



# Environmental Chemists, Inc.

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ANALYTICAL & CONSULTING CHEMISTS

info@environmentalchemists.com

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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

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

**Project:** GenX and Other PFCs

**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		
perfluoroheptanoic 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		
perfluoroheptanoic 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%	ppt		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: 17-10498
ADDRESS: PO Box 249	CONTACT NAME: Glenn Walker	PO NO:
Bolivia, NC 28422	REPORT TO: Same	PHONE/FAX:
COPY TO:		email: glenn.walker@brunswickcountync.gov

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-SD1	7-20-17	1015						29.5	Raw Water	C	P		15049		
72017-E01	7-20-17	1014	29.5	DW	C	P		15050								✓ EPA 537 + Gen X
					C	P										
					C	P										
					C	P										
					G	P										
					G	P										
					G	P										
					C	P										
					C	P										
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					G	P										
					C	P										
					C	P										
					G	P										
					G	P										

Transfer: Thaddeus Hill      Relinquished By: Thaddeus Hill      Date/Time: 7/20/17

Temperature when Received:      Accepted:      Resampled Requested:      Resample Requested Date: 7-20-17 Time: 11:45

Delivered By: Thaddeus Hill      Received By: G. Gause

Comments:      TURNAROUND: