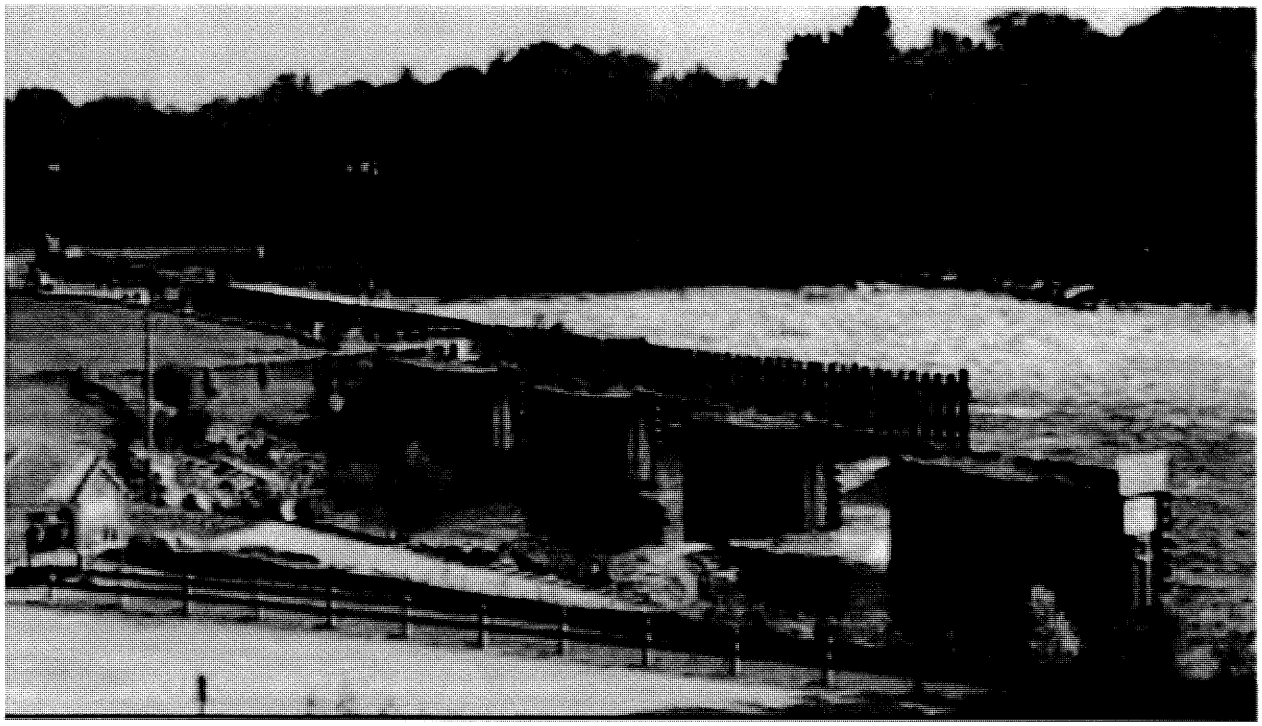
Cape Fear
Public Utility Authority
Stewardship. Sustainability. Service.

Sweeney Water Treatment Plant



Unregulated and Increased Monitoring Data

from July 1, 2012 – May 31, 2017

Compiled as of July 6, 2017

MISC

Extra Parameters Analyzed on Sweeney Drinking Water

Parameter	Units	Health Advisory	National Primary Drinking Water Regulations MCL	Secondary Drinking Water Standards	Industry Additional Information that provides context on values	Sampling Results																					Comments
						9/19/2012	3/20/2013	4/23/2013	9/18/2013	3/19/2014	9/24/2014	3/18/2015	7/27/2015	8/13/2015	9/10/2015	10/8/2015	1/14/2016	3/10/2016	4/7/2016	7/14/2016	8/2/2016	9/6/2016	10/11/2016	11/8/2016	1/3/2017	3/7/2017	5/9/2017	
Chlorate	µg/L				2400								127			93.7	90.1		48.0	93.2			86.2		<20			The most comprehensive study of the effects of chlorate in drinking water was conducted by Lubbers et al. (1981). Single doses of 0.01, 0.1, 0.5, 1.0, 1.8, and 2.4 mg of chlorate ion were ingested in 1 L of drinking water by ten male volunteers per dose (60 volunteers total). Lubbers et al. (1981) also had volunteers consume chlorate at 36 µg/kg/day over a 12 week period and observed them for an additional 8 weeks. Despite this intensive study the authors could not conclude any definitive detrimental physiological impact. Therefore, the highest dose of 2.4 mg/L of chlorate results in a No Observed Effects Level (NOEL) of 36 µg/kg/day. 2014 AWWA Chlorate Briefing Paper
Chlorite	µg/L	800	1000										5.7			<5	<5		<5	<100			<10		<20			
Perchlorate	µg/L	15																									0.07	
Perflurobutanesulfonic acid (PFBS)	µg/L																							<0.090				
Perfluoroheptanoic acid (PFHpA)	µg/L																							0.013				
Perfluorohexanesulfonic acid (PFHxs)	µg/L																							<0.030				
Perfluorononanoic acid (PFNA)	µg/L																							<0.020				
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.070																						<0.040				Health Advisory for PFOA + PFOS combined
Perfluoroctanoic acid (PFOA)	µg/L	0.070																						0.013				Health Advisory for PFOA + PFOS combined
Sulfate	mg/L			500 health based and 250 taste threshold										35							30							
Calcium	mg/L													6.5							7.5							
Magnesium	mg/L													2.5							2.8							
Silica	mg/L													4.4							4.4							
Sodium	mg/L			20 for individuals on 500 mg/day restricted diet and 30 - 60 for taste threshold										34							23							
Bromide	mg/L																				0.032							
Giardia	cysts/100L							<0.431																<0.885				
Cryptosporidium	oocysts/100L							<0.431																<0.885				
Total Organic Halides (TOX)	µg/L					100	86		120	10	140	74			130			120				130				100		

**The secondary standards are aesthetic-based, and designed to minimize or prevent objectionable color, taste, odor, or appearance, as these factors may deter public acceptance of drinking water even when no health-threat is present. These are the Secondary Maximum Contaminant Levels (SMCLs or secondary standards), which are not federally enforceable.*

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

January 11, 2017

Ms. Jill Deaney
CFPUA
628 Groundwater Way
Wilmington, NC 28411

RE: Project: Post Chlorate/ Chorite-Special
Pace Project No.: 92325211

Dear Ms. Deaney:
Enclosed are the analytical results for sample(s) received by the laboratory on January 03, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Matthew Brainard

Matthew Brainard
matthew.brainard@pacelabs.com
Project Manager

Enclosures

cc: Felicia Caison, Cape Fear Public Utility Autho
Ms. Crystal Callahan, CFPUA-Lab
Ms. Brittany Cummings, Cape Fear Public Utility Authority
Mr. Adam Poore, CFPUA
Ms. Allyson Ridout, CFPUA-Lab

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Post Chlorate/ Chorite-Special
Pace Project No.: 92325211

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, LLC
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Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: Post Chlorate/ Chorite-Special
Pace Project No.: 92325211

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92325211001	**Sweeney Post- Special**	EPA 300.1	CMB	2	PASI-O
		EPA 300.1	CMB	2	PASI-O

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Post Chlorate/ Chorite-Special
Pace Project No.: 92325211

Sample: Sweeney Post- Special **Lab ID: 92325211001** Collected: 01/03/17 08:25 Received: 01/03/17 15:28 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.1 Oxihalide IC Anions 14d	Analytical Method: EPA 300.1							
Chlorite	ND	ug/L	20.0	4		01/10/17 19:06		D3
Surrogates								
Dichloroacetate (S)	95	%	90-115	4		01/10/17 19:06	79-43-6	
300.1 Oxihalide IC Anions 28d	Analytical Method: EPA 300.1							
Chlorate	ND	ug/L	20.0	4		01/10/17 19:06	7790-93-4	D3
Surrogates								
Dichloroacetate (S)	95	%	90-115	4		01/10/17 19:06	79-43-6	

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(704)875-9092

QUALITY CONTROL DATA

Project: Post Chlorate/ Chorite-Special
Pace Project No.: 92325211

QC Batch: 343181
QC Batch Method: EPA 300.1
Analysis Method: EPA 300.1
Analysis Description: 300.1 Oxihalides IC Anions
Associated Lab Samples: 92325211001

METHOD BLANK: 1841289
Matrix: Water
Associated Lab Samples: 92325211001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorite	ug/L	ND	5.0	01/09/17 13:07	
Dichloroacetate (S)	%	104	90-115	01/09/17 13:07	

LABORATORY CONTROL SAMPLE: 1841290

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorite	ug/L	40	38.7	97	85-115	
Dichloroacetate (S)	%			107	90-115	

MATRIX SPIKE SAMPLE: 1841292

Parameter	Units	92325211001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chlorite	ug/L	ND	240	236	98	75-125	
Dichloroacetate (S)	%				96	90-115	

SAMPLE DUPLICATE: 1841291

Parameter	Units	92325211001 Result	Dup Result	RPD	Qualifiers
Chlorite	ug/L	ND	ND		
Dichloroacetate (S)	%	95	95	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Post Chlorate/ Chorite-Special
Pace Project No.: 92325211

QC Batch: 343182 Analysis Method: EPA 300.1
QC Batch Method: EPA 300.1 Analysis Description: 300.1 Oxihalides IC Anions
Associated Lab Samples: 92325211001

METHOD BLANK: 1841298 Matrix: Water
Associated Lab Samples: 92325211001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorate	ug/L	ND	5.0	01/09/17 13:07	
Dichloroacetate (S)	%	104	90-115	01/09/17 13:07	

LABORATORY CONTROL SAMPLE: 1841299

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorate	ug/L	40	39.3	98	85-115	
Dichloroacetate (S)	%			107	90-115	

MATRIX SPIKE SAMPLE: 1841301

Parameter	Units	92325155005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chlorate	ug/L	ND	40	40.1	100	75-125	
Dichloroacetate (S)	%				110	90-115	

MATRIX SPIKE SAMPLE: 1841303

Parameter	Units	92325211001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chlorate	ug/L	ND	240	250	97	75-125	
Dichloroacetate (S)	%				96	90-115	

SAMPLE DUPLICATE: 1841300

Parameter	Units	92325155005 Result	Dup Result	RPD	Qualifiers
Chlorate	ug/L	ND	ND		
Dichloroacetate (S)	%	103	104	1	

SAMPLE DUPLICATE: 1841302

Parameter	Units	92325211001 Result	Dup Result	RPD	Qualifiers
Chlorate	ug/L	ND	18J		
Dichloroacetate (S)	%	95	95	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: Post Chlorate/ Chorite-Special
Pace Project No.: 92325211

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Post Chlorate/ Chorite-Special
Pace Project No.: 92325211

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92325211001	**Sweeney Post- Special**	EPA 300.1	343181		
92325211001	**Sweeney Post- Special**	EPA 300.1	343182		

Pace Analytical®	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: Sept. 21, 2016 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.01	Issuing Authority: Pace Quality Office

Laboratory receiving samples:
Asheville ☑ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐

Sample Condition Upon Receipt

Client Name: CFPUA

Project

WO# : 92325211

92325211

Courier: ☐ Commercial ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ Other:____

Custody Seal Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☐ No

Date/Initials Person Examining Contents: BER 1/4/17

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other:____

Thermometer ☑ IR Gun ID: 5 Type of Ice: ☐ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Correction Factor: Cooler Temp Corrected (°C): 4.4 Biological Tissue Frozen? ☐ Yes ☐ No ☐ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☑ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Samples Field Filtered?	☐ Yes	☑ No	☐ N/A	8. Note if sediment is visible in the dissolved container
Sample Labels Match COC? -includes Date/Time/ID/Analysis Matrix: WT	☑ Yes	☐ No	☐ N/A	9.
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	10.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	

Field Data Required? ☐ Yes ☐ No

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____

Comments/Sample Discrepancy: _____

Project Manager SCURF Review: _____ Date: 1/4/17

Project Manager SRF Review: _____ Date: 1/5/17

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

**Bottom half of box is to list number of bottles

Project **WO# : 92325211**

PM: MWB **Due Date: 01/17/17**

CLIENT: 92_CFPUA lab

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP3S-250 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP3Z-250 mL Plastic ZN Acetate & NaOH (>9)	BP3C-250 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	Cubitainer	VSGU-20 mL Scintillation vials (N/A)	GN	
1												2																	
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	CFPUA/Lab	Report To:	Jill Deaney	Attention:	Finance
Address:	ESM /235 Government Center Dr.	Copy To:		Company Name:	
	Wilmington NC 28403			Address:	
Email To:	Jill.Deaney@cfpua.org	Purchase Order No.:	170003	Pace Quote Reference:	
Phone:	(910) 332-6558 Fax: (910) 332-6730	Project Name:	Post Chlorate/Chlorite- Special	Pace Project Manager:	Matthew Brainard
Requested Due Date/TAT:		Project Number:		Pace Profile #:	4869-4

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☑ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chlorate	Chlorite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Sweeney Post - Special	DW	G			1-3-17	0825	8.9	2								X		X	X		92325211
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

Requested Analysis Filtered (Y/N)

Pace Project No./ Lab I.D. 001

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Debbie DuBois	1-3-17	1423	Crystal Callahan/CFPUA	1-3-17	1423				
	Crystal Callahan/CFPUA	1-3-17	1528	J. Nixon / Pace	1-3-17	1528				
				Bobby Ray	11/4/17	10:20	4.4	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Debbie DuBois

SIGNATURE of SAMPLER: Debbie DuBois DATE Signed (MM/DD/YY): 1-3-17

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

October 25, 2016

PAID 11-7-16

Ms. Jill Deaney
CFPUA
628 Groundwater Way
Wilmington, NC 28411

RE: Project: C. FILTER CHLORATE-CHLORITE
Pace Project No.: 92315690

Dear Ms. Deaney:
Enclosed are the analytical results for sample(s) received by the laboratory on October 11, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Matthew Brainard

Matthew Brainard
matthew.brainard@pacelabs.com
Project Manager

Enclosures

cc: Felicia Caison, Cape Fear Public Utility Autho
Ms. Crystal Callahan, CFPUA-Lab
Ms. Brittany Cummings, Cape Fear Public Utility Authority
Mr. Adam Poore, CFPUA
Ms. Allyson Ridout, CFPUA-Lab

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
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Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: C. FILTER CHLORATE-CHLORITE
Pace Project No.: 92315690

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, LLC
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Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: C. FILTER CHLORATE-CHLORITE
Pace Project No.: 92315690

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92315690001	SWEENEY POST-SPECIAL(6806-16)	EPA 300.1	CMB	2	PASI-O
		EPA 300.1	CMB	2	PASI-O

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: C. FILTER CHLORATE-CHLORITE
Pace Project No.: 92315690

Sample: SWEENEY POST-SPECIAL(6806-16) **Lab ID: 92315690001** Collected: 10/11/16 08:09 Received: 10/11/16 15:28 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.1 Oxihalide IC Anions 14d	Analytical Method: EPA 300.1							
Chlorite	ND	ug/L	10.0	2		10/23/16 19:39		D3
Surrogates								
Dichloroacetate (S)	93	%	90-115	2		10/23/16 19:39	79-43-6	
300.1 Oxihalide IC Anions 28d	Analytical Method: EPA 300.1							
Chlorate	**86.2**	ug/L	10.0	2		10/23/16 19:39	7790-93-4	
Surrogates								
Dichloroacetate (S)	93	%	90-115	2		10/23/16 19:39	79-43-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: C. FILTER CHLORATE-CHLORITE
Pace Project No.: 92315690

QC Batch: 327616
QC Batch Method: EPA 300.1
Analysis Method: EPA 300.1
Analysis Description: 300.1 Oxihalides IC Anions
Associated Lab Samples: 92315690001

METHOD BLANK: 1749631
Matrix: Water
Associated Lab Samples: 92315690001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorite	ug/L	ND	5.0	10/22/16 13:49	
Dichloroacetate (S)	%	97	90-115	10/22/16 13:49	

LABORATORY CONTROL SAMPLE: 1749632

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorite	ug/L	40	38.5	96	85-115	
Dichloroacetate (S)	%			99	90-115	

MATRIX SPIKE SAMPLE: 1749634

Parameter	Units	702092001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chlorite	ug/L	ND	40	38.0	95	75-125	
Dichloroacetate (S)	%				94	90-115	

SAMPLE DUPLICATE: 1749633

Parameter	Units	702092001 Result	Dup Result	RPD	Qualifiers
Chlorite	ug/L	ND	ND		
Dichloroacetate (S)	%	94	94	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: C. FILTER CHLORATE-CHLORITE
Pace Project No.: 92315690

QC Batch: 327617
QC Batch Method: EPA 300.1
Analysis Method: EPA 300.1
Analysis Description: 300.1 Oxihalides IC Anions
Associated Lab Samples: 92315690001

METHOD BLANK: 1749635 Matrix: Water
Associated Lab Samples: 92315690001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorate	ug/L	ND	5.0	10/22/16 13:49	
Dichloroacetate (S)	%	97	90-115	10/22/16 13:49	

LABORATORY CONTROL SAMPLE: 1749636

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorate	ug/L	40	39.0	97	85-115	
Dichloroacetate (S)	%			99	90-115	

MATRIX SPIKE SAMPLE: 1749638

Parameter	Units	92316464001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chlorate	ug/L	ND	60	57.1	95	75-125	
Dichloroacetate (S)	%				93	90-115	

MATRIX SPIKE SAMPLE: 1749640

Parameter	Units	702092001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chlorate	ug/L	ND	40	38.7	97	75-125	
Dichloroacetate (S)	%				94	90-115	

SAMPLE DUPLICATE: 1749637

Parameter	Units	92316464001 Result	Dup Result	RPD	Qualifiers
Chlorate	ug/L	ND	ND		
Dichloroacetate (S)	%	94	94	0	

SAMPLE DUPLICATE: 1749639

Parameter	Units	702092001 Result	Dup Result	RPD	Qualifiers
Chlorate	ug/L	ND	ND		
Dichloroacetate (S)	%	94	94	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: C. FILTER CHLORATE-CHLORITE
Pace Project No.: 92315690

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: C. FILTER CHLORATE-CHLORITE
Pace Project No.: 92315690

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92315690001	**SWEENEY POST-SPECIAL(6806-16)**	EPA 300.1	327616		
92315690001	**SWEENEY POST-SPECIAL(6806-16)**	EPA 300.1	327617		

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: Sept. 21, 2016 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.00	Issuing Authority: Pace Quality Office

Sample Condition Upon Receipt

Client Name: EPA/Lab

Project #

WO#: 92315690

92315690

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other:____

Custody Seal Present? ☐ Yes ☐ No Seals Intact? ☐ Yes ☐ No

Date/Initials Person Examining Contents:____

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other:____

Thermometer: ☒ IR Gun ID: 5 Type of Ice: ☐ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Correction Factor: 0.0 Cooler Temp Corrected (°C): 0.6 Biological Tissue Frozen? ☐ Yes ☐ No ☐ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☑ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Samples Field Filtered?	☐ Yes	☑ No	☐ N/A	8. Note if sediment is visible in the dissolved container
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked and documented on page two of SCURF?	☑ Yes	☐ No	☐ N/A	10.
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg				
Samples checked for dechlorination?	☑ Yes	☐ No	☐ N/A	11.
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	12.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	13.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Sample Discrepancy:

Project Manager SCURF Review: Date: 10/12/16

Project Manager SRF Review: Date: 10/13/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

Laboratory receiving samples:

Asheville ☒ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:

Company:	CFPUA/Lab
Address:	ESM /235 Government Center Dr.
	Wilmington NC 28403
Email To	Jill.Deaney@cfpua.org
Phone:	(910) 332-6558 Fax: (910) 332-5730
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Jill Deaney
Copy To:	
Purchase Order No.:	170003
Project Name:	Post Chlorate/Chlorite- Special
Project Number	

Section C Invoice Information

Attention:	Finance
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Matthew Brainard
Pace Profile #:	4869-4

REGULATORY AGENCY

- NPDES
- GROUND WATER
- ☑ DRINKING WATER
- UST
- RCRA
- OTHER

Site Location STATE: NC

Section D Required Client Information

Valid Matrix Codes: DRINKING WATER DW, WATER WT, WASTE WATER WW, PRODUCT P, SOIL/SOLID SL, OIL OL, WIPE WP, AIR AR, OTHER OT, TISSUE TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	TIME	COMPOSITE END/GRAB DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Chlorate	Chlorite											Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 92315690
1	Sweeney Post - Special (6806-16)	DW	G			10-11-16	0809	22.7	2								x		x	x											Y	001
2																																
3																																
4																																
5																																
6																																
7																																
8																																
9																																
10																																
11																																
12																																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Matt S. [signature]	10-11-16	1140	Crystal Callahan / CFPUA	10-11-16	1221				
	Crystal Callahan / CFPUA	10-11-16	1528	J. Dixon / Pace	10-11-16	1528				
				[signature] / AVL	10/12/16	~~10/12/16~~ 10:40	0.6	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Matt S. Linski

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 10-11-16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days

F-ALL-Q-020rev.08, 12-Oct-2007

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

July 25, 2016

Ms. Jill Deaney
CFPUA
628 Groundwater Way
Wilmington, NC 28411

RE: Project: Post Chlorate/ Chorite
Pace Project No.: 92305318

Dear Ms. Deaney:
Enclosed are the analytical results for sample(s) received by the laboratory on July 14, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Matthew Brainard

Matthew Brainard
matthew.brainard@pacelabs.com
Project Manager

Enclosures

cc: Felicia Caison, Cape Fear Public Utility Autho
Ms. Crystal Callahan, CFPUA-Lab
Ms. Brittany Cummings, Cape Fear Public Utility Authority
Mr. Adam Poore, CFPUA
Ms. Allyson Ridout, CFPUA-Lab

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(704)875-9092

CERTIFICATIONS

Project: Post Chlorate/ Chorite
Pace Project No.: 92305318

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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SAMPLE ANALYTE COUNT

Project: Post Chlorate/ Chorite
Pace Project No.: 92305318

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92305318001	**Sweeny Post-Special**	EPA 300.1	CMB	2	PASI-O
		EPA 300.1	CMB	2	PASI-O

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ANALYTICAL RESULTS

Project: Post Chlorate/ Chorite
Pace Project No.: 92305318

Sample: Sweeny Post-Special **Lab ID: 92305318001** Collected: 07/14/16 08:00 Received: 07/14/16 15:09 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.1 Oxihalide IC Anions 14d	Analytical Method: EPA 300.1							
Chlorite	ND	ug/L	100	20		07/24/16 11:56		D3
Surrogates								
Dichloroacetate (S)	102	%	90-115	20		07/24/16 11:56	79-43-6	
300.1 Oxihalide IC Anions 28d	Analytical Method: EPA 300.1							
Chlorate	**93.2**	ug/L	5.0	1		07/21/16 14:58	7790-93-4	
Surrogates								
Dichloroacetate (S)	98	%	90-115	1		07/21/16 14:58	79-43-6	

REPORT OF LABORATORY ANALYSIS

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(704)875-9092

QUALITY CONTROL DATA

Project: Post Chlorate/ Chorite
Pace Project No.: 92305318

QC Batch: 310232
QC Batch Method: EPA 300.1
Analysis Method: EPA 300.1
Analysis Description: 300.1 Oxihalides IC Anions
Associated Lab Samples: 92305318001

METHOD BLANK: 1644969
Matrix: Water
Associated Lab Samples: 92305318001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorite	ug/L	ND	5.0	07/21/16 11:20	
Dichloroacetate (S)	%	106	90-115	07/21/16 11:20	

LABORATORY CONTROL SAMPLE: 1644970

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorite	ug/L	40	38.5	96	85-115	
Dichloroacetate (S)	%			108	90-115	

MATRIX SPIKE SAMPLE: 1644972

Parameter	Units	92305318001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chlorite	ug/L	ND	800	770	96	75-125	
Dichloroacetate (S)	%				102	90-115	

SAMPLE DUPLICATE: 1644971

Parameter	Units	92305318001 Result	Dup Result	RPD	Qualifiers
Chlorite	ug/L	ND	ND		
Dichloroacetate (S)	%	102	100	2	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Post Chlorate/ Chorite
Pace Project No.: 92305318

QC Batch: 310233
QC Batch Method: EPA 300.1
Analysis Method: EPA 300.1
Analysis Description: 300.1 Oxihalides IC Anions
Associated Lab Samples: 92305318001

METHOD BLANK: 1644973
Matrix: Water
Associated Lab Samples: 92305318001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorate	ug/L	ND	5.0	07/21/16 11:20	
Dichloroacetate (S)	%	106	90-115	07/21/16 11:20	

LABORATORY CONTROL SAMPLE: 1644974

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorate	ug/L	40	39.4	98	85-115	
Dichloroacetate (S)	%			108	90-115	

MATRIX SPIKE SAMPLE: 1644976

Parameter	Units	92305318001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chlorate	ug/L	93.2	40	133	100	75-125	
Dichloroacetate (S)	%				99	90-115	

SAMPLE DUPLICATE: 1644975

Parameter	Units	92305318001 Result	Dup Result	RPD	Qualifiers
Chlorate	ug/L	93.2	94.5	1	
Dichloroacetate (S)	%	98	99	1	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: Post Chlorate/ Chorite
Pace Project No.: 92305318

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Post Chlorate/ Chorite
Pace Project No.: 92305318

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92305318001	**Sweeny Post-Special**	EPA 300.1	310232		
92305318001	**Sweeny Post-Special**	EPA 300.1	310233		

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: May 24, 2016 Page 1 of 2
	Document No.: F-ASV-CS-003-Rev.20	Issuing Authority: Pace Asheville Quality Office

Sample Condition Upon Receipt

Client Name: CFPUA

Project #: WO# : 92305318

92305318

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other:____

Custody Seal Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☑ No

Date/Initials Person Examining Contents: 7/15 LM

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other:____

Thermometer: ☑ IR Gun #5 SN:15527198

Type of Ice: ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Correction Factor: 0.0°C Cooler Temp Corrected (°C): 3.1

Biological Tissue Frozen? ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Samples Field Filtered?	☐ Yes	☐ No	☑ N/A	8. Note if sediment is visible in the dissolved container
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: PW	☑ Yes	☐ No	☐ N/A	9.
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	10. HNO3 pH<2 HCl pH<2 H2SO4 pH<2 NaOH pH>12 NaOH/ZnOAc pH>9
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg	☐ Yes	☐ No	☑ N/A	
Samples checked for dechlorination?	☐ Yes	☐ No	☑ N/A	11.
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	12.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	13.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Sample Discrepancy: _____

Project Manager SCURF Review: [signature] Date: 7/15/16

Project Manager SRF Review: [signature] Date: 7/18/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	CFPUA/Lab	Report To:	Jill Deaney	Attention:	Finance
Address:	ESM /235 Government Center Dr.	Copy To:		Company Name:	
	Wilmington NC 28403			Address:	
Email To:	Jill.Deaney@cfpua.org	Purchase Order No.:	170003	Pace Quote Reference:	
Phone:	(910) 332-6558 Fax: (910) 332-6730	Project Name:	Post Chlorate/Chlorite- Special	Pace Project Manager:	Matthew Brainard
Requested Due Date/TAT:		Project Number:		Pace Profile #:	4869 - 4

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☑ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / , -) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chlorate	Chlorite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
	Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS																	Y/N	N	N		92305318
1	Sweeney Post - Special	DW	G			7-14-16	0900	2.2	2								X		x	x	Y	001
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Debbie DuBois	7-14-16	1146	Crystal Gillahan/CFPUA	7-14-16	1146	
	Crystal Gillahan/CFPUA	7-14-16	1509	J. Dixon / Pace	7-14-16	1509	
	J. Dixon / Pace	7-14-16	1620	Fedex	7-14-16	1620	
				Mail Station AVL	7/18/16	1015	3.8 / Y / W / Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Debbie Du Bois

SIGNATURE of SAMPLER: Debbie DuBois DATE Signed (MM/DD/YY): 7-14-16

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
3.8	Y	W	Y

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

April 14, 2016

Invoiced

Ms. Jill Deaney
CFPUA
628 Groundwater Way
Wilmington, NC 28411

RE: Project: POST CHLORATE/CHLORITE-SPECIAL
Pace Project No.: 92293086

Dear Ms. Deaney:
Enclosed are the analytical results for sample(s) received by the laboratory on April 07, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Matthew Brainard

Matthew Brainard
matthew.brainard@pacelabs.com
Project Manager

Enclosures

cc: Felicia Caison, Cape Fear Public Utility Autho
Ms. Crystal Callahan, CFPUA-Lab
Ms. Brittany Cummings, Cape Fear Public Utility Authority
Ms. Pam Ellis, CFPUA
Mr. Adam Poore, CFPUA
Ms. Allyson Ridout, CFPUA-Lab

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: POST CHLORATE/CHLORITE-SPECIAL
Pace Project No.: 92293086

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: POST CHLORATE/CHLORITE-SPECIAL
Pace Project No.: 92293086

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92293086001	**SWEENEY POST - SPECIAL**	EPA 300.1	CMB	2	PASI-O
		EPA 300.1	CMB	2	PASI-O

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
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(704)875-9092

ANALYTICAL RESULTS

Project: POST CHLORATE/CHLORITE-SPECIAL
Pace Project No.: 92293086

Sample: SWEENEY POST - SPECIAL **Lab ID: 92293086001** Collected: 04/07/16 08:05 Received: 04/07/16 15:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.1 Oxihalide IC Anions 14d	Analytical Method: EPA 300.1							
Chlorite	ND	ug/L	5.0	1		04/12/16 18:12		
Surrogates								
Dichloroacetate (S)	92	%	90-115	1		04/12/16 18:12	79-43-6	
300.1 Oxihalide IC Anions 28d	Analytical Method: EPA 300.1							
Chlorate	**48.0**	ug/L	5.0	1		04/12/16 18:12	7790-93-4	
Surrogates								
Dichloroacetate (S)	92	%	90-115	1		04/12/16 18:12	79-43-6	

REPORT OF LABORATORY ANALYSIS

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(704)875-9092

QUALITY CONTROL DATA

Project: POST CHLORATE/CHLORITE-SPECIAL
Pace Project No.: 92293086

QC Batch: WETA/56736 Analysis Method: EPA 300.1
QC Batch Method: EPA 300.1 Analysis Description: 300.1 Oxihalides IC Anions
Associated Lab Samples: 92293086001

METHOD BLANK: 1536548 Matrix: Water
Associated Lab Samples: 92293086001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorite	ug/L	ND	5.0	04/12/16 16:45	
Dichloroacetate (S)	%	107	90-115	04/12/16 16:45	

LABORATORY CONTROL SAMPLE: 1536549

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorite	ug/L	40	40.0	100	85-115	
Dichloroacetate (S)	%			103	90-115	

MATRIX SPIKE SAMPLE: 1536551

Parameter	Units	92293086001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chlorite	ug/L	ND	40	43.0	108	75-125	
Dichloroacetate (S)	%				96	90-115	

