%)	JLD1	09/04/17	17:44
Carbazole	50.0			44.2	ug/L		88	(56%-119%)			
Chrysene	50.0			44.3	ug/L		89	(58%-117%)			
Di-n-butylphthalate	50.0			45.3	ug/L		91	(57%-123%)			
Di-n-octylphthalate	50.0			44.0	ug/L		88	(50%-129%)			
Dibenzo(a,h)anthracene	50.0			42.0	ug/L		84	(38%-129%)			
Dibenzofuran	50.0			42.1	ug/L		84	(50%-111%)			
Diethylphthalate	50.0			44.3	ug/L		89	(57%-122%)			
Dimethylphthalate	50.0			45.6	ug/L		91	(60%-122%)			
Diphenylamine	50.0			41.4	ug/L		83	(55%-113%)			
Fluoranthene	50.0			45.8	ug/L		92	(54%-118%)			
Fluorene	50.0			41.5	ug/L		83	(52%-114%)			
Hexachlorobenzene	50.0			41.3	ug/L		83	(54%-115%)			
Hexachlorobutadiene	50.0			28.7	ug/L		57	(35%-98%)			
Hexachlorocyclopentadiene	50.0			24.7	ug/L		49	(34%-89%)			

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QC Summary

Workorder: 431883

Page 9 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
Hexachloroethane	50.0			29.2	ug/L		58	(36%-96%)	JLD1	09/04/17	17:44
Indeno(1,2,3-cd)pyrene	50.0			40.3	ug/L		81	(34%-125%)			
Isophorone	50.0			42.2	ug/L		84	(56%-117%)			
N-Nitrosodipropylamine	50.0			39.4	ug/L		79	(54%-115%)			
Naphthalene	50.0			36.3	ug/L		73	(44%-102%)			
Nitrobenzene	50.0			42.0	ug/L		84	(53%-115%)			
Pentachlorophenol	50.0			50.8	ug/L		102	(41%-116%)			
Phenanthrene	50.0			42.6	ug/L		85	(55%-110%)			
Phenol	50.0			17.0	ug/L		34	(16%-82%)			
Pyrene	50.0			44.9	ug/L		90	(49%-121%)			
bis(2-Chloro-1-methylethyl)ether	50.0			45.7	ug/L		91	(44%-123%)			
bis(2-Chloroethoxy)methane	50.0			43.3	ug/L		87	(55%-114%)			
bis(2-Chloroethyl) ether	50.0			41.2	ug/L		82	(51%-111%)			
bis(2-Ethylhexyl)phthalate	50.0			46.1	ug/L		92	(52%-125%)			
m,p-Cresols	50.0			36.5	ug/L		73	(43%-102%)			

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QC Summary

Workorder: 431883

Page 10 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
m-Nitroaniline	50.0			54.1	ug/L		108	(61%-139%)	JLD1	09/04/17	17:44
o-Cresol	50.0			36.1	ug/L		72	(41%-101%)			
o-Nitroaniline	50.0			43.7	ug/L		87	(53%-121%)			
p-Nitroaniline	50.0			44.8	ug/L		90	(44%-137%)			
**2,4,6-Tribromophenol	100			84.3	ug/L		84	(32%-124%)			
**2-Fluorobiphenyl	50.0			36.3	ug/L		73	(32%-112%)			
**2-Fluorophenol	100			46.8	ug/L		47	(15%-88%)			
**Nitrobenzene-d5	50.0			38.6	ug/L		77	(36%-115%)			
**Phenol-d5	100			28.9	ug/L		29	(15%-91%)			
**p-Terphenyl-d14	50.0			44.3	ug/L		89	(36%-121%)			
QC1203867208 LCSD											
1,1'-Biphenyl	50.0			44.0	ug/L	2	88	(0%-30%)		09/04/17	18:15
1,2,4,5-Tetrachlorobenzene	50.0			36.5	ug/L	0	73	(0%-30%)			
2,3,4,6-Tetrachlorophenol	50.0			45.6	ug/L	3	91	(0%-30%)			
2,4,5-Trichlorophenol	50.0			44.5	ug/L	1	89	(0%-30%)			
2,4,6-Trichlorophenol	50.0			42.9	ug/L	1	86	(0%-30%)			

