

April 17, 2018

Bob Walker
H2GO Brunswick Regional Water & Sewer
PO BOX 2230
Leland, North Carolina 28451

Re: Sample Analysis
Work Order: 447124

Dear Bob Walker:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on April 03, 2018. 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,



Taylor Cannon for
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: 447124 GEL Work Order: 447124

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

Report Date: April 17, 2018

Company : H2GO Brunswick Regional Water & Sewer
Address : PO BOX 2230

Leland, North Carolina 28451

Contact: Bob Walker
Project: Sample Analysis

Client Sample ID: GST/BPS
Sample ID: 447124001
Matrix: Water
Collect Date: 02-APR-18 09:20
Receive Date: 03-APR-18
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	0.020	1	GXC1	04/06/18	1503	1752794	1
Nafion Byproduct 2	UX	ND			ng/L	0.020	1					
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	UX	ND			ng/L	0.020	1					
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	UX	ND			ng/L	0.020	1					
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	UX	ND			ng/L	0.020	1					
Perfluoro-2-methoxyacetic acid (PFMOAA)	UX	ND			ng/L	0.020	1					
Perfluoro-3-methoxypropanoic acid (PFMOPrA)	UX	ND			ng/L	0.020	1					
Perfluoro-4-methoxybutanic acid (PFMOBA)	UX	ND			ng/L	0.020	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	0.661	2.00	ng/L	0.020	1	GXC1	04/06/18	1503	1752794	2
Fluorotelomer sulfonate 4:2 (4:2 FTS)	U	ND	1.32	3.76	ng/L	0.020	1					
Fluorotelomer sulfonate 6:2 (6:2 FTS)	U	ND	1.32	3.80	ng/L	0.020	1					
Fluorotelomer sulfonate 8:2 (8:2 FTS)	U	ND	1.32	3.84	ng/L	0.020	1					
Perfluorobutanesulfonate (PFBS)	U	ND	0.661	1.78	ng/L	0.020	1					
Perfluorobutyric acid (PFBA)	U	ND	0.661	2.00	ng/L	0.020	1					
Perfluorodecanesulfonate (PFDS)	U	ND	0.661	1.94	ng/L	0.020	1					
Perfluorodecanoic acid (PFDA)	U	ND	0.661	2.00	ng/L	0.020	1					
Perfluorododecanoic acid (PFDoA)	U	ND	0.661	2.00	ng/L	0.020	1					
Perfluoroheptanesulfonate (PFHpS)	U	ND	0.661	1.90	ng/L	0.020	1					
Perfluoroheptanoic acid (PFHpA)	U	ND	0.661	2.00	ng/L	0.020	1					
Perfluorohexanesulfonate (PFHxS)	U	ND	0.661	1.82	ng/L	0.020	1					
Perfluorohexanoic acid (PFHxA)	U	ND	0.661	2.00	ng/L	0.020	1					
Perfluorononanesulfonate (PFNS)	U	ND	0.661	1.92	ng/L	0.020	1					
Perfluorononanoic acid (PFNA)	U	ND	0.661	2.00	ng/L	0.020	1					
Perfluorooctanesulfonamide (PFOSA)	U	ND	0.661	1.86	ng/L	0.020	1					
Perfluorooctanesulfonate (PFOS)	U	ND	0.661	2.00	ng/L	0.020	1					
Perfluorooctanoic acid (PFOA)	U	ND	0.661	2.00	ng/L	0.020	1					

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Certificate of Analysis

Report Date: April 17, 2018

Company : H2GO Brunswick Regional Water & Sewer
Address : PO BOX 2230

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

Client Sample ID: GST/BPS Project: H2GO00117
Sample ID: 447124001 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	0.661	1.88	ng/L	0.020	1					
Perfluoropentanoic acid (PFPeA)	U	ND	0.661	2.00	ng/L	0.020	1					
Perfluorotetradecanoic acid (PFTeDA)	U	ND	0.661	2.00	ng/L	0.020	1					
Perfluorotridecanoic acid (PFTeDA)	U	ND	0.661	2.00	ng/L	0.020	1					
Perfluoroundecanoic acid (PFUdA)	U	ND	0.661	2.00	ng/L	0.020	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 537	PFCs Extraction in Drinking Water	MXD2	04/04/18	0835	1752793