SAMPLE DUPLICATE: 1536550

Parameter	Units	92293086001 Result	Dup Result	RPD	Qualifiers
Chlorite	ug/L	ND	ND		
Dichloroacetate (S)	%	92	95	3	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: POST CHLORATE/CHLORITE-SPECIAL
Pace Project No.: 92293086

QC Batch: WETA/56737
QC Batch Method: EPA 300.1
Analysis Method: EPA 300.1
Analysis Description: 300.1 Oxihalides IC Anions
Associated Lab Samples: 92293086001

METHOD BLANK: 1536552 Matrix: Water
Associated Lab Samples: 92293086001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorate	ug/L	ND	5.0	04/12/16 16:45	
Dichloroacetate (S)	%	107	90-115	04/12/16 16:45	

LABORATORY CONTROL SAMPLE: 1536553

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorate	ug/L	40	38.1	95	85-115	
Dichloroacetate (S)	%			103	90-115	

MATRIX SPIKE SAMPLE: 1536555

Parameter	Units	92293086001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chlorate	ug/L	48.0	40	88.3	101	75-125	
Dichloroacetate (S)	%				96	90-115	

SAMPLE DUPLICATE: 1536554

Parameter	Units	92293086001 Result	Dup Result	RPD	Qualifiers
Chlorate	ug/L	48.0	48.2	0	
Dichloroacetate (S)	%	92	95	3	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: POST CHLORATE/CHLORITE-SPECIAL
Pace Project No.: 92293086

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: POST CHLORATE/CHLORITE-SPECIAL
Pace Project No.: 92293086

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92293086001	**SWEENEY POST - SPECIAL**	EPA 300.1	WETA/56736		
92293086001	**SWEENEY POST - SPECIAL**	EPA 300.1	WETA/56737		

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: 18FEB2016 Page 1 of 2
	Document No.: F-CHR-CS-003-rev.18	Issuing Authority: Pace Huntersville Quality Office

Client Name: CFPVA

Project

WO# : 92293086

92293086

Courier: [x] Fed Ex [ ] UPS [ ] USPS [ ] Client [ ] Commercial [ ] Pace [ ] Other:____

Custody Seal Present? [ ] Yes [x] No Seals Intact? [ ] Yes [ ] No

Date/Initials Person Examining Contents: ROT 4/8/16

Packing Material: [ ] Bubble Wrap [ ] Bubble Bags [x] None [ ] Other:____

Thermometer: [ ] IR Gun #5 SN: 15527198 [ ]____ Type of Ice: [x] Wet [ ] Blue [ ] None [ ] Samples on ice, cooling process has b

Correction Factor: 0.0°C Cooler Temp Corrected (°C): 1.6 Biological Tissue Frozen? [ ] Yes [ ] No [x] N/

Temp should be above freezing to 6°C

USDA Regulated Soil ([x] N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? [ ] Yes [ ] No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? [ ] Yes [x] No

				COMMENTS:
Chain of Custody Present?	[x] Yes	[ ] No	[ ] N/A	1.
Chain of Custody Filled Out?	[x] Yes	[ ] No	[ ] N/A	2.
Chain of Custody Relinquished?	[x] Yes	[ ] No	[ ] N/A	3.
Sampler Name and/or Signature on COC?	[x] Yes	[ ] No	[ ] N/A	4.
Samples Arrived within Hold Time?	[x] Yes	[ ] No	[ ] N/A	5.
Short Hold Time Analysis (<72 hr)?	[ ] Yes	[x] No	[ ] N/A	6.
Rush Turn Around Time Requested?	[ ] Yes	[x] No	[ ] N/A	7.
Sufficient Volume?	[x] Yes	[ ] No	[ ] N/A	8.
Correct Containers Used?	[x] Yes	[ ] No	[ ] N/A	9. small 125mL AG4U
-Pace Containers Used? ROT 4/8/16	[x] Yes	[ ] No	[ ] N/A	
Containers Intact?	[x] Yes	[ ] No	[ ] N/A	10.
Filtered Volume Received for Dissolved Tests?	[ ] Yes	[ ] No	[x] N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC?	[x] Yes	[ ] No	[ ] N/A	12.
-Includes Date/Time/ID/Analysis Matrix: DW				
All containers needing acid/base preservation have been checked?	[ ] Yes	[ ] No	[x] N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	[ ] Yes	[ ] No	[x] N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg	[ ] Yes	[ ] No	[x] N/A	
Samples checked for dechlorination	[ ] Yes	[ ] No	[x] N/A	14.
Headspace in VOA Vials (>5-6mm)?	[ ] Yes	[ ] No	[x] N/A	15.
Trip Blank Present?	[ ] Yes	[ ] No	[x] N/A	16.
Trip Blank Custody Seals Present?	[ ] Yes	[ ] No	[x] N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? [ ] Yes [ ] No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager SCURF Review: MB Date: 4/8/16

Project Manager SRF Review: MB Date: 4/11/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Offic Out of hold, incorrect preservative, out of temp, incorrect containers)

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information

Company:	CFPUA/Lab
Address:	ESM /235 Government Center Dr.
	Wilmington NC 28403
Email To:	Jill.Deaney@cfpua.org
Phone:	(910) 332-6558 Fax: (910) 332-6730
Requested Due Date/TAT:	

Section B Required Project Information

Report To:	Jill Deaney
Copy To:	
Purchase Order No.:	160093
Project Name:	Post Chlorate/Chlorite- Special
Project Number:	

Section C Invoice Information:

Attention:	Finance
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Matthew Brainard
Pace Profile #:	4869-4

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☑ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER ______

Site Location STATE: NC

Section D Required Client Information

Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW, WATER WT, WASTE WATER WW, PRODUCT P, SOIL/SOLID SL, OIL OL, WIPE WP, AIR AR, OTHER OT, TISSUE TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chlorate	Chlorite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 92293086
1	Sweeney Post - Special	DW	G			4-7-16	0805	NA	2								x		x	x		001
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Debbie DuBois	4-7-16	1125	Crystal Callahan / CFPUA	4-7-16	1125				
	Crystal Callahan / CFPUA	4-7-16	1530	J Dixon / Pace	4-7-16	1530				
				[illegible] Ah	4/8/16	10:30	1.6	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Debbie DuBois

SIGNATURE of SAMPLER: Debbie DuBois

DATE Signed (MM/DD/YY): 4-7-16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-O-020rev.08, 12-Oct-2007

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

January 22, 2016

Ms. Jill Deaney
CFPUA
628 Groundwater Way
Wilmington, NC 28411

RE: Project: POST CHLORATE/CHLORITE- SPECIA
Pace Project No.: 92283283

Dear Ms. Deaney:
Enclosed are the analytical results for sample(s) received by the laboratory on January 14, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Matthew Brainard

Matthew Brainard
matthew.brainard@pacelabs.com
Project Manager

Enclosures

cc: Felicia Caison, Cape Fear Public Utility Autho
Ms. Crystal Callahan, CFPUA-Lab
Ms. Brittany Cummings, Cape Fear Public Utility Authority
Ms. Pam Ellis, CFPUA
Mr. Adam Poore, CFPUA
Ms. Allyson Ridout, CFPUA-Lab

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: POST CHLORATE/CHLORITE- SPECIA
Pace Project No.: 92283283

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: POST CHLORATE/CHLORITE- SPECIA
Pace Project No.: 92283283

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92283283001	**SWEENEY POST - SPECIAL**	EPA 300.1	KEK	2	PASI-O
		EPA 300.1	KEK	2	PASI-O

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: POST CHLORATE/CHLORITE- SPECIA
Pace Project No.: 92283283

Sample: SWEENEY POST - SPECIAL **Lab ID: 92283283001** Collected: 01/14/16 08:18 Received: 01/14/16 15:58 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.1 Oxihalide IC Anions 14d	Analytical Method: EPA 300.1							
Chlorite	ND	ug/L	5.0	1		01/22/16 01:36		
Surrogates								
Dichloroacetate (S)	105	%	90-115	1		01/22/16 01:36	79-43-6	
300.1 Oxihalide IC Anions 28d	Analytical Method: EPA 300.1							
Chlorate	**90.1**	ug/L	5.0	1		01/22/16 01:36	7790-93-4	
Surrogates								
Dichloroacetate (S)	105	%	90-115	1		01/22/16 01:36	79-43-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: POST CHLORATE/CHLORITE- SPECIA
Pace Project No.: 92283283

QC Batch: WETA/54118 Analysis Method: EPA 300.1
QC Batch Method: EPA 300.1 Analysis Description: 300.1 Oxihalides IC Anions
Associated Lab Samples: 92283283001

METHOD BLANK: 1455787 Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorite	ug/L	ND	5.0	01/22/16 00:09	
Dichloroacetate (S)	%	107	90-115	01/22/16 00:09	

LABORATORY CONTROL SAMPLE: 1455788

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorite	ug/L	40	39.4	98	85-115	
Dichloroacetate (S)	%			109	90-115	

MATRIX SPIKE SAMPLE: 1455790

Parameter	Units	92283283001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chlorite	ug/L	ND	40	43.1	108	75-125	
Dichloroacetate (S)	%				104	90-115	

SAMPLE DUPLICATE: 1455789

Parameter	Units	92283283001 Result	Dup Result	RPD	Qualifiers
Chlorite	ug/L	ND	ND		
Dichloroacetate (S)	%	105	103	2	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: POST CHLORATE/CHLORITE- SPECIA
Pace Project No.: 92283283

QC Batch: WETA/54119
QC Batch Method: EPA 300.1
Analysis Method: EPA 300.1
Analysis Description: 300.1 Oxihalides IC Anions
Associated Lab Samples: 92283283001

METHOD BLANK: 1455791
Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorate	ug/L	ND	5.0	01/22/16 00:09	
Dichloroacetate (S)	%	107	90-115	01/22/16 00:09	

LABORATORY CONTROL SAMPLE: 1455792

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorate	ug/L	40	41.8	104	85-115	
Dichloroacetate (S)	%			109	90-115	

MATRIX SPIKE SAMPLE: 1455796

Parameter	Units	92283283001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chlorate	ug/L	90.1	40	132	106	75-125	
Dichloroacetate (S)	%				104	90-115	

SAMPLE DUPLICATE: 1455795

Parameter	Units	92283283001 Result	Dup Result	RPD	Qualifiers
Chlorate	ug/L	90.1	88.9	1	
Dichloroacetate (S)	%	105	103	2	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: POST CHLORATE/CHLORITE- SPECIA
Pace Project No.: 92283283

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: POST CHLORATE/CHLORITE- SPECIA
Pace Project No.: 92283283

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92283283001	SWEENEY POST - SPECIAL	EPA 300.1	WETA/54118		
92283283001	SWEENEY POST - SPECIAL	EPA 300.1	WETA/54119		

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: December 28, 2015
	Document No: F-FL-C-007 rev 07	Issuing Authority: Pace Florida Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #
Project Manager:
Client:

Date and Initials of person examining contents: 1-15-16 1051 BK
Label:
Deliver:
pH:

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other ☐
Shipping Method: ☐ First Overnight ☐ Priority Overnight ☒ Standard Overnight ☐ Ground
Billing: ☐ Recipient ☐ Sender ☒ Third Party ☐ Unkown Cooler Size if Applicable:
Tracking # 7821 6988 2670

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☐ yes ☐ no
Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other Biological Tissue is Frozen: Yes No N/A
Thermometer Used T-22-1 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun
Cooler #1 Temperature °C 0.8 (Visual) 0 (Correction Factor) 0.8 (Actual)
Cooler #2 Temperature °C (Visual) (Correction Factor) (Actual)
Cooler #3 Temperature °C (Visual) (Correction Factor) (Actual)
Cooler #4 Temperature °C (Visual) (Correction Factor) (Actual)
Cooler #5 Temperature °C (Visual) (Correction Factor) (Actual)
Cooler #6 Temperature °C (Visual) (Correction Factor) (Actual)

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present	☒Yes ☐No ☐N/A	
Chain of Custody Filled Out	☒Yes ☐No ☐N/A	
Relinquished Signature & Sampler Name COC	☒Yes ☐No ☐N/A	
Samples Arrived within Hold Time	☒Yes ☐No ☐N/A	
Rush TAT requested on COC	☐Yes ☒No ☐N/A	
Sufficient Volume	☒Yes ☐No ☐N/A	
Correct Containers Used	☒Yes ☐No ☐N/A	
Pace Containers Used	☒Yes ☐No ☐N/A	
Containers Intact	☒Yes ☐No ☐N/A	
Sample Labels match COC (sample IDs & date/time of collection)	☒Yes ☐No ☐N/A	
All containers needing acid/base preservation have been checked All Containers needing preservation are found to be in compliance with EPA recommendation Exceptions: VOA, Coliform, TOC, O&G	☐Yes ☐No ☒N/A ☐Yes ☐No ☒N/A	HNO3 pH<2 HCl pH<2 H2SO4 pH<2 NaOH pH>12 NaOH/ZnOAc pH>9
No Headspace in VOA Vials (>6mm)	☐Yes ☐No ☒N/A	
Trip Blank Present	☐Yes ☐No ☒N/A	

WO#: 92283283
92283283

Client Notification/ Resolution:

Person Contacted: Date/Time:

Comments/ Resolution (use back for additional comments)

Project Manager Review: MB Date: 1/15/16 | 1/18/16

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information

Company:	CFPUA/Lab
Address:	ESM /235 Government Center Dr.
	Wilmington NC 28403
Email To:	Jill.Deaney@cfpua.org
Phone: (910) 332-6558	Fax: (910) 332-6730
Requested Due Date/TAT:	

Section B Required Project Information

Report To:	Jill Deaney
Copy To:	
Purchase Order No.:	160093
Project Name	Post Chlorate/Chlorite- Special
Project Number	

Section C Invoice Information:

Attention:	Finance
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Matthew Brainard
Pace Profile #:	4869-4

REGULATORY AGENCY

NPDES GROUND WATER ✓ DRINKING WATER

UST RCRA OTHER

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chlorate	Chlorite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Requested Analysis Filtered (Y/N)	N	N		92283253
1	Sweeney Post - Special	DW	G			1-14-16	0815	1.4	2								X		X	X	Y	001
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
		1-14-16	1146	Crystal Callahan/CFPUA	1-14-16	1146	
	Crystal Callahan/CFPUA	1-14-16	1555	J. Dixon / Pace	1/14/16	1555	
				FedEx Ground	1/15/16	1050	Temp in °C: 0.4 Y; Received on Ice (Y/N): Y; Custody Sealed Cooler (Y/N): N; Samples Intact (Y/N):

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Lisa Wrede

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 1-14-16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Perchlorate

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PAID

LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Montana	CERT0026
Alaska	IN00035	Nebraska	NE-OS-05-04
Arizona	AZ0432	Nevada	IN00035
Arkansas	IN00035	New Hampshire*	2124
California	2920	New Jersey*	IN598
Colorado	IN035	New Mexico	IN00035
Colorado Radiochemistry	IN035	New York*	11398
Connecticut	PH-0132	North Carolina	18700
Delaware	IN035	North Dakota	R-035
Florida*	E87775	Ohio	87775
Georgia	929	Oklahoma	D9508
Hawaii	IN035	Oregon (Primary AB)*	4074-001
Idaho	IN00035	Pennsylvania*	68-00466
Illinois*	200001	Puerto Rico	IN00035
Illinois Microbiology	17767	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-15-8
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA170006	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
Missouri	880		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 05/15/2017

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110 South Hill Street
South Bend, IN 46617
Tel: (574) 233-4777
Fax: (574) 233-8207
1 800 332 4345

