



# Environmental Chemists, Inc.

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ANALYTICAL & CONSULTING CHEMISTS

info@environmentalchemists.com

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August 28, 2017

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

Report #2017-11811

Enclosed please find your analytical report.

Sincerely,

  
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. WI00034  
 Printed: 08/25/17 Page 1 of 1  
**NLS Project: 285132**  
**NLS Customer: 96259**  
 Fax: 910 392 4424 Phone: 910 392 0223

**Project:** Investigative DW

**28365 NLS ID: 1011313**

COC: 227621:1 Matrix: DW

Collected: 08/10/17 11:30 Received: 08/16/17

Parameter	Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab
Solid Phase Extraction by EPA Method 537	Yes					08/22/17	EPA 537	721026460
GenX and PFCs by EPA 537	see attached					08/24/17	EPA 537	721026460

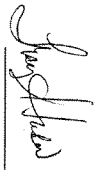
**28366 NLS ID: 1011314**

COC: 227621:2 Matrix: DW

Collected: 08/10/17 11:30 Received: 08/16/17

Parameter	Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab
Solid Phase Extraction by EPA Method 537	Yes					08/22/17	EPA 537	721026460
GenX and PFCs by EPA 537	see attached					08/23/17	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: 285132**  
**Project Description: Investigative DW**  
**Project Title: Template: 537PPTGENX Printed: 08/25/2017 17:23**

Sample: 1011313\_28365 Collected: 08/10/17 Analyzed: 08/24/17 - Analytes: 13

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	1	6.6	21		
perfluorohexanoic acid (PFHxA)	11.3	ppt	1	1	1.3	4.0		
perfluoro-2-propoxypropionic acid (GenX)	25.2	ppt	1	1	0.73	2.3		
perfluorohexaplanic acid (PFHpA)	10	ppt	1	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	[6.03]	ppt	1	1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	7.43	ppt	1	1	1.2	3.9		
perfluorononanoic acid (PFNA)	[1.74]	ppt	1	1	1.5	4.9		J
perfluorooctanesulfonic acid (PFOS)	13.1	ppt	1	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	[1.09]	ppt	1	1	0.90	2.7		J
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1	1.9	6.1		
perfluorotridecanoic acid (PFTDA)	ND	ppt	1	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	1	2.8	8.9		
C13-PFHxA (SURR)	74.48%							S
C13-PFDA (SURR)	76.305%							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: 1011314\_28366 Collected: 08/10/17 Analyzed: 08/23/17 - Analytes: 13

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	1	6.6	21		
perfluorohexanoic acid (PFHxA)	10.3	ppt	1	1	1.3	4.0		
perfluoro-2-propoxypropionic acid (GenX)	26.3	ppt	1	1	0.73	2.3		
perfluorohexaplanic acid (PFHpA)	8.62	ppt	1	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	[4.84]	ppt	1	1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	5.83	ppt	1	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	6.98	ppt	1	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1	1.9	6.1		
perfluorotridecanoic acid (PFTDA)	ND	ppt	1	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	1	2.8	8.9		
C13-PFHxA (SURR)	82.076%							S
C13-PFDA (SURR)	82.196%							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

NC DENR: 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: 17-11811
ADDRESS: P.O. Box 249	CONTACT NAME: Glenn Walker	PO NO:
Bolivia NC 28422	REPORT TO: Same	PHONE/FAX:
	COPY TO:	email: glenn.walker@brunswickcount

Sampled By: Thaddaus Hill SAMPLE TYPE: I = Influent, E = Effluent, W = Well, ST = Stream, SO = Soil, SL = Sludge, Other: NC, 901

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
81D17-S01	8-10-17	1130AM	29.2	Raw water	G	P		28365								EPA 537 + GENX
81D17-E01	8-10-17	1130AM	29.2	DW	G	G		28366								
					C	P										
					G	G										
					C	P										
					G	G										
					C	P										
					G	G										
					C	P										
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Transfer Relinquished By: Thaddaus Hill Date/Time: 8/10/17 12:20

Accepted: [Signature] Received By: [Signature] Resample Requested: [Signature]

Delivered By: Thaddaus Hill Received By: [Signature] Date: 8-10-17 Time: 2:00P

Comments: TURNAROUND: