GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
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gel.com

October 27, 2017

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

Re: Sample Analysis
Work Order: 435107

Dear Bob Walker:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on October 13, 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: 435107 GEL Work Order: 435107

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

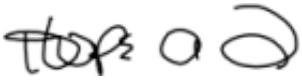
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

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 

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Certificate of Analysis

Report Date: October 27, 2017

Company : H2GO Brunswick Regional Water & Sewer
Address : 516 Village Road, NE

Leland, North Carolina 28451
Contact: Bob Walker
Project: Sample Analysis

Client Sample ID: Ground Storage BPS
Sample ID: 435107001
Matrix: Drinking Water (Potable)
Collect Date: 11-OCT-17 07:10
Receive Date: 13-OCT-17
Collector: Client

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
NC 6 PFCs by LC-MS/MS "As Received"												
Nafion Byproduct 1	UX	ND			ng/L	0.0201	1	JLS	10/16/17	2149	1709871	1
Nafion Byproduct 2	UX	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					
PFOA, PFOS by LC-MS/MS "As Received"												
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)	U	ND	0.663	2.01	ng/L	0.0201	1	JLS	10/16/17	2149	1709871	2
Fluorotelomer sulfonate 4:2 (4:2 FTS)	U	ND	1.33	3.77	ng/L	0.0201	1					
Fluorotelomer sulfonate 6:2 (6:2 FTS)	U	ND	1.33	3.82	ng/L	0.0201	1					
Fluorotelomer sulfonate 8:2 (8:2 FTS)	U	ND	1.33	3.86	ng/L	0.0201	1					
Perfluorobutanesulfonate (PFBS)	U	ND	0.663	1.79	ng/L	0.0201	1					
Perfluorobutyric acid (PFBA)	U	ND	0.663	2.01	ng/L	0.0201	1					
Perfluorodecanesulfonate (PFDS)	U	ND	0.663	1.95	ng/L	0.0201	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.663	2.01	ng/L	0.0201	1					
Perfluorododecanoic acid (PFDoA)	U	ND	0.663	2.01	ng/L	0.0201	1					
Perfluoroheptanesulfonate (PFHpS)	U	ND	0.663	1.91	ng/L	0.0201	1					
Perfluoroheptanoic acid (PFHpA)	U	ND	0.663	2.01	ng/L	0.0201	1					
Perfluorohexanesulfonate (PFHxS)	U	ND	0.663	1.83	ng/L	0.0201	1					
Perfluorohexanoic acid (PFHxA)	U	ND	0.663	2.01	ng/L	0.0201	1					
Perfluorononanesulfonate (PFNS)	U	ND	0.663	1.93	ng/L	0.0201	1					
Perfluorononanoic acid (PFNA)	U	ND	0.663	2.01	ng/L	0.0201	1					
Perfluorooctanesulfonamide (PFOSA)	U	ND	0.663	1.87	ng/L	0.0201	1					
Perfluorooctanesulfonate (PFOS)	U	ND	0.663	2.01	ng/L	0.0201	1					
Perfluorooctanoic acid (PFOA)	U	ND	0.663	2.01	ng/L	0.0201	1					

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Certificate of Analysis

Report Date: October 27, 2017

Company : H2GO Brunswick Regional Water & Sewer
Address : 516 Village Road, NE

Leland, North Carolina 28451
Contact: Bob Walker
Project: Sample Analysis

Client Sample ID: Ground Storage BPS
Sample ID: 435107001
Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst Date	Time	Batch	Method
LCMSMS PFCs											
PFOA, PFOS by LC-MS/MS "As Received"											
Perfluoropentanesulfonate (PFPeS)	U	ND	0.663	1.89	ng/L	0.0201	1				
Perfluoropentanoic acid (PFPeA)	U	ND	0.663	2.01	ng/L	0.0201	1				
Perfluorotetradecanoic acid (PFTeDA)	U	ND	0.663	2.01	ng/L	0.0201	1				
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.663	2.01	ng/L	0.0201	1				
Perfluoroundecanoic acid (PFUdA)	U	ND	0.663	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	10/16/17	1020	1709870

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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Certificate of Analysis

Report Date: October 27, 2017

Company : H2GO Brunswick Regional Water & Sewer
Address : 516 Village Road, NE

Leland, North Carolina 28451
Contact: Bob Walker
Project: Sample Analysis

Client Sample ID: Ground Storage BPS
Sample ID: 435107002
Matrix: Drinking Water (Potable)
Collect Date: 11-OCT-17 07:10
Receive Date: 13-OCT-17
Collector: Client

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
NC 6 PFCs by LC-MS/MS "As Received"												
Nafion Byproduct 1	X	0.799			ng/L	0.0174	1	JLS	10/16/17	2211	1709871	1
Nafion Byproduct 2	X	4.54			ng/L	0.0174	1					
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	X	3.19			ng/L	0.0174	1					
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	X	9.19			ng/L	0.0174	1					
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	X	23.4			ng/L	0.0174	1					
Perfluoro-2-methoxyacetic acid (PFMOAA)	X	0.404			ng/L	0.0174	1					
Perfluoro-3-methoxypropanoic acid (PFMOPrA)	X	8.02			ng/L	0.0174	1					
Perfluoro-4-methoxybutanic acid (PFMOBA)	X	155			ng/L	0.0174	5	JLS	10/17/17	1226	1709871	2
PFOA, PFOS by LC-MS/MS "As Received"												
Fluorotelomer sulfonate 8:2 (8:2 FTS)	U	ND	1.15	3.35	ng/L	0.0174	1	JLS	10/16/17	2211	1709871	3
Perfluorobutanesulfonate (PFBS)		4.23	0.575	1.55	ng/L	0.0174	1					
Perfluorobutyric acid (PFBA)		22.1	0.575	1.74	ng/L	0.0174	1					
Perfluorodecanesulfonate (PFDS)	U	ND	0.575	1.69	ng/L	0.0174	1					
Perfluorodecanoic acid (PFDA)		1.86	0.575	1.74	ng/L	0.0174	1					
Perfluorododecanoic acid (PFDoA)	U	ND	0.575	1.74	ng/L	0.0174	1					
Perfluoroheptanesulfonate (PFHpS)	U	ND	0.575	1.66	ng/L	0.0174	1					
Perfluoroheptanoic acid (PFHpA)		32.4	0.575	1.74	ng/L	0.0174	1					
Perfluorohexanesulfonate (PFHxS)		5.64	0.575	1.59	ng/L	0.0174	1					
Perfluorononanesulfonate (PFNS)	U	ND	0.575	1.67	ng/L	0.0174	1					
Perfluorononanoic acid (PFNA)		3.54	0.575	1.74	ng/L	0.0174	1					
Perfluorooctanesulfonamide (PFOSA)	U	ND	0.575	1.62	ng/L	0.0174	1					
Perfluorooctanesulfonate (PFOS)		10.0	0.575	1.74	ng/L	0.0174	1					
Perfluorooctanoic acid (PFOA)		16.5	0.575	1.74	ng/L	0.0174	1					
Perfluoropentanesulfonate (PFPeS)	J	0.834	0.575	1.64	ng/L	0.0174	1					
Perfluorotetradecanoic acid (PFTeDA)	U	ND	0.575	1.74	ng/L	0.0174	1					
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.575	1.74	ng/L	0.0174	1					
Perfluoroundecanoic acid (PFUdA)	U	ND	0.575	1.74	ng/L	0.0174	1					
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)		38.5	2.88	8.71	ng/L	0.0174	5	JLS	10/17/17	1226	1709871	4

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Certificate of Analysis

Report Date: October 27, 2017

Company : H2GO Brunswick Regional Water & Sewer
Address : 516 Village Road, NE

Leland, North Carolina 28451
Contact: Bob Walker
Project: Sample Analysis

Client Sample ID: Ground Storage BPS
Sample ID: 435107002
Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
PFOA, PFOS by LC-MS/MS "As Received"												
Fluorotelomer sulfonate 4:2 (4:2 FTS)	U	ND	5.75	16.4	ng/L	0.0174	5					
Fluorotelomer sulfonate 6:2 (6:2 FTS)	U	ND	5.75	16.6	ng/L	0.0174	5					
Perfluorohexanoic acid (PFHxA)		41.7	2.88	8.71	ng/L	0.0174	5					
Perfluoropentanoic acid (PFPeA)		46.5	2.88	8.71	ng/L	0.0174	5					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537	PFCs Extraction in Drinking Water	GXC1	10/16/17	1020	1709870

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 537	
2	EPA 537	
3	EPA 537	
4	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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Certificate of Analysis