Laboratory Report

Client: Cape Fear Public Utility Authority

Attn: Jill Deaney
235 Government Center Drive
Wilmington, NC 28403

Report: 388377
Priority: Standard Written
Status: Final
PWS ID: NC0465010

Sample Information

EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
3690961	Sweeney Post CW	331.0	05/09/17 07:56	Client	05/10/17 09:15

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

e appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not nesitate to call Joseph Mattheis at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Account Manager

Authorized Signature — Title

05/16/2017
Date

ent Name: Cape Fear Public Utility Authority
Report #: 388377

Client Name: Cape Fear Public Utility Authority Report #: 388377

Sampling Point: Sweeney Post CW PWS ID: NC0465010

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14797-73-0	Perchlorate	331.0	—	0.05	0.07	ug/L	—	05/12/17 00:55	3690961

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample al6iquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

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110 S. Hill Street
South Bend, IN 46617
T: 1.800.332.4345
F: 1.574.233.8207

Order # 318240
Batch # 388377

www.eatonanalytical.com

Shaded area for EEA use only

CHAIN OF CUSTODY RECORD

Page 1 of 1

REPORT TO:	SAMPLER (Signature)	PWS ID #	STATE (sample origin)	PROJECT NAME	PO#
Jill Deaney - Lab Manager 235 Government Center Dr. Wilmington NC 28403	Crystal Callahan for Brent Fodrie	04-65-010	NC	Sweeney Post Special Sampling - Perchlorate	170004
BILL TO:	**COMPLIANCE MONITORING** Yes:	**POPULATION SERVED**	**SOURCE WATER**		
CAPEFEARPUA-NC Finance 235 Government Center Dr. Wilmington NC 28403	No: X	135,204	Surface Water		

	LAB Number	COLLECTION DATE	COLLECTION TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	3690961	5-9-17	0756	✓		Sweeney Post CW	Perchlorate	Filtration Needed	X		1	DW	SW
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													

RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
Crystal Callahan for Brent Fodrie	5-9-17	1126 AM PM	Crystal Callahan	5-9-17	1228 AM PM
Crystal Callahan	5-9-17	1230 AM PM			AM PM
		AM PM	RECEIVED FOR LABORATORY BY:	5/10/17	0915 AM PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS: Sample was filtered upon receipt ss 5/10/17

CONDITIONS UPON RECEIPT (check one): X Iced Wet/Blue ___ Ambient 0.2 °C Upon Receipt ___ N/A

MATRIX CODES:

DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written: (15 working days) 0%
RV* = Rush Verbal: (5 working days) 50%
RW* = Rush Written: (5 working days) 75%
IV* = Immediate Verbal: (3 working days) 100%
IW* = Immediate Written: (3 working days) 125%
SP* = Weekend, Holiday CALL
STAT* = Less than 48 hours CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.

06-LO-F0435 Issue 4.0 Effective Date: 2014-05-01

Sample analysis will be provided according to the standard EEA/Water Services Terms, which are available upon request. Any other terms proposed by Customer are deemed material alterations and are rejected unless expressly agree to in writing by EEA.

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Eurofins Eaton Analytical
Run Log

Run ID: **229289** Method: **331.0**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
CCL	3692556		RW	PW6	05/11/2017 20:55	051117M331b.mdb
CCM	3692557		RW	PW6	05/11/2017 21:16	051117M331b.mdb
LMB	3692549		RW	PW6	05/11/2017 21:38	051117M331b.mdb
FBL	3692554		RW	PW6	05/11/2017 22:00	051117M331b.mdb
FBM	3692555		RW	PW6	05/11/2017 22:22	051117M331b.mdb
FS	3690961	Sweeney Post CW	DW	PW6	05/12/2017 00:55	051117M331b.mdb
CCH	3692559		RW	PW6	05/12/2017 02:23	051117M331b.mdb
CCL	3692688		RW	PW6	05/12/2017 09:11	051117M331b.mdb

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
CCL	Perchlorate	331.0	0.05	---		0.0517	0.05	ug/L	103	50 - 150	---	---	1.0	---	05/11/2017 20:55	3692556
CCM	Perchlorate	331.0	0.05	---		4.8937	5.0	ug/L	98	80 - 120	---	---	1.0	---	05/11/2017 21:16	3692557
LMB	Perchlorate	331.0	0.05	---	<	0.05		ug/L	---	---	---	---	1.0	---	05/11/2017 21:38	3692549
FBL	Perchlorate	331.0	0.05	---		0.0526	0.05	ug/L	105	50 - 150	---	---	1.0	---	05/11/2017 22:00	3692554
FBM	Perchlorate	331.0	0.05	---		5.0229	5.0	ug/L	100	80 - 120	---	---	1.0	---	05/11/2017 22:22	3692555
FS	Perchlorate	331.0	0.05	Sweeney Post CW		0.07		ug/L	---	---	---	---	1.0	---	05/12/2017 00:55	3690961
CCH	Perchlorate	331.0	0.05	---		9.8792	10.0	ug/L	99	80 - 120	---	---	1.0	---	05/12/2017 02:23	3692559
CCL	Perchlorate	331.0	0.05	---		0.0479	0.05	ug/L	96	50 - 150	---	---	1.0	---	05/12/2017 09:11	3692688

Sample Type Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCH	Continuing Calibration High		
CCL	Continuing Calibration Low		
CCM	Continuing Calibration Mid		
FS	Field Sample		
FBL	Fortified Blank Low		
FBM	Fortified Blank Mid		
LMB	Laboratory Method Blank		

END OF REPORT

PFAS

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PAID
12-1-16

November 17, 2016

Ms. Jill Deaney
CFPUA
628 Groundwater Way
Wilmington, NC 28411

RE: Project: Sweeney Post-Special EPA 537
Pace Project No.: 92319027

Dear Ms. Deaney:
Enclosed are the analytical results for sample(s) received by the laboratory on November 08, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Matthew Brainard

Matthew Brainard
matthew.brainard@pacelabs.com
Project Manager

Enclosures

cc: Maggie Butler, Cape Fear Public Utility Authority
Crystal Callahan, Cape Fear Public Utilities Department
Mr. Adam Poore, CFPUA
Mr. Billy Roy, CFPUA-Compliance

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Sweeney Post-Special EPA 537
Pace Project No.: 92319027

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: Sweeney Post-Special EPA 537
Pace Project No.: 92319027

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92319027001	**Sweeney WTP-Post Clear Well**	EPA 537	WFH	8	PASI-O

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project: Sweeney Post-Special EPA 537
Pace Project No.: 92319027

Method: EPA 537
Description: 537 Perfluorinated Compounds
Client: Cape Fear Public Utility Authority-Compliance
Date: November 17, 2016

General Information:
1 sample was analyzed for EPA 537. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 537 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 331809

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 35276305001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1774827)
  - Perfluorobutanesulfonic acid
  - Perfluoroheptanoic acid
  - Perfluorohexanesulfonic acid
  - Perfluorononanoic acid
  - Perfluorooctanesulfonic acid
  - Perfluorooctanoic acid
- MSD (Lab ID: 1774828)
  - Perfluorobutanesulfonic acid
  - Perfluoroheptanoic acid
  - Perfluorohexanesulfonic acid
  - Perfluorononanoic acid
  - Perfluorooctanesulfonic acid

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
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(704)875-9092

PROJECT NARRATIVE

Project: Sweeney Post-Special EPA 537
Pace Project No.: 92319027

Method: **EPA 537**
Description: 537 Perfluorinated Compounds
Client: Cape Fear Public Utility Authority-Compliance
Date: November 17, 2016

QC Batch: 331809

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 35276305001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- Perfluorooctanoic acid

Additional Comments:

Analyte Comments:

QC Batch: 331809

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 1774827)
  - Perfluorohexanesulfonic acid
  - Perfluorooctanesulfonic acid
- MSD (Lab ID: 1774828)
  - Perfluorohexanesulfonic acid
  - Perfluorooctanesulfonic acid

This data package has been reviewed for quality and completeness and is approved for release.

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(704)875-9092

ANALYTICAL RESULTS

Project: Sweeney Post-Special EPA 537
Pace Project No.: 92319027

Sample: Sweeney WTP-Post Clear Well **Lab ID: 92319027001** Collected: 11/08/16 08:00 Received: 11/08/16 15:38 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
537 Perfluorinated Compounds	Analytical Method: EPA 537 Preparation Method: EPA 537							
Perfluorobutanesulfonic acid	ND	ug/L	0.090	1	11/11/16 18:45	11/17/16 04:30	375-73-5	
Perfluoroheptanoic acid	**0.013**	ug/L	0.010	1	11/11/16 18:45	11/17/16 04:30	375-85-9	
Perfluorohexanesulfonic acid	ND	ug/L	0.030	1	11/11/16 18:45	11/17/16 04:30	355-46-4	
Perfluorononanoic acid	ND	ug/L	0.020	1	11/11/16 18:45	11/17/16 04:30	375-95-1	
Perfluorooctanesulfonic acid	ND	ug/L	0.040	1	11/11/16 18:45	11/17/16 04:30	1763-23-1	
Perfluorooctanoic acid	**0.013**	ug/L	0.0020	1	11/11/16 18:45	11/17/16 04:30	335-67-1	
Surrogates								
Perfluorohexanoic acid (S)	92	%	70-130	1	11/11/16 18:45	11/17/16 04:30		
Perfluorodecanoic acid (S)	107	%	70-130	1	11/11/16 18:45	11/17/16 04:30		

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QUALITY CONTROL DATA

Project: Sweeney Post-Special EPA 537
Pace Project No.: 92319027

QC Batch: 331809
QC Batch Method: EPA 537
Associated Lab Samples: 92319027001

Analysis Method: EPA 537
Analysis Description: 537 Perfluorinated Compounds

METHOD BLANK: 1774782
Associated Lab Samples: 92319027001

Matrix: Water

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Perfluorobutanesulfonic acid	ug/L	ND	0.090	11/17/16 03:42	
Perfluoroheptanoic acid	ug/L	ND	0.010	11/17/16 03:42	
Perfluorohexanesulfonic acid	ug/L	ND	0.030	11/17/16 03:42	
Perfluorononanoic acid	ug/L	ND	0.020	11/17/16 03:42	
Perfluorooctanesulfonic acid	ug/L	ND	0.040	11/17/16 03:42	
Perfluorooctanoic acid	ug/L	ND	0.0020	11/17/16 03:42	
Perfluorodecanoic acid (S)	%	96	70-130	11/17/16 03:42	
Perfluorohexanoic acid (S)	%	96	70-130	11/17/16 03:42	

LABORATORY CONTROL SAMPLE: 1774783

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Perfluorobutanesulfonic acid	ug/L	.089	0.091	102	50-150	
Perfluoroheptanoic acid	ug/L	.0099	.0094J	95	50-150	
Perfluorohexanesulfonic acid	ug/L	.03	0.035	118	50-150	
Perfluorononanoic acid	ug/L	.02	0.021	105	50-150	
Perfluorooctanesulfonic acid	ug/L	.04	0.042	105	50-150	
Perfluorooctanoic acid	ug/L	.02	0.022	109	50-150	
Perfluorodecanoic acid (S)	%			106	70-130	
Perfluorohexanoic acid (S)	%			95	70-130	

LABORATORY CONTROL SAMPLE: 1774784

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Perfluorobutanesulfonic acid	ug/L	.36	0.33	91	50-150	
Perfluoroheptanoic acid	ug/L	.04	0.038	96	50-150	
Perfluorohexanesulfonic acid	ug/L	.12	0.12	104	50-150	
Perfluorononanoic acid	ug/L	.08	0.088	110	50-150	
Perfluorooctanesulfonic acid	ug/L	.16	0.16	99	50-150	
Perfluorooctanoic acid	ug/L	.08	0.081	102	50-150	
Perfluorodecanoic acid (S)	%			107	70-130	
Perfluorohexanoic acid (S)	%			97	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Sweeney Post-Special EPA 537
Pace Project No.: 92319027

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1774827 1774828

Parameter	Units	35276305001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Perfluorobutanesulfonic acid	ug/L	0.061J	.9	.9	0.45	0.43	43	42	70-130	3	M1
Perfluoroheptanoic acid	ug/L	0.026	.1	.1	0.065	0.065	39	39	70-130	1	M1
Perfluorohexanesulfonic acid	ug/L	0.64	.3	.3	0.80	0.79	52	48	70-130	2	E,M1
Perfluorononanoic acid	ug/L	0.021	.2	.2	0.10	0.098	40	38	70-130	3	M1
Perfluorooctanesulfonic acid	ug/L	2.3	.4	.4	2.5	2.5	59	52	70-130	1	E,M1
Perfluorooctanoic acid	ug/L	0.069	.2	.2	0.16	0.15	44	43	70-130	1	M1
Perfluorodecanoic acid (S)	%						106	109	70-130		
Perfluorohexanoic acid (S)	%						89	97	70-130		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: Sweeney Post-Special EPA 537
Pace Project No.: 92319027

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
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(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Sweeney Post-Special EPA 537
Pace Project No.: 92319027

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92319027001	**Sweeney WTP-Post Clear Well**	EPA 537	331809	EPA 537	332855

Pace Analytical®	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: Sept. 21, 2016 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.01	Issuing Authority: Pace Quality Office

Laboratory receiving samples:
Asheville ☑ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐

Sample Condition Upon Receipt

Client Name: CFPUA

Project #: **WO# : 92319027**

92319027

Courier: ☐ Commercial ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ Other:____

Custody Seal Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☐ No

Date/Initials Person Examining Contents: BEA 11/9/16

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other:____

Thermometer: ☑ IR Gun ID: 5 ☐ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Correction Factor: Cooler Temp Corrected (°C): 1.7 Type of Ice: Biological Tissue Frozen? ☐ Yes ☐ No ☐ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☑ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Samples Field Filtered?	☐ Yes	☑ No	☐ N/A	8. Note if sediment is visible in the dissolved container
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: WT				
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	10.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Sample Discrepancy: _____

Project Manager SCURF Review: _____ Date: _____

Project Manager SRF Review: _____ Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

**Bottom half of box is to list number of bottles

Project # WO#: 92319027

PM: MWB Due Date: 11/22/16

CLIENT: 92_CFPUAComp

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP3S-250 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP3Z-250 mL Plastic ZN Acetate & NaOH (>9)	BP3C-250 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lbb)	SP2T-250 mL Sterile Plastic (N/A – lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	Cubitainer	VSGU-20 mL Scintillation vials (N/A)	GN	
1		1																											
2		1																											
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	CFPUA	Report To:	Jill Deaney	Attention:	Finance
Address:	ESM /235 Government Center Dr.	Copy To:		Company Name:	
	Wilmington NC 28403			Address:	
Email To:	Jill.Deaney@cfpua.org	Purchase Order No.:	170003	Pace Quote Reference:	
Phone:	(910) 332-6558 Fax: (910) 332-6730	Project Name:	Sweeney Post- Special EPA 537	Pace Project Manager:	Matt Brainard
Requested Due Date/TAT:		Project Number:		Pace Profile #:	5125-6

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☑ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information: SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Analysis Test: EPA 537	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Sweeney WTP - Post Clear Well	DW	G			11-8-16	0800	19	2								X	N	X	Y	92319027
2																					001
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[redacted]	11-8-16	1220	Crystal Culbreth / CFPUA	11-8-16	1220				
	Crystal Culbreth / CFPUA	11-8-16	1535	T. Mixon / Pace	11-8-16	1535				
				[signature]	11/9/16	9:45	1.7	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Lisa Wrede

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11-8-16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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PAID

LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Montana	CERT0026
Alaska	IN00035	Nebraska	E87775
Arizona	AZ0432	Nevada	IN00035
Arkansas	IN00035	New Hampshire*	2124
California	2920	New Mexico	IN00035
Colorado	IN035	New Jersey*	IN598
Colorado Radiochemistry	IN035	New York*	11398
Connecticut	PH-0132	North Carolina	18700
Delaware	IN035	North Dakota	R-035
Florida*	E87775	Ohio	87775
Georgia	929	Oklahoma	D9508
Hawaii	IN035	Oregon (Primary AB)*	4074-001
Idaho	IN00035/E87775	Pennsylvania*	68-00466
Illinois*	200001	Puerto Rico	IN00035
Illinois Microbiology	200001	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-15-8
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA160002	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
Missouri	880		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 04/14/2016

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110 South Hill Street
South Bend, IN 46617
Tel: (574) 233-4777
Fax: (574) 233-8207
1 800 332 4345

Laboratory Report

Client: Cape Fear Public Utility Authority

Attn: Jill Deaney
235 Government Center Drive
Wilmington, NC 28403

Report: 369087
Priority: Standard Written
Status: Final
PWS ID: NC0465010

Sample Information

EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
3511063	Sweeney Post CW	300.0	08/02/16 07:52	Client	08/03/16 10:00
3511064	Sweeney Post CW	200.7	08/02/16 07:52	Client	08/03/16 10:00
3511065	Sweeney Post CW	300.0	08/02/16 07:52	Client	08/03/16 10:00

Report Summary

etailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Joseph Mattheis at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Account Manager

Authorized Signature — Title

08/17/2016
Date

ent Name: Cape Fear Public Utility Authority
Report #: 369087

Client Name: Cape Fear Public Utility Authority Report #: 369087

Sampling Point: Sweeney Post CW PWS ID: NC0465010

General Chemistry

Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
24959-67-9	Bromide	300.0	—	0.010	0.032	mg/L	—	08/05/16 07:13	3511065
14808-79-8	Sulfate	300.0	250 ^	15	30	mg/L	—	08/12/16 02:22	3511063

Metals

Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
7440-70-2	Calcium	200.7	—	1.0	7.5	mg/L	—	08/12/16 18:11	3511064
7439-95-4	Magnesium	200.7	—	1.0	2.8	mg/L	—	08/12/16 18:11	3511064
7631-86-9	Silica, Total	200.7	—	2.0	4.4	mg/L	—	08/12/16 18:11	3511064
7440-23-5	Sodium	200.7	—	1.0	23	mg/L	—	08/12/16 18:11	3511064

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample al6iquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

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CHAIN OF CUSTODY RECORD

REPORT TO:	SAMPLER (Signature)	PWS ID #	STATE (sample origin)	PROJECT NAME	PO#
Jill Deaney - Lab Manager 235 Government Center Dr. Wilmington NC 28403		04-65-010	NC	Sweeney Post Special Sampling	170004
BILL TO:	COMPLIANCE MONITORING: Yes / No	POPULATION SERVED	SOURCE WATER		
CAPEFEARPUA-NC Finance 235 Government Center Dr. Wilmington NC 28403	Yes: / No: X	135,204	Surface Water		

	LAB Number	COLLECTION DATE	COLLECTION TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	3511063	8-2-16	0752	✓		Sweeney Post CW	Sulfate		X		1	DW	SW
2	064						Metals- Silica, Sodium,Calcium, Magnesium		X		1	DW	SW
3	065						Bromide		X		1	DW	SW
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													

RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
	8-2-16	1057 AM PM	Crystal Callahan	8-2-16	1430 AM PM
Crystal Callahan	8-2-16	1500 AM PM			AM PM
		AM PM	RECEIVED FOR LABORATORY BY:	8-3-16	1000 AM PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS:

CONDITIONS UPON RECEIPT (check one): X Iced Wet/Blue ___ Ambient 1.8 °C Upon Receipt ___ N/A

MATRIX CODES:

DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written: (15 working days)	0%	IV* = Immediate Verbal: (3 working days)	100%
RV* = Rush Verbal: (5 working days)	50%	IW* =Immediate Written: (3 working days)	125%
RW* = Rush Written: (5 working days)	75%	SP* = Weekend, Holiday	CALL
		STAT* = Less than 48 hours	CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.

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Run Log

Run ID: **219175** Method: **200.7**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
ICB	3521642		RW	BX	08/12/2016 17:34	
UQCSM	3521649		RW	BX	08/12/2016 17:49	
CCC	3521650		RW	BX	08/12/2016 17:53	
CCB	3521651		RW	BX	08/12/2016 17:55	
RLC	3521652		RW	BX	08/12/2016 17:58	
LRB	3521653		RW	BX	08/12/2016 18:00	
RLC	3521654		RW	BX	08/12/2016 18:02	
LFB	3521655		RW	BX	08/12/2016 18:04	
FS	3511064	Sweeney Post CW	DW	BX	08/12/2016 18:11	
CCC	3521656		RW	BX	08/12/2016 18:32	
CCB	3521657		RW	BX	08/12/2016 18:35	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
ICB	Calcium	200.7	1.0	---	<	1.0		mg/L	---	---	---	---	1.0	---	08/12/2016 17:34	3521642
ICB	Magnesium	200.7	1.0	---	<	1.0		mg/L	---	---	---	---	1.0	---	08/12/2016 17:34	3521642
ICB	Silica, Total	200.7	2.0	---	<	2.0		mg/L	---	---	---	---	1.0	---	08/12/2016 17:34	3521642
ICB	Sodium	200.7	1.0	---	<	1.0		mg/L	---	---	---	---	1.0	---	08/12/2016 17:34	3521642
ICB	IS-Yttrium	200.7	N/A	---		1.0000	1.0	N/A	100	75 - 125	---	---	1.0	---	08/12/2016 17:34	3521642
UQCSM	Calcium	200.7	1.0	---		4.9294	5.0	mg/L	99	95 - 105	---	---	1.0	---	08/12/2016 17:49	3521649
UQCSM	Magnesium	200.7	1.0	---		4.9385	5.0	mg/L	99	95 - 105	---	---	1.0	---	08/12/2016 17:49	3521649
UQCSM	Silica, Total	200.7	2.0	---		4.9370	5.0	mg/L	99	95 - 105	---	---	1.0	---	08/12/2016 17:49	3521649
UQCSM	Sodium	200.7	1.0	---		4.9231	5.0	mg/L	98	95 - 105	---	---	1.0	---	08/12/2016 17:49	3521649
UQCSM	IS-Yttrium	200.7	N/A	---		0.9800	1.0	N/A	98	75 - 125	---	---	1.0	---	08/12/2016 17:49	3521649
CCC	Calcium	200.7	1.0	---		5.0014	5.0	mg/L	100	90 - 110	---	---	1.0	---	08/12/2016 17:53	3521650
CCC	Magnesium	200.7	1.0	---		5.0036	5.0	mg/L	100	90 - 110	---	---	1.0	---	08/12/2016 17:53	3521650
CCC	Silica, Total	200.7	2.0	---		5.0125	5.0	mg/L	100	90 - 110	---	---	1.0	---	08/12/2016 17:53	3521650
CCC	Sodium	200.7	1.0	---		5.0219	5.0	mg/L	100	90 - 110	---	---	1.0	---	08/12/2016 17:53	3521650
CCC	IS-Yttrium	200.7	N/A	---		0.9800	1.0	N/A	98	75 - 125	---	---	1.0	---	08/12/2016 17:53	3521650
CCB	Calcium	200.7	1.0	---	<	1.0		mg/L	---	---	---	---	1.0	---	08/12/2016 17:55	3521651
CCB	Magnesium	200.7	1.0	---	<	1.0		mg/L	---	---	---	---	1.0	---	08/12/2016 17:55	3521651
CCB	Silica, Total	200.7	2.0	---	<	2.0		mg/L	---	---	---	---	1.0	---	08/12/2016 17:55	3521651
CCB	Sodium	200.7	1.0	---	<	1.0		mg/L	---	---	---	---	1.0	---	08/12/2016 17:55	3521651
CCB	IS-Yttrium	200.7	N/A	---		0.9900	1.0	N/A	99	75 - 125	---	---	1.0	---	08/12/2016 17:55	3521651
RLC	Magnesium	200.7	1.0	---		0.0202	0.02	mg/L	101	50 - 150	---	---	1.0	---	08/12/2016 17:58	3521652
RLC	IS-Yttrium	200.7	N/A	---		0.9900	1.0	N/A	99	75 - 125	---	---	1.0	---	08/12/2016 17:58	3521652
LRB	Calcium	200.7	1.0	---	<	1.0		mg/L	---	---	---	---	1.0	---	08/12/2016 18:00	3521653
LRB	Magnesium	200.7	1.0	---	<	1.0		mg/L	---	---	---	---	1.0	---	08/12/2016 18:00	3521653
LRB	Silica, Total	200.7	2.0	---	<	2.0		mg/L	---	---	---	---	1.0	---	08/12/2016 18:00	3521653
LRB	Sodium	200.7	1.0	---	<	1.0		mg/L	---	---	---	---	1.0	---	08/12/2016 18:00	3521653
LRB	IS-Yttrium	200.7	N/A	---		0.9900	1.0	N/A	99	75 - 125	---	---	1.0	---	08/12/2016 18:00	3521653
RLC	Calcium	200.7	1.0	---		0.0989	0.1	mg/L	99	50 - 150	---	---	1.0	---	08/12/2016 18:02	3521654
RLC	Silica, Total	200.7	2.0	---		0.1003	0.1	mg/L	100	50 - 150	---	---	1.0	---	08/12/2016 18:02	3521654
RLC	Sodium	200.7	1.0	---		0.0995	0.1	mg/L	100	50 - 150	---	---	1.0	---	08/12/2016 18:02	3521654
RLC	IS-Yttrium	200.7	N/A	---		0.9800	1.0	N/A	98	75 - 125	---	---	1.0	---	08/12/2016 18:02	3521654
LFB	Calcium	200.7	1.0	---		4.9980	5.0	mg/L	100	85 - 115	---	---	1.0	---	08/12/2016 18:04	3521655
LFB	Magnesium	200.7	1.0	---		4.9954	5.0	mg/L	100	85 - 115	---	---	1.0	---	08/12/2016 18:04	3521655
LFB	Silica, Total	200.7	2.0	---		5.0106	5.0	mg/L	100	85 - 115	---	---	1.0	---	08/12/2016 18:04	3521655
LFB	Sodium	200.7	1.0	---		5.0285	5.0	mg/L	101	85 - 115	---	---	1.0	---	08/12/2016 18:04	3521655
LFB	IS-Yttrium	200.7	N/A	---		0.9800	1.0	N/A	98	75 - 125	---	---	1.0	---	08/12/2016 18:04	3521655
FS	Calcium	200.7	1.0	Sweeney Post CW		7.5		mg/L	---	---	---	---	1.0	---	08/12/2016 18:11	3511064
FS	Magnesium	200.7	1.0	Sweeney Post CW		2.8		mg/L	---	---	---	---	1.0	---	08/12/2016 18:11	3511064
FS	Silica, Total	200.7	2.0	Sweeney Post CW		4.4		mg/L	---	---	---	---	1.0	---	08/12/2016 18:11	3511064
FS	Sodium	200.7	1.0	Sweeney Post CW		23		mg/L	---	---	---	---	1.0	---	08/12/2016 18:11	3511064

QC Summary Report (cont.)

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	IS-Yttrium	200.7	N/A	Sweeney Post CW		0.9900	1.0	N/A	99	75 - 125	---	---	1.0	---	08/12/2016 18:11	3511064
CCC	Calcium	200.7	1.0	---		4.9834	5.0	mg/L	100	90 - 110	---	---	1.0	---	08/12/2016 18:32	3521656
CCC	Magnesium	200.7	1.0	---		4.9719	5.0	mg/L	99	90 - 110	---	---	1.0	---	08/12/2016 18:32	3521656
CCC	Silica, Total	200.7	2.0	---		4.9409	5.0	mg/L	99	90 - 110	---	---	1.0	---	08/12/2016 18:32	3521656
CCC	Sodium	200.7	1.0	---		5.0260	5.0	mg/L	101	90 - 110	---	---	1.0	---	08/12/2016 18:32	3521656
CCC	IS-Yttrium	200.7	N/A	---		0.9800	1.0	N/A	98	75 - 125	---	---	1.0	---	08/12/2016 18:32	3521656
CCB	Calcium	200.7	1.0	---	<	1.0		mg/L	---	---	---	---	1.0	---	08/12/2016 18:35	3521657
CCB	Magnesium	200.7	1.0	---	<	1.0		mg/L	---	---	---	---	1.0	---	08/12/2016 18:35	3521657
CCB	Silica, Total	200.7	2.0	---	<	2.0		mg/L	---	---	---	---	1.0	---	08/12/2016 18:35	3521657
CCB	Sodium	200.7	1.0	---	<	1.0		mg/L	---	---	---	---	1.0	---	08/12/2016 18:35	3521657
CCB	IS-Yttrium	200.7	N/A	---		0.9800	1.0	N/A	98	75 - 125	---	---	1.0	---	08/12/2016 18:35	3521657

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Run Log

Run ID: **218867** Method: **300.0**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
ICB	3514037		RW	CQ	08/03/2016 04:45	
QCS	3514043		RW	CQ	08/04/2016 11:08	
RLC	3514045		RW	CQ	08/04/2016 12:19	
LRB	3514046		RW	CQ	08/04/2016 12:54	
LFB	3514047		RW	CQ	08/04/2016 13:29	
IPC	3514048		RW	CQ	08/04/2016 23:39	
CCB	3514049		RW	CQ	08/05/2016 00:14	
FS	3511065	Sweeney Post CW	DW	CQ	08/05/2016 07:13	
IPC	3514053		RW	CQ	08/05/2016 08:23	
CCB	3514054		RW	CQ	08/05/2016 08:58	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
ICB	Bromide	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	08/03/2016 04:45	3514037
QCS	Bromide	300.0	10	---		246.8990	250	ug/L	99	90 - 110	---	---	1.0	---	08/04/2016 11:08	3514043
RLC	Bromide	300.0	10	---		12.6670	10.0	ug/L	127	50 - 150	---	---	1.0	---	08/04/2016 12:19	3514045
LRB	Bromide	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	08/04/2016 12:54	3514046
LFB	Bromide	300.0	10	---		247.8920	250	ug/L	99	90 - 110	---	---	1.0	---	08/04/2016 13:29	3514047
IPC	Bromide	300.0	10	---		251.0080	250	ug/L	100	90 - 110	---	---	1.0	---	08/04/2016 23:39	3514048
CCB	Bromide	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	08/05/2016 00:14	3514049
FS	Bromide	300.0	10	Sweeney Post CW		32		ug/L	---	---	---	---	1.0	---	08/05/2016 07:13	3511065
IPC	Bromide	300.0	10	---		249.6850	250	ug/L	100	90 - 110	---	---	1.0	---	08/05/2016 08:23	3514053
CCB	Bromide	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	08/05/2016 08:58	3514054