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	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: April 17, 2018

Company : H2GO Brunswick Regional Water & Sewer
Address : PO BOX 2230

Leland, North Carolina 28451

Contact: Bob Walker
Project: Sample Analysis

Client Sample ID: GST/BPS
Sample ID: 447124002
Matrix: Water
Collect Date: 02-APR-18 09:20
Receive Date: 03-APR-18
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	0.186			ng/L	0.0204	1	GXC1	04/06/18	1538	1752794	1
Nafion Byproduct 2	X	0.658			ng/L	0.0204	1					
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	X	0.326			ng/L	0.0204	1					
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	X	1.09			ng/L	0.0204	1					
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	X	2.65			ng/L	0.0204	1					
Perfluoro-2-methoxyacetic acid (PFMOAA)	UX	ND			ng/L	0.0204	1					
Perfluoro-3-methoxypropanoic acid (PFMOPrA)	UX	ND			ng/L	0.0204	1					
Perfluoro-4-methoxybutanic acid (PFMOBA)	UX	ND			ng/L	0.0204	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)		8.64	0.672	2.04	ng/L	0.0204	1	GXC1	04/06/18	1538	1752794	2
Fluorotelomer sulfonate 8:2 (8:2 FTS)	U	ND	1.34	3.91	ng/L	0.0204	1					
Perfluorobutanesulfonate (PFBS)		2.26	0.672	1.81	ng/L	0.0204	1					
Perfluorobutyric acid (PFBA)		6.78	0.672	2.04	ng/L	0.0204	1					
Perfluorodecanesulfonate (PFDS)	U	ND	0.672	1.98	ng/L	0.0204	1					
Perfluorodecanoic acid (PFDA)	J	0.847	0.672	2.04	ng/L	0.0204	1					
Perfluorododecanoic acid (PFDoA)	U	ND	0.672	2.04	ng/L	0.0204	1					
Perfluoroheptanesulfonate (PFHpS)	U	ND	0.672	1.93	ng/L	0.0204	1					
Perfluoroheptanoic acid (PFHpA)		11.4	0.672	2.04	ng/L	0.0204	1					
Perfluorohexanesulfonate (PFHxS)		3.61	0.672	1.85	ng/L	0.0204	1					
Perfluorohexanoic acid (PFHxA)		15.1	0.672	2.04	ng/L	0.0204	1					
Perfluorononanesulfonate (PFNS)	U	ND	0.672	1.96	ng/L	0.0204	1					
Perfluorononanoic acid (PFNA)	J	1.26	0.672	2.04	ng/L	0.0204	1					
Perfluorooctanesulfonamide (PFOSA)	U	ND	0.672	1.89	ng/L	0.0204	1					
Perfluorooctanesulfonate (PFOS)		9.43	0.672	2.04	ng/L	0.0204	1					
Perfluorooctanoic acid (PFOA)		6.34	0.672	2.04	ng/L	0.0204	1					
Perfluoropentanesulfonate (PFPeS)	U	ND	0.672	1.91	ng/L	0.0204	1					
Perfluoropentanoic acid (PFPeA)		11.4	0.672	2.04	ng/L	0.0204	1					
Perfluorotetradecanoic acid (PFTeDA)	U	ND	0.672	2.04	ng/L	0.0204	1					

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Certificate of Analysis

Report Date: April 17, 2018

Company : H2GO Brunswick Regional Water & Sewer
Address : PO BOX 2230

Leland, North Carolina 28451

Contact: Bob Walker
Project: Sample Analysis

Client Sample ID: GST/BPS

Sample ID: 447124002

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"												
Perfluorotridecanoic acid (PFTTrDA)	U	ND	0.672	2.04	ng/L	0.0204	1					
Perfluoroundecanoic acid (PFUdA)	U	ND	0.672	2.04	ng/L	0.0204	1					
Fluorotelomer sulfonate 4:2 (4:2 FTS)	U	ND	6.72	19.1	ng/L	0.0204	5	GXC1	04/06/18	1520	1752794	3
Fluorotelomer sulfonate 6:2 (6:2 FTS)	U	ND	6.72	19.3	ng/L	0.0204	5					
Semi-Volatile-GC/MS												
EPA 522 1,4-Dioxane in Liquid "As Received"												
1,4-Dioxane		1.94	0.100	0.200	ug/L	0.020	1	JMB3	04/16/18	1549	1752085	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 522	EPA 522 Prep 1,4-Dioxane	SJ	04/16/18	0945	1752084
EPA 537	PFCs Extraction in Drinking Water	MXD2	04/04/18	0835	1752793