Report Date: October 27, 2017

Company : H2GO Brunswick Regional Water & Sewer
Address : 516 Village Road, NE

Leland, North Carolina 28451
Contact: Bob Walker
Project: Sample Analysis

Client Sample ID: Glick Home RO
Sample ID: 435107003
Matrix: Drinking Water (Potable)
Collect Date: 11-OCT-17 15:30
Receive Date: 13-OCT-17
Collector: Client

Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LCMSMS PFCs												
NC 6 PFCs by LC-MS/MS "As Received"												
Nafion Byproduct 1	UX	ND			ng/L	0.0196	1	JLS	10/16/17	2232	1709871	1
Nafion Byproduct 2	UX	ND			ng/L	0.0196	1					
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	UX	ND			ng/L	0.0196	1					
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	UX	ND			ng/L	0.0196	1					
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	UX	ND			ng/L	0.0196	1					
Perfluoro-2-methoxyacetic acid (PFMOAA)	UX	ND			ng/L	0.0196	1					
Perfluoro-3-methoxypropanoic acid (PFMOPrA)	UX	ND			ng/L	0.0196	1					
Perfluoro-4-methoxybutanic acid (PFMOBA)	UX	ND			ng/L	0.0196	1					
PFOA, PFOS by LC-MS/MS "As Received"												
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)	U	ND	0.648	1.96	ng/L	0.0196	1	JLS	10/16/17	2232	1709871	2
Fluorotelomer sulfonate 4:2 (4:2 FTS)	U	ND	1.30	3.69	ng/L	0.0196	1					
Fluorotelomer sulfonate 6:2 (6:2 FTS)	U	ND	1.30	3.73	ng/L	0.0196	1					
Fluorotelomer sulfonate 8:2 (8:2 FTS)	U	ND	1.30	3.77	ng/L	0.0196	1					
Perfluorobutanesulfonate (PFBS)	U	ND	0.648	1.75	ng/L	0.0196	1					
Perfluorobutyric acid (PFBA)	U	ND	0.648	1.96	ng/L	0.0196	1					
Perfluorodecanesulfonate (PFDS)	U	ND	0.648	1.90	ng/L	0.0196	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.648	1.96	ng/L	0.0196	1					
Perfluorododecanoic acid (PFDoA)	U	ND	0.648	1.96	ng/L	0.0196	1					
Perfluoroheptanesulfonate (PFHpS)	U	ND	0.648	1.87	ng/L	0.0196	1					
Perfluoroheptanoic acid (PFHpA)	U	ND	0.648	1.96	ng/L	0.0196	1					
Perfluorohexanesulfonate (PFHxS)	U	ND	0.648	1.79	ng/L	0.0196	1					
Perfluorohexanoic acid (PFHxA)	U	ND	0.648	1.96	ng/L	0.0196	1					
Perfluorononanesulfonate (PFNS)	U	ND	0.648	1.88	ng/L	0.0196	1					
Perfluorononanoic acid (PFNA)	U	ND	0.648	1.96	ng/L	0.0196	1					
Perfluorooctanesulfonamide (PFOSA)	U	ND	0.648	1.83	ng/L	0.0196	1					
Perfluorooctanesulfonate (PFOS)	U	ND	0.648	1.96	ng/L	0.0196	1					
Perfluorooctanoic acid (PFOA)	U	ND	0.648	1.96	ng/L	0.0196	1					

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Certificate of Analysis

Report Date: October 27, 2017

Company : H2GO Brunswick Regional Water & Sewer
Address : 516 Village Road, NE

Leland, North Carolina 28451
Contact: Bob Walker
Project: Sample Analysis

Client Sample ID: Glick Home RO
Sample ID: 435107003
Project: H2GO00117
Client ID: H2GO001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst Date	Time	Batch	Method
LCMSMS PFCs											
PFOA, PFOS by LC-MS/MS "As Received"											
Perfluoropentanesulfonate (PFPeS)	U	ND	0.648	1.85	ng/L	0.0196	1				
Perfluoropentanoic acid (PFPeA)	U	ND	0.648	1.96	ng/L	0.0196	1				
Perfluorotetradecanoic acid (PFTeDA)	U	ND	0.648	1.96	ng/L	0.0196	1				
Perfluorotridecanoic acid (PFTrDA)	U	ND	0.648	1.96	ng/L	0.0196	1				
Perfluoroundecanoic acid (PFUdA)	U	ND	0.648	1.96	ng/L	0.0196	1				

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537	PFCs Extraction in Drinking Water	GXC1	10/16/17	1020	1709870