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Run Log

Run ID: **219116** Method: **300.0**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
ICB	3501081		RW	CQ	08/11/2016 17:31	
UQCSM	3501087		RW	CQ	08/11/2016 19:58	
IPC	3501088		RW	CQ	08/11/2016 20:23	
RLC	3501089		RW	CQ	08/11/2016 20:47	
LRB	3520865		RW	CQ	08/11/2016 21:11	
LFB	3501090		RW	CQ	08/11/2016 21:35	
FS	3511063	Sweeney Post CW	DW	CQ	08/12/2016 02:22	
IPC	3501093		RW	CQ	08/12/2016 03:09	
CCB	3501094		RW	CQ	08/12/2016 03:33	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
ICB	Sulfate	300.0	15	---	<	15		mg/L	---	---	---	---	1.0	---	08/11/2016 17:31	3501081
UQCSM	Sulfate	300.0	15	---		24.9		mg/L	---	---	---	---	1.0	---	08/11/2016 19:58	3501087
IPC	Sulfate	300.0	15	---		24.8807	25.0	mg/L	100	90 - 110	---	---	1.0	---	08/11/2016 20:23	3501088
RLC	Sulfate	300.0	15	---		4.9806	5.0	mg/L	100	50 - 150	---	---	1.0	---	08/11/2016 20:47	3501089
LRB	Sulfate	300.0	15	---	<	15		mg/L	---	---	---	---	1.0	---	08/11/2016 21:11	3520865
LFB	Sulfate	300.0	15	---		24.8184	25.0	mg/L	99	90 - 110	---	---	1.0	---	08/11/2016 21:35	3501090
FS	Sulfate	300.0	15	Sweeney Post CW		30		mg/L	---	---	---	---	1.0	---	08/12/2016 02:22	3511063
IPC	Sulfate	300.0	15	---		24.7077	25.0	mg/L	99	90 - 110	---	---	1.0	---	08/12/2016 03:09	3501093
CCB	Sulfate	300.0	15	---	<	15		mg/L	---	---	---	---	1.0	---	08/12/2016 03:33	3501094

Sample Type Key

Type (Abbr.)	Sample Type
CCB	Continuing Calibration Blank
CCC	Continuing Calibration Check
FS	Field Sample
ICB	Initial Calibration Blank
IPC	Instrument Performance Check
LFB	Laboratory Fortified Blank
LRB	Laboratory Reagent Blank
QCS	Quality Control Sample
RLC	Reporting Level Check
UQCSM	Unextracted QCS Mid

Type (Abbr.)	Sample Type

END OF REPORT

Microbiological

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PAID 12-1-16

LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Montana	CERT0026
Alaska	IN00035	Nebraska	E87775
Arizona	AZ0432	Nevada	IN00035
Arkansas	IN00035	New Hampshire*	2124
California	2920	New Mexico	IN00035
Colorado	IN035	New Jersey*	IN598
Colorado Radiochemistry	IN035	New York*	11398
Connecticut	PH-0132	North Carolina	18700
Delaware	IN035	North Dakota	R-035
Florida*	E87775	Ohio	87775
Georgia	929	Oklahoma	D9508
Hawaii	IN035	Oregon (Primary AB)*	4074-001
Idaho	IN00035/E87775	Pennsylvania*	68-00466
Illinois*	200001	Puerto Rico	IN00035
Illinois Microbiology	200001	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-15-8
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA160002	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
Missouri	880		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 04/14/2016

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110 South Hill Street
South Bend, IN 46617
Tel: (574) 233-4777
Fax: (574) 233-8207
1 800 332 4345

Laboratory Report

Client: Cape Fear Public Utility Authority

Attn: Jill Deaney
235 Government Center Drive
Wilmington, NC 28403

Report: 376566
Priority: Standard Written
Status: Final
PWS ID: NC0465010

Sample Information

EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
3581741	Sweeney Post	1623	11/08/16 09:08	Client	11/09/16 10:00

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

'e appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not nesitate to call Joseph Mattheis at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Account Manager

Authorized Signature — Title

11/21/2016
Date

ent Name: Cape Fear Public Utility Authority
Report #: 376566

Client Name: Cape Fear Public Utility Authority Report #: 376566

Sampling Point: Sweeney Post PWS ID: NC0465010

Microbiology									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
---	Giardia	1623	---	0.885	< 0.885	cysts/100L	11/10/16 08:09	11/14/16 15:41	3581741
---	Cryptosporidium	1623	---	0.885	< 0.885	oocysts/100L	11/10/16 08:09	11/14/16 15:41	3581741

For method 1623: The calculated MRL value is dependant on the volume filtered and the volume analyzed for each sample.

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample al6iquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

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LT2 - CHAIN OF CUSTODY RECORD

REPORT TO:	SAMPLER (Signature)	PWS ID #	PROJECT NAME	State (sample origin)
Jill Deaney 235 Government Center Dr. Wilmington NC 28402	Crystal Callahan	04-65-010	Cryptosporidium Special	NC
BILL TO: Finance CFPUA/EAIR-NC 235 Government Center Dr. Wilmington NC 28402	**SAMPLE SITE:** (Note: Each sample site must have its own Chain of Custody) Sweeney Post	**POPULATION SERVED**		**MATRIX CODE**
		135,204		DW

Cryptosporidium- Field Filtered Sample

	Filter #1	Filter #2 (if necessary)
Sample ID (EEA use only):	3581741	
Collection date/time:	11-8-16 / 0908 (AM) / PM	
Did filter clog? (circle one):	Yes / (No) — If Yes, fill out Filter #2 info	
Initial meter reading:	2361.6	
Final meter reading:	2391.6	
Filter Lot #:	FC0204	
Total volume filtered (both filters) (in Liters):	113.4 L (1 G = 3.78 L)	
Field Turbidity:	0.181 (NTU) (Only if measured in the field)	

Cryptosporidium- Bulk Sample (Cubitainer)

Sample ID (EEA use only):

Collection date/time: / AM / PM

Field Turbidity: (NTU) (Only if measured in the field)

E. coli (if testing is to be performed by EEA)

Sample ID (EEA use only):

Collection date/time: / AM / PM

Number of containers:

Matrix Spike - Bulk Sample (Cubitainer)

Sample ID (EEA use only):

Collection date/time: / AM / PM

Turbidity (if testing is to be performed by EEA)

Sample ID (EEA use only):

Collection date/time: / AM / PM

Samples received on Friday or unannounced may be subject to additional charges or rejected.

RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
Crystal Callahan	11-8-16	1136 (AM) / PM	Crystal Callahan	11-8-16	1134 (AM) / PM
Crystal Callahan	11-8-16	1141 (AM) / PM			AM / PM
		AM / PM	RECEIVED FOR LABORATORY BY	DATE	TIME
				11-9-16	1000 AM / PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT (check one): X Iced: Wet/Blue ___ Ambient 0.4 °C Upon Receipt ___ N/A

MATRIX CODES:
DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written: (15 working days)	0%	IV* = Immediate Verbal: (3 working days)	100%
RV* = Rush Verbal: (5 working days)	50%	IW* = Immediate Written: (3 working days)	125%
RW* = Rush Written: (5 working days)	75%	SP* = Weekend, Holiday	CALL
		STAT* = Less than 48 hours	CALL

* Please call, expedited service not available for all testing

06-LO-F0872 Issue: 1.0 Effective Date: 2014-12-15

Sample analysis will be provided according to the standard EEA/Water Services Terms, which are available upon request. Any other terms proposed by Customer are deemed material alterations and are rejected unless expressly agree to in writing by EEA.

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Run Log

Run ID: **222737** Method: **1623**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
MBC	3585930		RW	ER	11/14/2016 10:10	
OPR	3585931		RW	ER	11/14/2016 10:26	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Elution Start	Slide End	EEA ID #
MBC	Giardia	1623	10.000	---	<	10.000		cysts/100L	---	---	---	---	10	11/08/2016 09:30	11/14/2016 10:10	3585930
MBC	Cryptosporidium	1623	10.000	---	<	10.000		oocysts/100L	---	---	---	---	10	11/08/2016 09:30	11/14/2016 10:10	3585930
OPR	Giardia	1623	N/A	---		80	100	cysts	80	14 - 100	---	---	1.0	11/08/2016 09:30	11/14/2016 10:26	3585931
OPR	Cryptosporidium	1623	N/A	---		82	99.0	oocysts	83	33 - 100	---	---	1.0	11/08/2016 09:30	11/14/2016 10:26	3585931

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Eurofins Eaton Analytical
Run Log

Run ID: **222740** Method: **1623**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
FS	3581741	Sweeney Post	DW	ER	11/14/2016 15:41	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Elution Start	Slide End	EEA ID #
FS	Giardia	1623	0.885	Sweeney Post	<	0.885		cysts/100L	--	--	--	--	0.885	11/10/2016 08:09	11/14/2016 15:41	3581741
FS	Cryptosporidium	1623	0.885	Sweeney Post	<	0.885		oocysts/100L	--	--	--	--	0.885	11/10/2016 08:09	11/14/2016 15:41	3581741

Sample Type Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
FS	Field Sample		
MBC	Microbiology Blank Control		
OPR	Ongoing Precision & Recovery		

END OF REPORT

230095

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CHAIN OF CUSTODY RECORD

REPORT TO:	SAMPLER (Signature)	PWS ID #	STATE (sample origin)	PROJECT NAME	PO#
CFPUA	[signature]	04-65-010	NC		130030

BILL TO:	COMPLIANCE MONITORING	Yes	No	POPULATION SERVED	SOURCE WATER
CFPUA			✓	131,089	Cape Fear River

	LAB Number	COLLECTION DATE	COLLECTION TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	2813158	4-23-13	11:23	✓		Sweeney Post	[illegible] (Cryptosporidium)		✓		1	DW	SW
2													
3													
4													
5													
6													
7						total volume 101.3 liters	[illegible] 2141.0 gallons						
8						232 [illegible]	[illegible] 4-23-13						
9							Sp[illegible] 1.23						
10							[illegible] 0.05 NTU						
11													
12							[illegible] 2263.5 gallons						
13							[illegible] 1511						
14													

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
[signature]	4-23-13	3:31 AM (PM)	Felicia Carr [signature]	4-23-13	3:31
Felicia Carr [signature]	4-23-13	Fed Ex Ship AM (PM)			AM
		AM PM	RECEIVED FOR LABORATORY BY: [signature]	[illegible]	10:[illegible] AM PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT (check one): ___ Iced (Wet/Blue) ___ Ambient 0.4 °C Upon Receipt ___ N/A

MATRIX CODES:

DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written (15 working days)	0%	IV* = Immediate Verbal (3 working days)	100%		
RV* = Rush Verbal (5 working days)	50%	IW* = Immediate Written (3 working days)	125%		
RW* = Rush Written (5 working days)	75%	SP* = [illegible]	CALL		
		STAT* = [illegible] 48 hours	CALL		

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges

* Please call, expedited service not available for all testing

08-C [illegible] Effective Date 01/20/2012

236095

296444

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CHAIN OF CUSTODY RECORD

REPORT TO:	SAMPLER (Signature)	PWS ID #	STATE (sample origin)	PROJECT NAME	PO#
CFPUA	[signature]	[illegible]	NC		130030

BILL TO:	COMPLIANCE MONITORING	Yes	No	POPULATION SERVED	SOURCE WATER
CFPUA			✓	[illegible]	Cape Fear River

	LAB Number	COLLECTION DATE	COLLECTION TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	2815157	4-23-13	10:28	✓		Sweeney, [illegible] - Filter	[illegible]			✓	3	SW	SW
2		↓	10:51	✓		Filter 2							
3		↓	11:14	✓		Filter 3							
4													
5													
6													
7													
						total volume: 3.7 [illegible]	[illegible]						
						14.0 [illegible]	[illegible] 1023						
10							turbidity: 0.3 NTU						
11													
12							[illegible] gallons						
13							[illegible] 1121						
14							turbidity: [illegible] NTU						

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY (Signature)	DATE	TIME
[signature]	4-23-13	3:39 PM	Felicia Crison	4-23-13	3:39
Felicia Crison	4-23-13	Fed Ex Ship			
			RECEIVED FOR LABORATORY BY: [signature]	[illegible]	[illegible]

UL RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT (check one): Yes / No (circled) — Ambient — 4.4 °C Upon Receipt — N/A

MATRIX CODES:

- DW-DRINKING WATER
- RW-REAGENT WATER
- GW-GROUND WATER
- EW-EXPOSURE WATER
- SW-SURFACE WATER
- PW-POOL WATER
- WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

- SW = Standard Written: (15 working days) 0%
- RV = Rush Verbal: (5 working days) [illegible]
- RW = Rush Written: (5 working days) [illegible]
- [illegible] (working days) [illegible]
- [illegible] (working days) 125%
- [illegible] CALL
- [illegible] 48 [illegible] CALL

[illegible] Effective Date: 01/20/2012

[illegible] samples less than 3 hours holding time [illegible] may be subject to [illegible] charges

Invoiced

Laboratory Report

Client: Cape Fear Public Utility Authority

Attn: Pam Ellis
235 Government Center Drive
Wilmington, NC 28403

Report: 295446
Priority: Standard Written
Status: Final
PWS ID: NC0465010

Copies to: None

Sample Information

UL ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
2813157	Sweeney Raw	1623	04/23/13 10:28	Client	04/24/13 10:15
2813158	Sweeney Post	1623	04/23/13 11:23	Client	04/24/13 10:15

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Jim Vernon at (574) 233-4777.

Jim Vernon P.M. james.n.vernon@ul.com 2013.05.06 13:21:50 -04'00'

Authorized Signature | Title | Date

Client Name: Cape Fear Public Utility Authority
Report #: 295446

UL LLC
110 S. Hill St., South Bend, IN 46617-2702 USA
T: 800.332.4345 / F: 574.233.8207 / W: UL.com

Client Name: Cape Fear Public Utility Authority

Report #: 295446

mpling Point: Sweeney Raw

PWS ID: NC0465010

Microbiology									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	UL ID #
---	Giardia	1623	---	0.071	< 0.071	cysts/L	---	04/25/13 10:05	2813157
---	Cryptosporidium	1623	---	0.071	0.071	oocysts/L	---	04/25/13 10:05	2813157

For method 1623: The calculated MRL value is dependant on the volume filtered and the volume analyzed for each sample.

Sampling Point: Sweeney Post

PWS ID: NC0465010

Microbiology									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	UL ID #
---	Giardia	1623	---	0.431	< 0.431	cysts/100L	---	04/25/13 10:05	2813158
---	Cryptosporidium	1623	---	0.431	< 0.431	oocysts/100L	---	04/25/13 10:05	2813158

For method 1623: The calculated MRL value is dependant on the volume filtered and the volume analyzed for each sample.

† UL has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

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CHAIN OF CUSTODY RECORD

Page 1 of 2

REPORT TO:	SAMPLER (Signature)	PWS ID #	STATE (sample origin)	PROJECT NAME	PO#
CFPUA	[signature]	04-65-010	NC		130030

BILL TO:	COMPLIANCE MONITORING Yes	No	POPULATION SERVED	SOURCE WATER
CFPUA		✓	131,089	Cape Fear River

	LAB Number	COLLECTION DATE	TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	9813157	4-23-13	10:25	✓		Sweeney Basin - Filter 1	Giardia / Cryptosporidium			✓	3	SW	SW
2		↓	10:59	✓		Filter 2							
3		↓	11:14	✓		Filter 3							
4													
5													
6													
7													
8						total volume: 3.7 gallons	Reading: 913 gallons						
9						14.0 liters	start time: 1025						
10							turbidity: 13.3 NTU						
11													
12							Reading: 1415.5 gallons						
13							start time: 11:21						
14							turbidity: 17.7 NTU						

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY (Signature)	DATE	TIME
[signature]	4-23-13	3:39 PM	Felicia Caison	4-23-13	3:39 PM
Felicia Caison	4-23-13	Fed Ex Ship			
			RECEIVED FOR LABORATORY BY: [signature]	4-24-13	10:15

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT (check one): X Iced / Wet/Blue Ambient 0.4 °C Upon Receipt ___ N/A

MATRIX CODES:

- DW-DRINKING WATER
- RW-REAGENT WATER
- GW-GROUND WATER
- EW-EXPOSURE WATER
- SW-SURFACE WATER
- PW-POOL WATER
- WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written: (15 working days)	0%	RV* = Rush Verbal: (3 working days)	100%
RV* = Rush Verbal: (5 working days)	50%	RW* = Rush Written: (3 working days)	125%
RW* = Rush Written: (5 working days)	75%	[illegible]	CALL
		[illegible] 48 hr	CALL

[illegible] Effective Date: 01/20/2012

Sample analysis will be provided according to the standard UL GSA/Water Services Terms, which are available upon request. Any other terms proposed by Customer are deemed material alterations and are rejected unless expressly agreed to in writing by UL.