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 537	
2	EPA 537	
3	EPA 537	
4	EPA 522	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,4-Dioxane-d8	EPA 522 1,4-Dioxane in Liquid "As Received"	3.42 ug/L	4.00	86	(70%-130%)

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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QC Summary

Report Date: April 17, 2018

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H2GO Brunswick Regional Water & Sewer

PO BOX 2230

Leland, North Carolina

Contact: Bob Walker

Workorder: 447124

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch	1752794										
QC1204002346	LCS										
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)	19.8			22.1	ng/L		111	(70%-130%)	GXC1	04/06/18	14:28
Fluorotelomer sulfonate 4:2 (4:2 FTS)	18.6			21.3	ng/L		115	(70%-130%)			
Fluorotelomer sulfonate 6:2 (6:2 FTS)	18.9			22.8	ng/L		121	(70%-130%)			
Fluorotelomer sulfonate 8:2 (8:2 FTS)	19.1			19.4	ng/L		102	(70%-130%)			
Perfluorobutanesulfonate (PFBS)	17.6			19.8	ng/L		113	(70%-130%)			
Perfluorobutyric acid (PFBA)	19.8			22.8	ng/L		115	(70%-130%)			
Perfluorodecanesulfonate (PFDS)	19.1			18.8	ng/L		98	(70%-130%)			
Perfluorodecanoic acid (PFDA)	19.8			20.8	ng/L		105	(70%-130%)			
Perfluorododecanoic acid (PFDoA)	19.8			20.8	ng/L		105	(70%-130%)			
Perfluoroheptanesulfonate (PFHpS)	18.9			21.1	ng/L		112	(70%-130%)			
Perfluoroheptanoic acid (PFHpA)	19.8			22.2	ng/L		112	(70%-130%)			
Perfluorohexanesulfonate (PFHxS)	18.1			21.0	ng/L		116	(70%-130%)			
Perfluorohexanoic acid (PFHxA)	19.8			22.0	ng/L		111	(70%-130%)			

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QC Summary

Workorder: 447124

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch	1752794										
Perfluorononanesulfonate (PFNS)	19.1			20.1	ng/L		106	(70%-130%)	GXC1	04/06/18	14:28
Perfluorononanoic acid (PFNA)	19.8			22.7	ng/L		114	(70%-130%)			
Perfluorooctanesulfonamide (PFOSA)	18.4			20.6	ng/L		112	(70%-130%)			
Perfluorooctanesulfonate (PFOS)	19.8			19.1	ng/L		96	(70%-130%)			
Perfluorooctanoic acid (PFOA)	19.8			20.5	ng/L		103	(70%-130%)			
Perfluoropentanesulfonate (PFPeS)	18.7			20.5	ng/L		110	(70%-130%)			
Perfluoropentanoic acid (PFPeA)	19.8			21.3	ng/L		107	(70%-130%)			
Perfluorotetradecanoic acid (PFTeDA)	19.8			20.4	ng/L		103	(70%-130%)			
Perfluorotridecanoic acid (PFTrDA)	19.8			17.5	ng/L		88	(70%-130%)			
Perfluoroundecanoic acid (PFUdA)	19.8			22.6	ng/L		114	(70%-130%)			
QC1204002347 LCSD											
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)	19.8			20.1	ng/L	10	101	(0%-30%)		04/06/18	14:45
Fluorotelomer sulfonate 4:2 (4:2 FTS)	18.5			21.9	ng/L	3	118	(0%-30%)			
Fluorotelomer sulfonate 6:2 (6:2 FTS)	18.8			20.1	ng/L	13	107	(0%-30%)			
Fluorotelomer sulfonate 8:2 (8:2 FTS)	19.0			21.7	ng/L	11	114	(0%-30%)			
Perfluorobutanesulfonate (PFBS)	17.5			19.2	ng/L	3	110	(0%-30%)			