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

QC Summary

Report Date: October 27, 2017

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

Contact: **Bob Walker**

Workorder: **435107**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 1709871											
QC1203897312 LCS											
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)	19.8			20.2	ng/L		102	(70%-130%)	JLS	10/16/17	18:15
Fluorotelomer sulfonate 4:2 (4:2 FTS)	18.5			17.0	ng/L		92	(70%-130%)			
Fluorotelomer sulfonate 6:2 (6:2 FTS)	18.8			18.1	ng/L		96	(70%-130%)			
Fluorotelomer sulfonate 8:2 (8:2 FTS)	19.0			16.4	ng/L		87	(70%-130%)			
Nafion Byproduct 1				0.00	ng/L						
Nafion Byproduct 2				0.00	ng/L						
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)				0.00	ng/L						
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)				0.00	ng/L						
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)				0.00	ng/L						
Perfluoro-2-methoxyacetic acid (PFMOAA)				0.00	ng/L						
Perfluoro-3-methoxypropanoic acid (PFMOPrA)				0.00	ng/L						
Perfluoro-4-methoxybutanic acid (PFMOBA)				0.00	ng/L						
Perfluorobutanesulfonate (PFBS)	17.5			17.3	ng/L		99	(70%-130%)			

QC Summary

Workorder: **435107**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Perfluorinated Compounds										
Batch 1709871										
Perfluorobutyric acid (PFBA)	19.8			18.8	ng/L		95	(70%-130%)	JLS	10/16/17 18:15
Perfluorodecanesulfonate (PFDS)	19.1			17.0	ng/L		89	(70%-130%)		
Perfluorodecanoic acid (PFDA)	19.8			19.2	ng/L		97	(70%-130%)		
Perfluorododecanoic acid (PFDoA)	19.8			18.6	ng/L		94	(70%-130%)		
Perfluoroheptanesulfonate (PFHpS)	18.8			16.5	ng/L		88	(70%-130%)		
Perfluoroheptanoic acid (PFHpA)	19.8			18.8	ng/L		95	(70%-130%)		
Perfluorohexanesulfonate (PFHxS)	18.0			17.3	ng/L		96	(70%-130%)		
Perfluorohexanoic acid (PFHxA)	19.8			19.7	ng/L		100	(70%-130%)		
Perfluorononanesulfonate (PFNS)	19.0			17.5	ng/L		92	(70%-130%)		
Perfluorononanoic acid (PFNA)	19.8			18.4	ng/L		93	(70%-130%)		
Perfluorooctanesulfonamide (PFOSA)	18.3			15.6	ng/L		85	(70%-130%)		
Perfluorooctanesulfonate (PFOS)	19.8			17.1	ng/L		86	(70%-130%)		
Perfluorooctanoic acid (PFOA)	19.8			20.3	ng/L		103	(70%-130%)		
Perfluoropentanesulfonate (PFPeS)	18.6			17.4	ng/L		93	(70%-130%)		
Perfluoropentanoic acid (PFPeA)	19.8			20.3	ng/L		102	(70%-130%)		

QC Summary

Workorder: **435107**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Perfluorinated Compounds										
Batch 1709871										
Perfluorotetradecanoic acid (PFTeDA)	19.8			17.9	ng/L		91	(70%-130%)	JLS	10/16/17 18:15
Perfluorotridecanoic acid (PFTrDA)	19.8			18.9	ng/L		95	(70%-130%)		
Perfluoroundecanoic acid (PFUdA)	19.8			20.7	ng/L		105	(70%-130%)		
QC1203897313 LCSD										
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)	19.8			20.0	ng/L	1	101	(0%-30%)		10/16/17 18:37
Fluorotelomer sulfonate 4:2 (4:2 FTS)	18.5			19.5	ng/L	13	105	(0%-30%)		
Fluorotelomer sulfonate 6:2 (6:2 FTS)	18.8			20.4	ng/L	12	108	(0%-30%)		
Fluorotelomer sulfonate 8:2 (8:2 FTS)	19.0			15.7	ng/L	5	82	(0%-30%)		
Nafion Byproduct 1				0.00	ng/L	0				
Nafion Byproduct 2				0.00	ng/L	0				
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)				0.00	ng/L	0				
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)				0.00	ng/L	0				
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)				0.00	ng/L	0				
Perfluoro-2-methoxyacetic acid (PFMOAA)				0.00	ng/L	0				
Perfluoro-3-methoxypropanoic acid (PFMOPrA)				0.00	ng/L	0				
Perfluoro-4-methoxybutanic acid (PFMOBA)				0.00	ng/L	0				