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Order #

Batch #

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CHAIN OF CUSTODY RECORD

Page 2 of 2

REPORT TO:	SAMPLER (Signature)	PWS ID #	STATE (sample origin)	PROJECT NAME	PO#
CFPUA	[signature]	07-65-010	NC		130030

BILL TO:	COMPLIANCE MONITORING Yes	No	POPULATION SERVED	SOURCE WATER
CFPUA		✓	131,089	Cape Fear River

	LAB Number	COLLECTION DATE	TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	2813158	4-23-13	11:23	✓		Sweeney Post	Giardia/Cryptosporidium		✓		1	DW	SW
2													
3													
4													
5													
6													
7						total volume: 101.3 gallons	Reading: 2141.0 gallons						
8						252 liters	~~2202.3~~						
9							Start time: 1123						
10							turbidity: 0.05 NTU						
11													
12							Reading: 2242.3 gallons						
13							End time: 1311						
14													

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY (Signature)	DATE	TIME
[signature]	4-23-13	3:39 PM	Felicia Carson	4-23-13	3:39 PM
Felicia Carson	4-23-13	Fed Ex ship PM			AM / PM
RELINQUISHED BY: (Signature)		AM / PM	RECEIVED FOR LABORATORY BY: [signature]	4-24-13	10:15

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT (check one): X Iced/Wet Ice Ambient 0.4 °C Upon Receipt N/A

MATRIX CODES:

DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written (15 working days)	0%	R* = Immediate Verbal (3 working days)	100%
RV* = Rush Verbal (5 working days)	50%	RW* = Immediate Written (3 working days)	125%
RW* = Rush Written* (5 working days)	75%	SP* = Specific Day	CALL
		STAT* = Less than 48 hours	CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges

06-LC-F0453 Issue 2.0 Effective Date: 01/20/2012

LABORATORY REPORT

This report contains 6 pages.
(including the cover page)

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

UL LLC
110 S. Hill St., South Bend, IN 46617-2702 USA
T: 800.332.4345 / F: 574.233.8207 / W: UL.com

TOX

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LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Montana	CERT0026
Alaska	IN00035	Nebraska	E87775
Arizona	AZ0432	Nevada	IN00035
Arkansas	IN00035	New Hampshire*	2124
California	2920	New Mexico	IN00035
Colorado	IN035	New Jersey*	IN598
Colorado Radiochemistry	IN035	New York*	11398
Connecticut	PH-0132	North Carolina	18700
Delaware	IN035	North Dakota	R-035
Florida*	E87775	Ohio	87775
Georgia	929	Oklahoma	D9508
Hawaii	IN035	Oregon (Primary AB)*	4074-001
Idaho	IN00035/E87775	Pennsylvania*	68-00466
Illinois*	200001	Puerto Rico	IN00035
Illinois Microbiology	200001	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-15-8
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA160002	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
Missouri	880		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 04/14/2016

eurofins | Eaton Analytical

110 South Hill Street
South Bend, IN 46617
Tel: (574) 233-4777
Fax: (574) 233-8207
1 800 332 4345

Laboratory Report

Client: Cape Fear Public Utility Authority

Attn: Jill Deaney
235 Government Center Drive
Wilmington, NC 28403

Report: 384161
Priority: Standard Written
Status: Final
PWS ID: NC0465010

Sample Information

EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
3650283	Sweeney WTP-C.Filter	5320 B	03/07/17 08:44	Client	03/08/17 09:15
3650284	Sweeney WTP-Post	5320 B	03/07/17 09:36	Client	03/08/17 09:15

Report Summary

Note: TOX analysis was performed by Eurofins Eaton Analytical, Monrovia, CA.

etailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Joseph Mattheis at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Authorized Signature Title 03/24/2017 Date

ient Name: Cape Fear Public Utility Authority
Report #: 384161

Client Name: Cape Fear Public Utility Authority Report #: 384161

Sampling Point: Sweeney WTP-C.Filter PWS ID: NC0465010

Reference Lab Tests									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
59473-04-0	Total Organic Halogens (TOX)	5320 B	---	10	< 10	ug/L	---	03/13/17 20:25	3650283

Sampling Point: Sweeney WTP-Post PWS ID: NC0465010

Reference Lab Tests									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
59473-04-0	Total Organic Halogens (TOX)	5320 B	---	10	100	ug/L	---	03/13/17 18:13	3650284

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample al6iquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

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ilac-MRA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
AT-1807

Laboratory Report

for

Eurofins Eaton Analytical
110 South Hill Street
South Bend, IN 46617-2702
Attention: Jim Van Fleit
Fax: 574-233-8207

Date of Issue
03/20/2017
Shea Greiner
EUROFINS EATON ANALYTICAL

TRG6: Shea Greiner
Project Manager

NELAP ACCREDITED LABORATORY
ORELAP 4034

Report: 644276
Project: SUBCONTRACT
Group: TOX

* Accredited in accordance with **TNI 2009 and ISO/IEC 17025:2005.**
* Laboratory certifies that the test results meet all **TNI 2009 and ISO/IEC 17025:2005** requirements unless noted under the individual analysis.
* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.
* Test results relate only to the sample(s) tested.

STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	**Mississippi**	Certified
----------	--------	**Montana**	Cert 0035
Arizona	AZ0778	**Nebraska**	Certified
Arkansas	Certified	**Nevada**	CA00006-2016
California-Monrovia-ELAP	2813	**New Hampshire ***	2959
California-Colton- ELAP	2812	**New Jersey ***	CA 008
California-Folsom- ELAP	2820	**New Mexico**	Certified
California-Fresno- ELAP	2966	**New York ***	11320
Colorado	Certified	**North Carolina**	06701
Connecticut	PH-0107	**North Dakota**	R-009
Delaware	CA 006	**Oregon (Primary AB) ***	**ORELAP 4034**
Florida *	E871024	**Pennsylvania ***	68-565
Georgia	947	**Puerto Rico**	Certified
Guam	16-003r	**Rhode Island**	LAO00326
Hawaii	Certified	**South Carolina**	87016
Idaho	Certified	**South Dakota**	Certified
Illinois *	200033	**Tennessee**	TN02839
Indiana	C-CA-01	**Texas ***	T104704230-15-9
Kansas *	E-10268	**Utah ***	CA000062016-10
Kentucky	90107	**Vermont**	VT0114
Louisiana *	LA16003	**Virginia ***	460260
Maine	CA0006	**Washington**	C838
Maryland	224	----------	----------
Commonwealth of Northern Marianas Is.	MP0004	----------	----------
Massachusetts	M-CA006	**EPA Region 5**	Certified
Michigan	9906	**Los Angeles County Sanitation Districts**	10264

* NELAP/TNI Recognized Accreditation Bodies

ISO 17025 Accredited Method List

The tests listed below are accredited and meet the requirements of ISO 17025 as verified by the ANSI-ASQ National Accreditation Board/ANAB.

Refer to Certificate and scope of accreditation (AT 1807) found at: http://www.eatonanalytical.com

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
Bicarbonate Alkalinity as HCO3	SM 2320B	x	x	x
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D	x		x
Chlorine -Total/Free/ Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cryptosporidium	EPA 1623	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Giardia	EPA 1623	x		x
Glyphosate	EPA 547	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	CDC Legionella	x		x
Mercury	EPA 245.1	x	x	x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
NDMA	EPA 521	x		x
NDMA	TQ In house method based on EPA 521 (2425)	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphate	SM 4500P E			x
Ortho Phosphorous	SM 4500P E	x		
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Semi-VOC	EPA 625		x	x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-$S^{=}$ D		x	
Sulfite	SM 4500-$SO_3^{=}$B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure SM 9223	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2/EPA 524.3	x		x
VOC	EPA 624		x	x
VOC	EPA SW 846 8260	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x

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Acknowledgement of Samples Received

Addr: **Eurofins Eaton Analytical**
110 South Hill Street
South Bend, IN 46617-2702

Attn: Jim Van Fleit
Phone: 800-332-4345

Client ID: EEA-SOUTHBEND
Folder #: 644276
Project: SUBCONTRACT
Sample Group: TOX

Project Manager: Shea Greiner
Phone: (720) 491-1749

The following samples were received from you on **March 10, 2017** at **1121**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical.

Sample #	Sample ID	Sample Date
201703100146	3650283	03/07/2017 0844
	Total Organic Halogen	
201703100147	3650284	03/07/2017 0936
	Total Organic Halogen	

Test Description

eurofins
Eaton Analytical
110 South Hill Street
South Bend, IN 46617
800-332-4345

6141276

REC-Subcontractor Laboratory Request Form

Reference Lab Name: Eurofins Eaton Analytical
Address: 750 Royal Oaks Drive
City, State, Zip: Monrovia, CA 91016
Telephone Number: 626-386-1100

Total Sent: 2
Shipping Method: UPS Next Day Saver
EEA Contact Name: see below

Reference Lab: This form must be returned via email to **US25_RefLab@eurofinsUs.com** or by fax 574-233-8207 upon receipt of samples. Note any discrepencies in the number of samples received, analyses requested, sample condition upon receipt, ID discrepencies, or price in the Reference Lab Notes section at the bottom of this form.
Result sheets and Invoice must be emailed to **US25_Reflab@eurofinsUS.com** upon completion of analysis.

EEA SampleID#	TAT Requested	Sample Type	Matrix	Collection date	Collect. Time	State of Origin	QC Criteria	Analysis Requested	EEA-PM
3650283 (1)	SW	FS	DW	7-Mar-17	8:44	North Carolina.	Non-Compliance	TOX (Monrovia)	Joseph Mattheis
3650284 (1)	SW	FS	DW	7-Mar-17	9:36	North Carolina.	Non-Compliance	TOX (Monrovia)	Joseph Mattheis

: 1Z 738 664 13 7547 5784

Reference Lab Notes:

Relinquished from EEA By: [signature] Date/Time: 8-Mar-17 14:35

Received by Reference lab by: [signature] Date/Time: 3-10-17 11:2[illegible]

Matrix: DW, RW, GW, SW, BW, EW, PW, WW
TAT Codes: SW(Standard Written), RW(Rush Written, 5 Day), IW(Immediate Written, 3 Day)
Sample Types: FS, FD, FTB, FEB, MS, MSD, Other

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INTERNAL CHAIN OF CUSTODY RECORD

EEA Folder Number:

SAMPLE TEMP RECEIVED: **SAMPLES REC'D DAY OF COLLECTION?** ☐

IR Gun ID = 5691 (Observation= 1.9 °C) (Corr.Factor -0.2 °C) (Final = 1.6 °C)

TYPE OF ICE: Real ✓ Synthetic ____ No Ice ____ **CONDITION OF ICE:** Frozen ✓ Partially Frozen ____ Thawed ____ N/A ____

METHOD OF SHIPMENT: Pick-Up / Walk-In / FedEx / UPS / DHL / Area Fast / Top Line / Other: ____

Compliance Acceptance Criteria:

1) **Chemistry:** >0, ≤ 6°C, not frozen (NELAP) (if received after 24 hrs of sample collection)

2) **Microbiology, Distribution:** < 10°C, not frozen (can be ≥10°C if received on ice the same day as sample collection, within 8 hours)

3) **Microbiology, Surface Water:** < 10°C (if received after 2 hours of sample collection)

If out of temperature range for both Chemistry and Microbiology samples and temperature does not confirm, then measure the temperature of each quadrant and record each temperature of the quadrants

1 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	2 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)
3 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	4 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

4) UCMR3 : (non-GLEC) **524.3:** (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

522: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

≤ 10°C if received within 48 hours of sample collection (not the same business day); ≤ 6°C if received after 48 hours of sample collection. Measure temperature for each method above.

5) LT2: **Giardia /Cryptosporidium:** <20 °C, not frozen (received after 8 hours of sample collection)

E. Coli: < 10°C, not frozen (if received after 2 hours of sample collection)

Giardia/Crypto: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

E.Coli: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

6) **Dioxin (1613 or 2,3,7,8 TCDD):** must be between 0-4 °C, not frozen (if received after 24 hrs of sample collection)

Note: If samples are out of temperature range, let the ASMs know. ASMs will determine whether to proceed with analysis or not.

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RECEIVED BY:			Eurofins Eaton Analytical	3/10-17	11:2

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Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Comments
Report: 644276

Eurofins Eaton Analytical
Jim Van Fleit
110 South Hill Street
South Bend, IN 46617-2702

The Comments Report may be blank if there are no comments for this report.

eurofins | Eaton Analytical

Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Hits
Report: 644276

Eurofins Eaton Analytical
Jim Van Fleit
110 South Hill Street
South Bend, IN 46617-2702

Samples Received on:
03/10/2017 1121

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
	201703100147	**3650284**				
03/13/2017 18:13	Total Organic Halides Average		100		ug/L	10
03/13/2017 18:13	Total Organic Halides Rep 1		98		ug/L	10
03/13/2017 18:13	Total Organic Halides Rep 2		110		ug/L	10

SUMMARY OF POSITIVE DATA ONLY

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Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Data
Report: 644276

Eurofins Eaton Analytical
Jim Van Fleit
110 South Hill Street
South Bend, IN 46617-2702

Samples Received on:
03/10/2017 1121

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
3650283 (201703100146)							**Sampled on 03/07/2017 0844**		
		SW9020/SM5320 - Total Organic Halides							
03/13/17	03/13/17 20:25	977524	977613	(SW9020/SM5320)	Total Organic Halides Average	ND	ug/L	10	1
03/13/17	03/13/17 20:25	977524	977613	(SW9020/SM5320)	Total Organic Halides Rep 1	ND	ug/L	10	1
03/13/17	03/13/17 20:25	977524	977613	(SW9020/SM5320)	Total Organic Halides Rep 2	ND	ug/L	10	1
3650284 (201703100147)							**Sampled on 03/07/2017 0936**		
		SW9020/SM5320 - Total Organic Halides							
03/13/17	03/13/17 18:13	977524	977613	(SW9020/SM5320)	Total Organic Halides Average	100	ug/L	10	1
03/13/17	03/13/17 18:13	977524	977613	(SW9020/SM5320)	Total Organic Halides Rep 1	98	ug/L	10	1
03/13/17	03/13/17 18:13	977524	977613	(SW9020/SM5320)	Total Organic Halides Rep 2	110	ug/L	10	1

Rounding on totals after summation.
(c) - indicates calculated results

Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Eurofins Eaton Analytical

Total Organic Halides

Prep Batch: 977524	Analytical Batch: 977613	Analysis Date: 03/13/2017
201703100146	3650283	Analyzed by: MIA8
201703100147	3650284	Analyzed by: MIA8

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Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory QC
Report: 644276