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QC Summary

Workorder: 447124

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch	1752794										
Perfluorobutyric acid (PFBA)	19.8			21.4	ng/L	6	108	(0%-30%)	GXC1	04/06/18	14:45
Perfluorodecanesulfonate (PFDS)	19.1			17.0	ng/L	10	89	(0%-30%)			
Perfluorodecanoic acid (PFDA)	19.8			21.9	ng/L	5	111	(0%-30%)			
Perfluorododecanoic acid (PFDoA)	19.8			19.0	ng/L	9	96	(0%-30%)			
Perfluoroheptanesulfonate (PFHpS)	18.8			20.4	ng/L	3	108	(0%-30%)			
Perfluoroheptanoic acid (PFHpA)	19.8			20.7	ng/L	7	104	(0%-30%)			
Perfluorohexanesulfonate (PFHxS)	18.1			17.9	ng/L	16	99	(0%-30%)			
Perfluorohexanoic acid (PFHxA)	19.8			20.6	ng/L	7	104	(0%-30%)			
Perfluorononanesulfonate (PFNS)	19.0			20.0	ng/L	0	105	(0%-30%)			
Perfluorononanoic acid (PFNA)	19.8			18.4	ng/L	21	93	(0%-30%)			
Perfluorooctanesulfonamide (PFOSA)	18.3			19.0	ng/L	8	103	(0%-30%)			
Perfluorooctanesulfonate (PFOS)	19.8			18.8	ng/L	1	95	(0%-30%)			
Perfluorooctanoic acid (PFOA)	19.8			19.1	ng/L	7	96	(0%-30%)			
Perfluoropentanesulfonate (PFPeS)	18.6			17.8	ng/L	14	95	(0%-30%)			
Perfluoropentanoic acid (PFPeA)	19.8			21.2	ng/L	1	107	(0%-30%)			

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

QC Summary

Workorder: 447124

Page 4 of 7

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch	1752794										
Perfluorotetradecanoic acid (PFTeDA)	19.8			20.8	ng/L	2	105	(0%-30%)	GXC1	04/06/18	14:45
Perfluorotridecanoic acid (PFTTrDA)	19.8			18.1	ng/L	3	91	(0%-30%)			
Perfluoroundecanoic acid (PFUdA)	19.8			21.2	ng/L	7	107	(0%-30%)			
QC1204002345 MB											
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (PFPrOPrA)			U	ND	ng/L					04/06/18	14:11
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 2			UX	ND	ng/L						
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)			UX	ND	ng/L						
Perfluoro(3,5,7-trioxaooctanoic) acid (PFO3OA)			UX	ND	ng/L						
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)			UX	ND	ng/L						
Perfluoro-2-methoxyacetic acid (PFMOAA)			UX	ND	ng/L						
Perfluoro-3-methoxypropanoic acid (PFMOPrA)			UX	ND	ng/L						
Perfluoro-4-methoxybutanic acid (PFMOBA)			UX	ND	ng/L						

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QC Summary

Workorder: 447124

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch	1752794										
Perfluorobutanesulfonate (PFBS)			U	ND	ng/L				GXC1	04/06/18	14:11
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						
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						

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QC Summary

Workorder: 447124

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Perfluorinated Compounds											
Batch	1752794										
Perfluoropentanoic acid (PFPeA)			U	ND	ng/L				GXC1	04/06/18	14:11
Perfluorotetradecanoic acid (PFTeDA)			U	ND	ng/L						
Perfluorotridecanoic acid (PFTTrDA)			U	ND	ng/L						
Perfluoroundecanoic acid (PFUdA)			U	ND	ng/L						
Semi-Volatile-GC/MS											
Batch	1752085										
QC1204000719	LCS										
1,4-Dioxane	4.00			3.56	ug/L		89	(70%-130%)	JMB3	04/16/18	16:36
**1,4-Dioxane-d8	4.00			3.88	ug/L		97	(70%-130%)			
QC1204005563	LCSD										
1,4-Dioxane	4.00			3.44	ug/L	4	86	(0%-30%)		04/16/18	17:00
**1,4-Dioxane-d8	4.00			3.61	ug/L		90	(70%-130%)			
QC1204000718	MB										
1,4-Dioxane			U	ND	ug/L					04/16/18	16:13
**1,4-Dioxane-d8	4.00			3.41	ug/L		85	(70%-130%)			