QC Summary

Workorder: **435107**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 1709871											
Perfluorobutanesulfonate (PFBS)	17.6			17.8	ng/L	3	102	(0%-30%)	JLS	10/16/17	18:37
Perfluorobutyric acid (PFBA)	19.8			20.2	ng/L	7	102	(0%-30%)			
Perfluorodecanesulfonate (PFDS)	19.1			17.5	ng/L	3	91	(0%-30%)			
Perfluorodecanoic acid (PFDA)	19.8			18.9	ng/L	1	95	(0%-30%)			
Perfluorododecanoic acid (PFDoA)	19.8			19.2	ng/L	3	97	(0%-30%)			
Perfluoroheptanesulfonate (PFHpS)	18.8			17.1	ng/L	3	91	(0%-30%)			
Perfluoroheptanoic acid (PFHpA)	19.8			20.2	ng/L	7	102	(0%-30%)			
Perfluorohexanesulfonate (PFHxS)	18.1			16.7	ng/L	3	92	(0%-30%)			
Perfluorohexanoic acid (PFHxA)	19.8			19.7	ng/L	0	99	(0%-30%)			
Perfluorononanesulfonate (PFNS)	19.0			17.9	ng/L	3	94	(0%-30%)			
Perfluorononanoic acid (PFNA)	19.8			18.2	ng/L	1	92	(0%-30%)			
Perfluorooctanesulfonamide (PFOSA)	18.4			17.2	ng/L	10	94	(0%-30%)			
Perfluorooctanesulfonate (PFOS)	19.8			18.6	ng/L	9	94	(0%-30%)			
Perfluorooctanoic acid (PFOA)	19.8			20.6	ng/L	1	104	(0%-30%)			
Perfluoropentanesulfonate (PFPeS)	18.6			17.6	ng/L	1	94	(0%-30%)			

QC Summary

Workorder: **435107**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 1709871											
Perfluoropentanoic acid (PFPeA)	19.8			20.8	ng/L	3	105	(0%-30%)	JLS	10/16/17	18:37
Perfluorotetradecanoic acid (PFTeDA)	19.8			19.5	ng/L	8	98	(0%-30%)			
Perfluorotridecanoic acid (PFTrDA)	19.8			18.7	ng/L	1	94	(0%-30%)			
Perfluoroundecanoic acid (PFUdA)	19.8			16.3	ng/L	24	82	(0%-30%)			
QC1203897311 MB											
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)			U	ND	ng/L					10/16/17	18:58
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						
Nafion Byproduct 1			UX	ND	ng/L						
Nafion Byproduct 1				0.00	ng/L						
Nafion Byproduct 2			UX	ND	ng/L						
Nafion Byproduct 2				0.00	ng/L						
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)			UX	ND	ng/L						
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)				0.00	ng/L						
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)			UX	ND	ng/L						

QC Summary

Workorder: **435107**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch 1709871											
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)				0.00	ng/L				JLS	10/16/17	18:58
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)			UX	ND	ng/L						
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)				0.00	ng/L						
Perfluoro-2-methoxyacetic acid (PFMOAA)			UX	ND	ng/L						
Perfluoro-2-methoxyacetic acid (PFMOAA)				0.00	ng/L						
Perfluoro-3-methoxypropanoic acid (PFMOPrA)			UX	ND	ng/L						
Perfluoro-3-methoxypropanoic acid (PFMOPrA)				0.00	ng/L						
Perfluoro-4-methoxybutanic acid (PFMOBA)			UX	ND	ng/L						
Perfluoro-4-methoxybutanic acid (PFMOBA)				0.00	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						

QC Summary

Workorder: **435107**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Perfluorinated Compounds										
Batch 1709871										
Perfluoroheptanoic acid (PFHpA)			U	ND	ng/L				JLS	10/16/17 18:58
Perfluorohexanesulfonate (PFHxS)			U	ND	ng/L					
Perfluorohexanoic acid (PFHxA)			U	ND	ng/L					
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					

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

QC Summary

Workorder: **435107**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

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%.
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.

LCMSMS-Misc
Technical Case Narrative
H2GO Brunswick Regional Water & Sewer (H2GO)
SDG #: 435107

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: 1709871 and 1709870

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

GEL Sample ID#	Client Sample Identification
435107001	Ground Storage BPS
435107002	Ground Storage BPS
435107003	Glick Home RO
1203897311	Method Blank (MB)
1203897312	Laboratory Control Sample (LCS)
1203897313	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.

Technical Information

Sample Dilutions
The following sample was/were diluted to bring the over range concentration within the calibration range.
435107002 (Ground Storage BPS).

Analyte	435107 002
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)	5X
Fluorotelomer sulfonate 4:2 (4:2 FTS)	5X
Fluorotelomer sulfonate 6:2 (6:2 FTS)	5X
Perfluoro-4-methoxybutanic acid (PFMOBA)	5X
Perfluorohexanoic acid (PFHxA)	5X
Perfluoropentanoic acid (PFPeA)	5X

Sample Re-extraction/Re-analysis
The Fluorotelemer Sulfonate 4:2 (4:2 FTS) and Fluorotelemer Sulfonate 6:2 (6:2 FTS) were reported from the 1:5 dilution due to elevated internal standard recoveries. These analytes were not detected in the sample.
435107002 (Ground Storage BPS).

Miscellaneous Information

Additional Comments
Results reported with the X qualifier are estimated concentrations and were obtained using the GenX calibration curve because authentic standards are not available. 435107001 (Ground Storage BPS), 435107002 (Ground Storage BPS) and 435107003 (Glick Home RO).

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.

Page: 1 of 1
Project #:
GEL Quote #:
COC Number (1):
PO Number:

GEL Chain of Custody and Analytical Request

GEL Work Order Number: 435107

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Brunswick Regional Water & Sewer Phone #: 910-299-4581
Project/Site Name: Fax #:
Address: P.O. Box 2230
Collected by: Glick/Griffith Send Results To: Bob Walker

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive	Should this sample be considered: TSCA Regulated	Total number of containers	GenX+6	Nafion BP	<-- Preservative Type (6)
Ground Storage BPS	101117	0710	TB	N	DW				✓	✓	
Ground Storage BPS	101117	0710	N	N	DW				✓	✓	
Glick Home RO	101017	1530	N	N	DW				✓	✓	

Comments
Note: extra sample is required for sample specific QC

TAT Requested: Normal: ____ Rush: ____ Specify: ____ (Subject to Surcharge) Fax Results: Yes / No

Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

Sample Collection Time Zone
Eastern Pacific
Central Other ____
Mountain

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	Bob Walker	10/12/17	1550		10/13/17	9:00
2						
3						

Sample Shipping and Delivery Details

GEL PM:
Method of Shipment: Date Shipped:
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: **N** = Normal Sample, **TB** = Trip Blank, **FD** = Field Duplicate, **EB** = Equipment Blank, **MS** = Matrix Spike Sample, **MSD** = Matrix Spike Duplicate Sample, **G** = Grab, **C** = Composite
3.) Field Filtered: For liquid matrices, indicate with a - **Y** - for yes the sample was field filtered or - **N** - for sample was not field filtered.
4.) Matrix Codes: **DW**=Drinking Water, **GW**=Groundwater, **SW**=Surface Water, **WW**=Waste Water, **W**=Water, **SO**=Soil, **SD**=Sediment, **SL**=Sludge, **SS**=Solid Waste, **O**=Oil, **F**=Filter, **P**=Wipe, **U**=Urine, **F**=Fecal, **N**=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. **8260B**, **6010B/7470A**) and number of containers provided for each (i.e. *8260B* - 3, *6010B/7470A* - 1).
6.) Preservative Type: **HA** = Hydrochloric Acid, **NI** = Nitric Acid, **SH** = Sodium Hydroxide, **SA** = Sulfuric Acid, **AA** = Ascorbic Acid, **HX** = Hexane, **ST** = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? *YES* *NO*
Cooler Temp: ____ C

WHITE = LABORATORY **YELLOW = FILE** **PINK = CLIENT**

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: H2GO	**SDG/AR/COC/Work Order:** 435107
Received By: ZKW	**Date Received:** 10/13/17
Carrier and Tracking Number	Circle Applicable: ~~FedEx Express~~ FedEx Ground UPS Field Services Courier Other 7736 9700 0088

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): 0 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: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius **TEMP:** 1 C
4	Daily check performed and passed on IR temperature gun?	✓			**Temperature Device Serial #:** IR3-16 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 JB Date 10.16.2017 Page 1 of 1

GL-CHL-SR-001 Rev 5

List of current GEL Certifications as of 27 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	SC000122017−24
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404