



# Environmental Chemists, Inc.

6602 Windmill Way, Wilmington, NC 28405 • 910.392.0223 Lab • 910.392.4424 Fax  
710 Bowsertown Road, Manteo, NC 27954 • 252.473.5702 Lab/Fax  
255-A Wilmington Highway, Jacksonville, NC 28540 • 910.347.5843 Lab/Fax

ANALYTICAL & CONSULTING CHEMISTS

info@environmentalchemists.com

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July 20, 2017

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

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Enclosed please find your analytical reports.

Sincerely,

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

Tammy Duran

Environmental Chemists, Inc.

**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 2017-09586

# ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460  
 WDATCP Laboratory Certification No. 105-330  
 EPA Laboratory ID No. W100034  
 Printed: 07/19/17 Page 1 of 1  
 NLS Project: 282795  
 NLS Customer: 96259  
 Fax: 910 392 4424 Phone: 910 392 0223

**17-22929 NLS ID: 1003225**

COC: 192200:1 Matrix: DW  
 Collected: 07/06/17 10:10 Received: 07/12/17

Parameter	Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab
Solid Phase Extraction by EPA Method 537	Yes					07/18/17	EPA 537	721026460
GenX and PFCs by EPA 537	see attached					07/18/17	EPA 537	721026460

**17-22929 FB NLS ID: 1003226**

COC: 192200:1 Matrix: FB  
 Collected: 07/06/17 10:10 Received: 07/12/17

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Solid Phase Extraction by EPA Method 537	not analyzed					07/18/17	EPA 537	721026460
GenX and PFCs by EPA 537	not analyzed					07/18/17	EPA 537	721026460

**17-22931 NLS ID: 1003227**

COC: 192200:2 Matrix: DW  
 Collected: 07/06/17 10:10 Received: 07/12/17

Parameter	Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab
Solid Phase Extraction by EPA Method 537	Yes					07/18/17	EPA 537	721026460
GenX and PFCs by EPA 537	see attached					07/18/17	EPA 537	721026460

**17-22931 FB NLS ID: 1003228**

COC: 192200:2 Matrix: FB  
 Collected: 07/06/17 10:10 Received: 07/12/17

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
Solid Phase Extraction by EPA Method 537	not analyzed					07/18/17	EPA 537	721026460
GenX and PFCs by EPA 537	not analyzed					07/18/17	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: 282795  
 Project Description: GENX  
 Project Title: 2017-09586  
 Template: 537PPTGENX      Printed: 07/19/2017 10:37

Sample: 1003225 17-22929 Collected: 07/06/17 Analyzed: 07/18/17 - Analytes: 13

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	6.6	21		
perfluorohexanoic acid (PFHxA)	13.9	ppt		1	1.3	4.0		
perfluoro-2-propoxypropanoic acid (GenX)	85.6	ppt		1	0.73	2.3		
perfluorohexanoic acid (PFHxA)	12.3	ppt		1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	[4.12]	ppt		1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	9.29	ppt		1	1.2	3.9		
perfluorononanoic acid (PFNA)	[2.5]	ppt		1	1.5	4.9		J
perfluorooctanesulfonic acid (PFOS)	12.3	ppt		1	1.7	5.3		
perfluorodecanoic acid (PFDA)	[1.71]	ppt		1	0.90	2.7		J
perfluoroundecanoic acid (PFUnA)	ND	ppt		1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt		1	1.9	6.1		
perfluorotridecanoic acid (PFTriDA)	ND	ppt		1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt		1	2.8	8.9		
C13-PFHxA (SURR)	76.364%							S
C13-PFDA (SURR)	82.841%							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: 1003227 17-22931 Collected: 07/06/17 Analyzed: 07/18/17 - Analytes: 13

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	6.6	21		
perfluorohexanoic acid (PFHxA)	13.5	ppt		1	1.3	4.0		
perfluoro-2-propoxypropanoic acid (GenX)	87.1	ppt		1	0.73	2.3		
perfluorohexanoic acid (PFHxA)	9.06	ppt		1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	2.8	8.8		
perfluorooctanoic acid (PFOA)	6.14	ppt		1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt		1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	[4.34]	ppt		1	1.7	5.3		J
perfluorodecanoic acid (PFDA)	ND	ppt		1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt		1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt		1	1.9	6.1		
perfluorotridecanoic acid (PFTriDA)	ND	ppt		1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt		1	2.8	8.9		
C13-PFHxA (SURR)	88.356%							S
C13-PFDA (SURR)	87.061%							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 only analysis performed by Modified EPA Method 537.

**COLLECTION AND CHAIN OF CUSTODY**

CLIENT: Brunswick County PWD  
 ADDRESS: PO Box 249  
 Bolivia, NC 28422

PROJECT NAME: Gen X Tempounds  
 CONTACT NAME: Glenn Walker  
 REPORT TO: Glenn Walker

REPORT NO: 17-09586  
 PO NO:  
 PHONE/FAX: 910-371-3490  
 email: glenn.walker@brunswickcountypw.com

COPY TO:

Sampled By: \_\_\_\_\_

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	HTL		OTHER	
70617-501	7/6/17	1010	28.3	C	P			22929									✓ EDA 537 + Gen X
70617-E01	7/6/17	1010	28.3	G	G			22981									✓ " " "
				C	P												Do not run FBs per Glenn Walker 7/17/17. 10
				G	G												
				C	P												
				G	G												
				C	P												
				G	G												
				C	P												
				G	G												

Transfer

Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Temperature when Received: \_\_\_\_\_ Accepted: \_\_\_\_\_ Resample Requested: \_\_\_\_\_

Delivered By: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_

Comments: \_\_\_\_\_

TURNAROUND: \_\_\_\_\_