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

GEL LABORATORIES LLC

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

QC Summary

Workorder: 447124

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

Technical Case Narrative
H2GO Brunswick Regional Water & Sewer (PFAU)
SDG #: 447124

GC/MS Semivolatile

Product: Analysis of 1,4-Dioxane in Drinking Water by Solid Phase Extraction (SPE) and Gas Chromatography/Mass Spectrometry

Analytical Method: EPA 522

Analytical Procedure: GL-OA-E-073 REV# 2

Analytical Batches: 1752085 and 1752084

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
447124002	GST/BPS
1204000718	Method Blank (MB)
1204000719	Laboratory Control Sample (LCS)
1204005563	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

Laboratory Control Sample Duplicate (LCSD)

An LCSD was used in place of matrix QC due to limited sample volume.

Miscellaneous Information

Manual Integrations

Sample (See Below) required manual integration in order to properly identify one or more peaks and/or to correctly position the baseline as set in the calibration standard injections.

Sample	Analyte	Value
447124002 (GST/BPS)	Tetrahydrofuran-d8	Result 10ug/L

LCMSMS-Misc

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

Analytical Method: EPA 537

Analytical Procedure: GL-OA-E-076 REV# 5

Analytical Batches: 1752794 and 1752793

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
447124001	GST/BPS
447124002	GST/BPS
1204002345	Method Blank (MB)
1204002346	Laboratory Control Sample (LCS)
1204002347	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 diluted to bring the internal standards with the acceptance ranges. 447124002 (GST/BPS).

Analyte	447124
	002
Fluorotelomer sulfonate 4:2 (4:2 FTS)	5X
Fluorotelomer sulfonate 6:2 (6:2 FTS)	5X

Miscellaneous Information

Additional Comments

Results reported with the X qualifier are estimated concentrations and were obtained the GenX calibration curve because authentic standards are not available at this time. 447124001 (GST/BPS) and 447124002 (GST/BPS).

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.



Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: <u>H2G0</u>		SDG/AR/COC/Work Order: <u>447124</u>	
Received By: <u>ZKW</u>		Date Received: <u>4/3/18</u>	
Carrier and Tracking Number		Circle Applicable: <input checked="" type="checkbox"/> FedEx Express <input type="checkbox"/> FedEx Ground <input type="checkbox"/> UPS <input type="checkbox"/> Field Services <input type="checkbox"/> Courier <input type="checkbox"/> Other	
		<u>4158 5142 9728</u>	
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
Shipped as a DOT Hazardous?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____	
COC/Samples marked or classified as radioactive?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> <u>CPM</u> /mR/Hr Classified as: Rad 1 Rad 2 Rad 3	
Is package, COC, and/or Samples marked HAZ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If yes, select Hazards below, and contact the GEL Safety Group. <input type="checkbox"/> PCB's <input type="checkbox"/> Flammable <input type="checkbox"/> Foreign Soil <input type="checkbox"/> RCRA <input type="checkbox"/> Asbestos <input type="checkbox"/> Beryllium <input type="checkbox"/> Other:	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <u>Wet Ice</u> Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: <u>1°C</u>
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>IR3-16</u> Secondary Temperature Device Serial # (If Applicable):
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6 Samples requiring chemical preservation at proper pH?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and Containers Affected: If Preservation added, Lot#:
7 Do any samples require Volatile Analysis?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials

BL

Date

4/3/18

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GL-CHL-SR-001 Rev 5

List of current GEL Certifications as of 17 April 2018

State	Certification
Alaska	17-018
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	LA180011
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 Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-18-13
Utah NELAP	SC000122018-26
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404