



Environmental Chemists, Inc.

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ANALYTICAL & CONSULTING CHEMISTS

info@environmentalchemists.com

August 9, 2017

Brunswick County Public Utilities
Post Office Box 249
Bolivia, NC 28422
Attn: Glenn Walker

Report #2017-10448

Enclosed please find your analytical report.

Sincerely,

A handwritten signature in cursive script that reads "Tammy Duran".

Tammy Duran

Environmental Chemists, Inc.

ANALYTICAL REPORT

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Ph: (715)-478-2777 Fax: (715)-478-3060

Client: Environmental Chemists
Attn: Ray Porter
6602 Windmill Way
Wilmington, NC 28405

Project: GenX and Other PFCs

WDNR Laboratory ID No. 721026460
WDATCP Laboratory Certification No. 105-330
EPA Laboratory ID No. WI000034

Printed: 08/09/17 Page 1 of 1

NLS Project: 284121
NLS Customer: 96259
Fax: 910 392 4424 Phone: 910 392 0223

25049 NLS ID: 1007902

COC: 192201:1 Matrix: DW

Collected: 07/20/17 10:15 Received: 08/01/17

Parameter: Solid Phase Extraction by EPA Method 537
GenX and PFCs by EPA 537

Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab
yes					08/02/17	EPA 537	721026460
see attached					08/03/17	EPA 537	721026460

25050 NLS ID: 1007903

COC: 192201:2 Matrix: DW

Collected: 07/20/17 10:14 Received: 08/01/17

Parameter: Solid Phase Extraction by EPA Method 537
GenX and PFCs by EPA 537

Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab
yes					08/02/17	EPA 537	721026460
see attached					08/03/17	EPA 537	721026460

Values in brackets represent results greater than or equal to the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation". Results greater than or equal to the LOQ are considered to be in the region of "Certain Quantitation". LOD and/or LOQ tagged with an asterisk(*) are considered Reporting Limits. All LOD/LOQs adjusted to reflect dilution and/or solids content.
ND = Not Detected (< LOD) LOD = Limit of Detection LOQ = Limit of Quantitation NA = Not Applicable
DWB = Dry Weight Basis %DWB = (mg/kg DWB) / 10000 1000 ug/L = 1 mg/L
MCL = Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.

Reviewed by:



Authorized by:
R. T. Krueger
President

ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis

Customer: Environmental Chemists NLS Project: 284121

Project Description: GenX and Other PFCs

Project Title: Template: 537PPTGENX Printed: 08/09/2017 17:21

Sample: 1007902_25049 Collected: 07/20/17 Analyzed: 08/03/17 - Analytes: 13

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	6.6	21		
perfluorohexanoic acid (PFHxA)	11.1	ppt		1	1.3	4.0		
perfluoro-2-propoxypropanoic acid (GenX)	50.5	ppt		1	0.73	2.3		
perfluorheptanoic acid (PFHpA)	9.01	ppt		1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	[4.98]	ppt		1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	8.19	ppt		1	1.2	3.9		
perfluorononanoic acid (PFNA)	[2.17]	ppt		1	1.5	4.9		J
perfluorodecanoic acid (PFDA)	12.6	ppt		1	1.7	5.3		
perfluorododecanoic acid (PFDoA)	[1.36]	ppt		1	0.90	2.7		J
perfluorotridecanoic acid (PFTDA)	ND	ppt		1	1.0	3.0		
perfluorotetradecanoic acid (PFTA)	ND	ppt		1	1.9	6.1		
C13-PFHxA (SURR)	ND	ppt		1	3.2	10		
C13-PFHxA (SURR)	76.658%			1	2.8	8.9		S
C13-PFDA (SURR)	96.924%			1				S

NOTES APPLICABLE TO THIS ANALYSIS:

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.
 S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 1007903_25050 Collected: 07/20/17 Analyzed: 08/03/17 - Analytes: 13

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	6.6	21		
perfluorohexanoic acid (PFHxA)	10.6	ppt		1	1.3	4.0		
perfluoro-2-propoxypropanoic acid (GenX)	62.8	ppt		1	0.73	2.3		
perfluorheptanoic acid (PFHpA)	8.63	ppt		1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	[3.96]	ppt		1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	7.28	ppt		1	1.2	3.9		
perfluorononanoic acid (PFNA)	[1.55]	ppt		1	1.5	4.9		J
perfluorodecanoic acid (PFDA)	8.53	ppt		1	1.7	5.3		
perfluorododecanoic acid (PFDoA)	[0.97]	ppt		1	0.90	2.7		J
perfluorotridecanoic acid (PFTDA)	ND	ppt		1	1.0	3.0		
perfluorotetradecanoic acid (PFTA)	ND	ppt		1	1.9	6.1		
C13-PFHxA (SURR)	75.989%			1	3.2	10		S
C13-PFDA (SURR)	95.881%			1	2.8	8.9		S

NOTES APPLICABLE TO THIS ANALYSIS:

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.
 S = This compound is a surrogate used to evaluate the quality control of a method.

The PFOA branch isotope peak is included in the PFOA calculation per EPA directive. GenX analysis performed by Modified EPA Method 537.



Analytical & Consulting Chemists

ENVIRONMENTAL CHEMISTS, INC

NCDEMR: DWQ CERTIFICATION # 94 NCDHHS: DLS CERTIFICATION # 37729

6602 Windmill Way Wilmington, NC 28405
OFFICE: 910-392-0223 FAX 910-392-4424
info@environmentalchemists.com

COLLECTION AND CHAIN OF CUSTODY

CLIENT: Brunswick County Water	PROJECT NAME:	REPORT NO: 17-10448
ADDRESS: PO Box 249	CONTACT NAME: Glenn Walker	PO NO:
Bolivia, NC 28422	REPORT TO: Same	PHONE/FAX:
	COPY TO:	email: glenn.walker@brunswickcountyp

Sampled By: Thaddeus Hill SAMPLE TYPE: I = Influent, E = Effluent, W = Well, ST = Stream, SO = Soil, SL = Sludge, Other: NC 900

Sample Identification	Collection			Sample Type	Composite or Grab	Container (P or G)	Chlorine mg/L	LAB ID NUMBER	PRESERVATION						ANALYSIS REQUESTED	
	Date	Time	Temp						NONE	HCL	H2SO4	HNO3	NAOH	THIO		Zn acetate
72017-S01	7-20-17	1015	29.5	Ruv Water	C	P		16049								✓ EPA 537 + Gen X
72017-E01	7-20-17	1014	29.5	DW	C	G		15050								✓
					C	P										
					C	G										
					C	P										
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Transfer	Relinquished By: Thaddeus Hill	Date/Time: 7/20/17	Received By:	Date/Time:
Temperature when Received:	Accepted:	Rejected:	Resample Requested:	
Delivered By: Thaddeus Hill	Received By: G. Gause	Date: 7-20-17	Time: 11:45	
Comments:	TURNAROUND:			