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2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 431883

Page 11 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
2,4-Dichlorophenol	50.0			41.3	ug/L	1	83	(0%-30%)	JLD1	09/04/17	18:15
2,4-Dimethylphenol	50.0			35.7	ug/L	2	71	(0%-30%)			
2,4-Dinitrophenol	50.0			45.9	ug/L	2	92	(0%-30%)			
2,4-Dinitrotoluene	50.0			49.1	ug/L	2	98	(0%-30%)			
2,6-Dinitrotoluene	50.0			48.3	ug/L	1	97	(0%-30%)			
2-Chloronaphthalene	50.0			35.1	ug/L	0	70	(0%-30%)			
2-Chlorophenol	50.0			38.5	ug/L	0	77	(0%-30%)			
2-Methyl-4,6-dinitrophenol	50.0			48.5	ug/L	1	97	(0%-30%)			
2-Methylnaphthalene	50.0			36.6	ug/L	0	73	(0%-30%)			
2-Nitrophenol	50.0			42.3	ug/L	1	85	(0%-30%)			
3,3'-Dichlorobenzidine	50.0			49.0	ug/L	9	98	(0%-30%)			
4-Bromophenylphenylether	50.0			41.2	ug/L	1	82	(0%-30%)			
4-Chloro-3-methylphenol	50.0			42.5	ug/L	2	85	(0%-30%)			
4-Chloroaniline	50.0			51.3	ug/L	5	103	(0%-30%)			
4-Chlorophenylphenylether	50.0			42.8	ug/L	2	86	(0%-30%)			

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 431883

Page 12 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
4-Nitrophenol	50.0			18.6	ug/L	4	37	(0%-30%)	JLD1	09/04/17	18:15
Acenaphthene	50.0			44.4	ug/L	0	89	(0%-30%)			
Acenaphthylene	50.0			41.7	ug/L	1	83	(0%-30%)			
Acetophenone	50.0			40.0	ug/L	1	80	(0%-30%)			
Anthracene	50.0			41.6	ug/L	0	83	(0%-30%)			
Atrazine	50.0			45.8	ug/L	3	92	(0%-30%)			
Benzaldehyde	50.0			38.8	ug/L	0	78	(0%-30%)			
Benzo(a)anthracene	50.0			45.8	ug/L	0	92	(0%-30%)			
Benzo(a)pyrene	50.0			43.0	ug/L	1	86	(0%-30%)			
Benzo(b)fluoranthene	50.0			45.7	ug/L	3	91	(0%-30%)			
Benzo(ghi)perylene	50.0			43.4	ug/L	4	87	(0%-30%)			
Benzo(k)fluoranthene	50.0			44.5	ug/L	0	89	(0%-30%)			
Butylbenzylphthalate	50.0			44.0	ug/L	5	88	(0%-30%)			
Caprolactam	50.0			16.0	ug/L	1	32	(0%-30%)			
Carbazole	50.0			45.4	ug/L	3	91	(0%-30%)			

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2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 431883

Page 13 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
Chrysene	50.0			44.4	ug/L	0	89	(0%-30%)	JLD1	09/04/17	18:15
Di-n-butylphthalate	50.0			44.4	ug/L	2	89	(0%-30%)			
Di-n-octylphthalate	50.0			45.0	ug/L	2	90	(0%-30%)			
Dibenzo(a,h)anthracene	50.0			43.6	ug/L	4	87	(0%-30%)			
Dibenzofuran	50.0			42.5	ug/L	1	85	(0%-30%)			
Diethylphthalate	50.0			44.4	ug/L	0	89	(0%-30%)			
Dimethylphthalate	50.0			45.8	ug/L	0	92	(0%-30%)			
Diphenylamine	50.0			40.9	ug/L	1	82	(0%-30%)			
Fluoranthene	50.0			47.4	ug/L	3	95	(0%-30%)			
Fluorene	50.0			42.1	ug/L	1	84	(0%-30%)			
Hexachlorobenzene	50.0			41.6	ug/L	1	83	(0%-30%)			
Hexachlorobutadiene	50.0			28.0	ug/L	2	56	(0%-30%)			
Hexachlorocyclopentadiene	50.0			25.1	ug/L	2	50	(0%-30%)			
Hexachloroethane	50.0			28.1	ug/L	4	56	(0%-30%)			
Indeno(1,2,3-cd)pyrene	50.0			42.8	ug/L	6	86	(0%-30%)			

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2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 431883

Page 14 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
Isophorone	50.0			42.6	ug/L	1	85	(0%-30%)	JLD1	09/04/17	18:15
N-Nitrosodipropylamine	50.0			40.2	ug/L	2	80	(0%-30%)			
Naphthalene	50.0			35.9	ug/L	1	72	(0%-30%)			
Nitrobenzene	50.0			41.5	ug/L	1	83	(0%-30%)			
Pentachlorophenol	50.0			51.6	ug/L	2	103	(0%-30%)			
Phenanthrene	50.0			42.6	ug/L	0	85	(0%-30%)			
Phenol	50.0			17.4	ug/L	2	35	(0%-30%)			
Pyrene	50.0			40.5	ug/L	10	81	(0%-30%)			
bis(2-Chloro-1-methylethyl)ether	50.0			46.6	ug/L	2	93	(0%-30%)			
bis(2-Chloroethoxy)methane	50.0			43.8	ug/L	1	88	(0%-30%)			
bis(2-Chloroethyl) ether	50.0			41.1	ug/L	0	82	(0%-30%)			
bis(2-Ethylhexyl)phthalate	50.0			43.2	ug/L	6	86	(0%-30%)			
m,p-Cresols	50.0			37.1	ug/L	1	74	(0%-30%)			
m-Nitroaniline	50.0			56.0	ug/L	3	112	(0%-30%)			
o-Cresol	50.0			37.1	ug/L	3	74	(0%-30%)			

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2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 431883

Page 15 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
o-Nitroaniline	50.0			44.8	ug/L	2	90	(0%-30%)	JLD1	09/04/17	18:15
p-Nitroaniline	50.0			47.7	ug/L	6	95	(0%-30%)			
**2,4,6-Tribromophenol	100			81.3	ug/L		81	(32%-124%)			
**2-Fluorobiphenyl	50.0			34.8	ug/L		70	(32%-112%)			
**2-Fluorophenol	100			46.2	ug/L		46	(15%-88%)			
**Nitrobenzene-d5	50.0			38.0	ug/L		76	(36%-115%)			
**Phenol-d5	100			29.2	ug/L		29	(15%-91%)			
**p-Terphenyl-d14	50.0			40.8	ug/L		82	(36%-121%)			
QC1203867206 MB											
1,1'-Biphenyl			U	ND	ug/L					09/04/17	17:13
1,2,4,5-Tetrachlorobenzene			U	ND	ug/L						
2,3,4,6-Tetrachlorophenol			U	ND	ug/L						
2,4,5-Trichlorophenol			U	ND	ug/L						
2,4,6-Trichlorophenol			U	ND	ug/L						
2,4-Dichlorophenol			U	ND	ug/L						
2,4-Dimethylphenol			U	ND	ug/L						

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QC Summary

Workorder: 431883

Page 16 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
2,4-Dinitrophenol			U	ND	ug/L				JLD1	09/04/17	17:13
2,4-Dinitrotoluene			U	ND	ug/L						
2,6-Dinitrotoluene			U	ND	ug/L						
2-Chloronaphthalene			U	ND	ug/L						
2-Chlorophenol			U	ND	ug/L						
2-Methyl-4,6-dinitrophenol			U	ND	ug/L						
2-Methylnaphthalene			U	ND	ug/L						
2-Nitrophenol			U	ND	ug/L						
3,3'-Dichlorobenzidine			U	ND	ug/L						
4-Bromophenylphenylether			U	ND	ug/L						
4-Chloro-3-methylphenol			U	ND	ug/L						
4-Chloroaniline			U	ND	ug/L						
4-Chlorophenylphenylether			U	ND	ug/L						
4-Nitrophenol			U	ND	ug/L						
Acenaphthene			U	ND	ug/L						

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QC Summary

Workorder: 431883

Page 17 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
Acenaphthylene			U	ND	ug/L				JLD1	09/04/17	17:13
Acetophenone			U	ND	ug/L						
Anthracene			U	ND	ug/L						
Atrazine			U	ND	ug/L						
Benzaldehyde			U	ND	ug/L						
Benzo(a)anthracene			U	ND	ug/L						
Benzo(a)pyrene			U	ND	ug/L						
Benzo(b)fluoranthene			U	ND	ug/L						
Benzo(ghi)perylene			U	ND	ug/L						
Benzo(k)fluoranthene			U	ND	ug/L						
Butylbenzylphthalate			U	ND	ug/L						
Caprolactam			U	ND	ug/L						
Carbazole			U	ND	ug/L						
Chrysene			U	ND	ug/L						
Di-n-butylphthalate			U	ND	ug/L						

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QC Summary

Workorder: 431883

Page 18 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
Di-n-octylphthalate			U	ND	ug/L				JLD1	09/04/17	17:13
Dibenzo(a,h)anthracene			U	ND	ug/L						
Dibenzofuran			U	ND	ug/L						
Diethylphthalate			U	ND	ug/L						
Dimethylphthalate			U	ND	ug/L						
Diphenylamine			U	ND	ug/L						
Fluoranthene			U	ND	ug/L						
Fluorene			U	ND	ug/L						
Hexachlorobenzene			U	ND	ug/L						
Hexachlorobutadiene			U	ND	ug/L						
Hexachlorocyclopentadiene			U	ND	ug/L						
Hexachloroethane			U	ND	ug/L						
Indeno(1,2,3-cd)pyrene			U	ND	ug/L						
Isophorone			U	ND	ug/L						
N-Nitrosodipropylamine			U	ND	ug/L						

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QC Summary

Workorder: 431883

Page 19 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
Naphthalene			U	ND	ug/L				JLD1	09/04/17	17:13
Nitrobenzene			U	ND	ug/L						
Pentachlorophenol			U	ND	ug/L						
Phenanthrene			U	ND	ug/L						
Phenol			U	ND	ug/L						
Pyrene			U	ND	ug/L						
bis(2-Chloro-1-methylethyl)ether			U	ND	ug/L						
bis(2-Chloroethoxy)methane			U	ND	ug/L						
bis(2-Chloroethyl) ether			U	ND	ug/L						
bis(2-Ethylhexyl)phthalate			U	ND	ug/L						
m,p-Cresols			U	ND	ug/L						
m-Nitroaniline			U	ND	ug/L						
o-Cresol			U	ND	ug/L						
o-Nitroaniline			U	ND	ug/L						
p-Nitroaniline			U	ND	ug/L						

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2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 431883

Page 20 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatile-GC/MS											
Batch	1697480										
**2,4,6-Tribromophenol	100			66.5	ug/L		66	(32%-124%)	JLD1	09/04/17	17:13
**2-Fluorobiphenyl	50.0			31.0	ug/L		62	(32%-112%)			
**2-Fluorophenol	100			43.0	ug/L		43	(15%-88%)			
**Nitrobenzene-d5	50.0			36.0	ug/L		72	(36%-115%)			
**Phenol-d5	100			27.4	ug/L		27	(15%-91%)			
**p-Terphenyl-d14	50.0			36.1	ug/L		72	(36%-121%)			

Notes:

The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B The target analyte was detected in the associated blank.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E Concentration of the target analyte exceeds the instrument calibration range
- H Analytical holding time was exceeded
- J Value is estimated
- JNX Non Calibrated Compound
- N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- N Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.

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2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 431883

Page 21 of 21

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.										
R	Sample results are rejected										
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.										
UJ	Compound cannot be extracted										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	QC Samples were not spiked with this compound										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.										
h	Preparation or preservation holding time was exceeded										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Technical Case Narrative
H2GO Brunswick Regional Water & Sewer (H2GO)
SDG #: 431883

GC/MS Semivolatile

Product: Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Analytical Method: SW846 3510C/8270D

Analytical Procedure: GL-OA-E-009 REV# 39

Analytical Batch: 1697480

Preparation Method: SW846 3510C

Preparation Procedure: GL-OA-E-013 REV# 32

Preparation Batch: 1697479

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
431883001	Lock & Dam #1
431883003	Buckeye Vault
431883004	Hoffer WTP
1203867206	Method Blank (MB)
1203867207	Laboratory Control Sample (LCS)
1203867208	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Surrogate Recoveries

Sample (See Below) did not meet surrogate recovery acceptance criteria. Since there is insufficient sample remaining to perform a re-extraction, the results from this extraction are reported.

Sample	Analyte	Value
431883003 (Buckeye Vault)	Phenol-d5	14* (15%-91%)

Internal Standard (ISTD) Acceptance

Sample 431883003 (Buckeye Vault) failed ISTD acceptance criteria. The sample was re-analyzed and confirmed the failures. The initial analysis data are reported. The re-analysis raw data have been placed in the Miscellaneous Section where applicable.

Technical Information

Sample Re-extraction/Re-analysis

The initial analysis for samples 431883003 (Buckeye Vault) and 431883004 (Hoffer WTP) were outside of the

DFTPP TUNE window. The samples were re-analyzed within a new DFTPP TUNE window. The data results are reported from the re-analysis.

Miscellaneous Information

TIC Comment

Tentatively identified compounds (TIC) were requested for samples 431883001 (Lock & Dam #1), 431883003 (Buckeye Vault) and 431883004 (Hoffer WTP) in this SDG in this batch.

LCMSMS-Misc

Product: The Extraction and Analysis of Per and Polyfluroalkyl Substances Using LCMSMS

Analytical Method: EPA 537

Analytical Procedure: GL-OA-E-076 REV# 2

Analytical Batches: 1697486 and 1697485

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
431883001	Lock & Dam #1
431883002	Lock & Dam #1 Trip Blank
431883003	Buckeye Vault
431883004	Hoffer WTP
431883005	Hoffer WTP Trip Blank
1203867215	Method Blank (MB)
1203867216	Laboratory Control Sample (LCS)
1203867217	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: The Extraction and Analysis of Per and Polyfluroalkyl Substances Using LCMSMS

Analytical Method: EPA 537

Analytical Procedure: GL-OA-E-076 REV# 2

Analytical Batches: 1698648 and 1697485

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
431883001	Lock & Dam #1
431883002	Lock & Dam #1 Trip Blank
431883003	Buckeye Vault
431883004	Hoffer WTP
431883005	Hoffer WTP Trip Blank

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information**Additional Comments**

These results are estimated concentrations and were calculated using the GenX calibration curve because authentic standards are not available for these analytes. The data are qualified accordingly.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.



Client: H2GO		SDG/AR/COC/Work Order: 431932 / 431883			
Received By: STACY BOONE		Date Received: 31-AUG-17			
Carrier and Tracking Number		Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 7336 9696 9181			
Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.		
Shipped as a DOT Hazardous?		☒	Hazard Class Shipped: UN#:		
COC/Samples marked or classified as radioactive?		☒	Maximum Net Counts Observed* (Observed Counts / Area Background Counts): <u>8</u> CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3		
Is package, COC, and/or Samples marked HAZ?		☒	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:		
Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	☒			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	☒			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	☒			Preservation Method: <u>Wet Ice</u> Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: <u>3c</u>
4	Daily check performed and passed on IR temperature gun?	☒			Temperature Device Serial #: <u>IR3-17</u> Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	☒			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?		☒		Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			☒	If Yes, Are Encores or Soil Kits present? Yes No (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes No N/A (If unknown, select No) VOA vials free of headspace? Yes No N/A Sample ID's and containers affected:
8	Samples received within holding time?	☒			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	☒			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	☒			Sample ID's affected:
11	Number of containers received match number indicated on COC?	☒			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?	☒			
13	COC form is properly signed in relinquished/received sections?	☒			
Comments (Use Continuation Form if needed):					

PM (or PMA) review: Initials

Date _____

Page

of

of _____

GL-CHL-SR-001 Rev 5

List of current GEL Certifications as of 06 October 2017

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA170010
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122018-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-17-12
Utah NELAP	SC000122017-23
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404