Eurofins Eaton Analytical

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
Total Organic Halides by SW9020/SM5320									
Analytical Batch: 977613							**Analysis Date: 03/13/2017**		
LCS1	Total Organic Halides Rep 1		50	49.8	ug/L	100	(85-115)		
LCS2	Total Organic Halides Rep 1		200	184	ug/L	92	(90-110)		
MBLK	Total Organic Halides Rep 1			<10	ug/L				
MRLHI	Total Organic Halides Rep 1		10	13.4	ug/L	134	(50-150)		
MS_201703080698	Total Organic Halides Rep 1	140	250	395	ug/L	102	(90-110)		
MSD_201703080698	Total Organic Halides Rep 1	140	250	406	ug/L	106	(90-110)		
LCS1	Total Organic Halides Rep 2		50	53.3	ug/L	107	(85-115)		
LCS2	Total Organic Halides Rep 2		200	191	ug/L	96	(90-110)		
MBLK	Total Organic Halides Rep 2			<10	ug/L				
MRLHI	Total Organic Halides Rep 2		10	13.2	ug/L	132	(50-150)		
MS_201703080698	Total Organic Halides Rep 2	120	250	395	ug/L	110	(90-110)		
MSD_201703080698	Total Organic Halides Rep 2	120	250	406	ug/L	**114**	(90-110)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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110 S. Hill Street
South Bend, IN 46617
T: 1.800.332.4345
F: 1.574.233.8207

Order # 315399
Batch # 3841601

www.eatonanalytical.com

CHAIN OF CUSTODY RECORD

Shaded area for EEA use only

REPORT TO:	SAMPLER (Signature)	PWS ID #	STATE (sample origin)	PROJECT NAME	PO#
Jill Deaney - Lab Manager 235 Government Center Dr. Wilmington NC 28403	Crystal Callahan for Debbie DuBois	04-65-010	NC	Sweeney TOX-Special Sampling	170004

BILL TO:	COMPLIANCE MONITORING	Yes	No	POPULATION SERVED	SOURCE WATER
CAPEFEARPUA-NC Finance 235 Government Center Dr. Wilmington NC 28403			X	135,204	Surface Water

	LAB Number	COLLECTION DATE	COLLECTION TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	3650283	3-7-17	0844	✓		Sweeney WTP - C. Filter	TOX	PH<2SS		X	1	DW	SW
2	3650284	3-7-17	0936	✓		Sweeney WTP - Post	TOX	↓	X		1	DW	SW
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													

RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
Crystal Callahan for Debbie DuBois	3-7-17	1245 AM (PM)	Crystal Callahan	3-7-17	1245 AM (PM)
Crystal Callahan	3-7-17	1315 AM (PM)	RECEIVED BY:(Signature)	DATE	TIME AM PM
RELINQUISHED BY:(Signature)	DATE	TIME AM PM	RECEIVED FOR LABORATORY BY:	DATE 3-8-17	TIME 0915 AM PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT (check one): X Iced: Wet/Blue ___ Ambient 0.4 °C Upon Receipt ___ N/A

MATRIX CODES:

DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written: (15 working days) 0%
RV* = Rush Verbal: (5 working days) 50%
RW* = Rush Written: (5 working days) 75%
IV* = Immediate Verbal: (3 working days) 100%
IW* = Immediate Written: (3 working days) 125%
SP* = Weekend, Holiday CALL
STAT* = Less than 48 hours CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.

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Eurofins Eaton Analytical
Run Log

Run ID: **227251** Method: **5320 B**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
FS	3650284	Sweeney WTP-Post	DW	R L	03/13/2017 18:13	
FS	3650283	Sweeney WTP-C.Filter	DW	R L	03/13/2017 20:25	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Total Organic Halogens (TOX)	5320 B	10	Sweeney WTP-Post		100		ug/L	---	---	---	---	1.0	---	03/13/2017 18:13	3650284
FS	Total Organic Halogens (TOX)	5320 B	10	Sweeney WTP-C.Filter	<	10		ug/L	---	---	---	---	1.0	---	03/13/2017 20:25	3650283

Sample Type Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
FS	Field Sample		

END OF REPORT

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PAID

LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Montana	CERT0026
Alaska	IN00035	Nebraska	E87775
Arizona	AZ0432	Nevada	IN00035
Arkansas	IN00035	New Hampshire*	2124
California	2920	New Mexico	IN00035
Colorado	IN035	New Jersey*	IN598
Colorado Radiochemistry	IN035	New York*	11398
Connecticut	PH-0132	North Carolina	18700
Delaware	IN035	North Dakota	R-035
Florida*	E87775	Ohio	87775
Georgia	929	Oklahoma	D9508
Hawaii	IN035	Oregon (Primary AB)*	4074-001
Idaho	IN00035/E87775	Pennsylvania*	68-00466
Illinois*	200001	Puerto Rico	IN00035
Illinois Microbiology	200001	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-15-8
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA160002	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
Missouri	880		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 04/14/2016

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110 South Hill Street
South Bend, IN 46617
Tel: (574) 233-4777
Fax: (574) 233-8207
1 800 332 4345

Laboratory Report

Client: Cape Fear Public Utility Authority

Attn: Jill Deaney
235 Government Center Drive
Wilmington, NC 28403

Report: 372077
Priority: Standard Written
Status: Final
PWS ID: NC0465010

Sample Information

EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
3540054	Sweeney WTP-C.Filter	5320 B	09/06/16 08:54	Client	09/07/16 09:30
3540055	Sweeney WTP-Post	5320 B	09/06/16 08:03	Client	09/07/16 09:30

Report Summary

Note: TOX analysis was performed by EEA, Monrovia, CA.

etailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Joseph Mattheis at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Account Manager

Authorized Signature | Title | 10/17/2016 Date

ient Name: Cape Fear Public Utility Authority
Report #: 372077

Client Name: Cape Fear Public Utility Authority Report #: 372077

Sampling Point: Sweeney WTP-C.Filter PWS ID: NC0465010

Reference Lab Tests									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
59473-04-0	Total Organic Halogens (TOX)	5320 B	—	10	< 10	ug/L	—	09/14/16 18:54	3540054

Sampling Point: Sweeney WTP-Post PWS ID: NC0465010

Reference Lab Tests									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
59473-04-0	Total Organic Halogens (TOX)	5320 B	—	10	130	ug/L	—	09/14/16 19:38	3540055

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample al6iquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

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1 800 566 LABS (1 800 566 5227)

ilac-MRA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
AT-1807

Laboratory Report

for

Eurofins Eaton Analytical
110 South Hill Street
South Bend, IN 46617-2702
Attention: Jim Van Fleit
Fax: 574-233-8207

Date of Issue
10/11/2016
Shea Greiner
EUROFINS EATON
ANALYTICAL

TRG6: Shea Greiner
Project Manager

ORELAP 4034

Report: 609909
Project: SUBCONTRACT
Group: TOX

* Accredited in accordance with TNI 2009 and ISO/IEC 17025:2005.
* Laboratory certifies that the test results meet all **TNI 2009 and ISO/IEC 17025:2005** requirements unless noted under the individual analysis.
* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.
* Test results relate only to the sample(s) tested.
* This report shall not be reproduced except in full, without the written approval of the laboratory.

STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	Mississippi	Certified
---	---	Montana	Cert 0035
Arizona	AZ0778	Nebraska	Certified
Arkansas	Certified	Nevada	CA00006-2016
California-Monrovia-ELAP	2813	New Hampshire *	2959
California-Colton- ELAP	2812	New Jersey *	CA 008
California-Folsom- ELAP	2820	New Mexico	Certified
California-Fresno- ELAP	2966	New York *	11320
Colorado	Certified	North Carolina	06701
Connecticut	PH-0107	North Dakota	R-009
Delaware	CA 006	Oregon (Primary AB) *	ORELAP 4034
Florida *	E871024	Pennsylvania *	68-565
Georgia	947	Puerto Rico	Certified
Guam	16-003r	Rhode Island	LAO00326
Hawaii	Certified	South Carolina	87016
Idaho	Certified	South Dakota	Certified
Illinois *	200033	Tennessee	TN02839
Indiana	C-CA-01	Texas *	T104704230-15-9
Kansas *	E-10268	Utah *	CA000062016-10
Kentucky	90107	Vermont	VT0114
Louisiana *	LA16003	Virginia *	460260
Maine	CA0006	Washington	C838
Maryland	224	---	---
Commonwealth of Northern Marianas Is.	MP0004	---	---
Massachusetts	M-CA006	EPA Region 5	Certified
Michigan	9906	Los Angeles County Sanitation Districts	10264

* NELAP/TNI Recognized Accreditation Bodies

ISO 17025 Accredited Method List

The tests listed below are accredited and meet the requirements of ISO 17025 as verified by the ANSI-ASQ National Accreditation Board/ANAB.

Refer to Certificate and scope of accreditation (AT 1807) found at: http://www.eatonanalytical.com

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environmental (Drinking Water)	Environmental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
Bicarbonate Alkalinity as HCO3	SM 2320B	x	x	x
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D	x		x
Chlorine -Total/Free Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cryptosporidium	EPA 1623	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Giardia	EPA 1623	x		x
Glyphosate	EPA 547	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environmental (Drinking Water)	Environmental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	CDC Legionella	x		x
Mercury	EPA 245.1	x	x	x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
NDMA	EPA 521	x		x
NDMA	TQ In house method based on EPA 521 (2425)	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphate	SM 4500P E			x
Ortho Phosphorous	SM 4500P E	x		
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Semi-VOC	EPA 625		x	x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-S D		x	
Sulfite	SM 4500-SO^3B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure SM 9223	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2/EPA 524.3	x		x
VOC	EPA 624		x	x
VOC	EPA SW 846 8260	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x

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Acknowledgement of Samples Received

Addr: **Eurofins Eaton Analytical**
110 South Hill Street
South Bend, IN 46617-2702

Attn: Jim Van Fleit
Phone: 800-332-4345

Client ID: EEA-SOUTHBEND
Folder #: 609909
Project: SUBCONTRACT
Sample Group: TOX

Project Manager: Shea Greiner
Phone: (720) 491-1749

The following samples were received from you on **September 08, 2016** at **1030**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical.

Sample #	Sample ID	Sample Date
201609080401	3540054	09/06/2016 0854
	Total Organic Halogen	
201609080402	3540055	09/06/2016 0803
	Total Organic Halogen	

Test Description

eurofins | Eaton Analytical

110 South Hill Street
South Bend, IN 46617
800-332-4345

609909

REC-Subcontractor Laboratory Request Form

Reference Lab Name: Eurofins Eaton Analytical
Address: 750 Royal Oaks Drive
City, State, Zip: Monrovia, CA 91016
Telephone Number: 626-386-1100

Total Sent: 2
Shipping Method: UPS Next Day Saver
EEA Contact Name: see below

Reference Lab: This form must be return via email to **US25_RefLab@eurofinsUs.com** or by fax 574-233-8207 upon receipt of samples.Note any dicrepencies in the number of samples received, analyses requested, sample condition upon receipt, ID discrepencies, or price in the Reference Lab Notes section at the bottom of this form.
Result sheets and Invoice must be emailed to **US25_Reflab@eurofinsUS.com** upon completion of analysis.

EEA SampleID#	TAT Requested	Sample Type	Matrix	Collection date	Collect. Time	State of Origin	QC Criteria	Analysis Requested	EEA-PM
3540054 (1)	SW	FS	DW	6-Sep-16	8:54	North Carolina.	Non-Compliance	TOX (Monrovia)	Joseph Mattheis
3540055 (1)	SW	FS	DW	6-Sep-16	8:03	North Carolina.	Non-Compliance	TOX (Monrovia)	Joseph Mattheis

Reference Lab Notes:

Relinquished from EEA By: [signature] Date/Time: 7-Sep-16 15:10

Received by Reference lab by: [signature] Date/Time: 9/8/16 10:30

Matrix: DW, RW, GW, SW, BW, EW, PW, WW
TAT Codes: SW(Standard Written), RW(Rush Writen, 5 Day), IW(Immediete Written, 3 Day)
Sample Types: FS, FD, FTB, FEB, MS, MSD, Other

eurofins | Eaton Analytical

INTERNAL CHAIN OF CUSTODY RECORD

COMPANY NAME / EEA CLIENT CODE:	PROJECT CODE:

SAMPLE TEMP RECEIVED: **SAMPLES REC'D DAY OF COLLECTION?** ☐

IR Gun ID = 352P (Observation= 1.6 °C) (Corr.Factor 0.2 °C) (Final = 1.4 °C)

TYPE OF ICE: Real ✓ Synthetic ____ No Ice ____ **CONDITION OF ICE:** Frozen ____ Partially Frozen ✓ ____ Thawed ____ N/A ____

METHOD OF SHIPMENT: Pick-Up / Walk-In / FedEx / (UPS) / DHL / Area Fast / Top Line / Other: ____

Compliance Acceptance Criteria:

1) **Chemistry:** >0, ≤6°C, not frozen (NELAP) (if received after 24 hrs of sample collection)

2) **Microbiology, Distribution:** < 10°C, not frozen (can be ≥10°C if received on ice the same day as sample collection, within 8 hours)

3) **Microbiology, Surface Water:** < 10°C (if received after 2 hours of sample collection)

If out of temperature range for both Chemistry and Microbiology samples and temperature does not confirm, then measure the temperature of each quadrant and record each temperature of the quadrants

1 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	2 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)
3 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	4 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

4) UCMR3 : (non-GLEC) **524.3:** (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

522: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

≤ 10°C if received within 48 hours of sample collection (not the same business day); ≤ 6°C if received after 48 hours of sample collection. Measure temperature for each method above.

5) **LT2: Giardia /Cryptosporidium:** <20 °C, not frozen (received after 8 hours of sample collection)

E. Coli: < 10°C, not frozen (if received after 2 hours of sample collection)

Giardia/Crypto: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

E.Coli: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

TRACKING #: 1Z 738 664 01 7456 9804

6) **Dioxin (1613 or 2,3,7,8 TCDD):** must be between 0-4 °C, not frozen (if received after 24 hrs of sample collection)

Note: If samples are out of temperature range, let the ASMs know. ASMs will determine whether to proceed with analysis or not.

SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RECEIVED BY:		Eurofins Eaton Analytical		

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Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Comments
Report: 609909

Eurofins Eaton Analytical
Jim Van Fleit
110 South Hill Street
South Bend, IN 46617-2702

The Comments Report may be blank if there are no comments for this report.

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Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Hits
Report: 609909

Eurofins Eaton Analytical
Jim Van Fleit
110 South Hill Street
South Bend, IN 46617-2702

Samples Received on:
09/08/2016 1030

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
	201609080402	**3540055**				
09/14/2016 19:38	Total Organic Halides Average		130		ug/L	10
09/14/2016 19:38	Total Organic Halides Rep 1		130		ug/L	10
09/14/2016 19:38	Total Organic Halides Rep 2		130		ug/L	10

SUMMARY OF POSITIVE DATA ONLY

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Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Data
Report: 609909

Eurofins Eaton Analytical
Jim Van Fleit
110 South Hill Street
South Bend, IN 46617-2702

Samples Received on:
09/08/2016 1030

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
3540054 (201609080401)							**Sampled on 09/06/2016 0854**		
		SW9020/SM5320 - Total Organic Halides							
09/14/16	09/14/16 18:54	935843	936716	(SW9020/SM5320)	Total Organic Halides Average	ND	ug/L	10	1
09/14/16	09/14/16 18:54	935843	936716	(SW9020/SM5320)	Total Organic Halides Rep 1	ND	ug/L	10	1
09/14/16	09/14/16 18:54	935843	936716	(SW9020/SM5320)	Total Organic Halides Rep 2	ND	ug/L	10	1
3540055 (201609080402)							**Sampled on 09/06/2016 0803**		
		SW9020/SM5320 - Total Organic Halides							
09/14/16	09/14/16 19:38	935843	936716	(SW9020/SM5320)	Total Organic Halides Average	130	ug/L	10	1
09/14/16	09/14/16 19:38	935843	936716	(SW9020/SM5320)	Total Organic Halides Rep 1	130	ug/L	10	1
09/14/16	09/14/16 19:38	935843	936716	(SW9020/SM5320)	Total Organic Halides Rep 2	130	ug/L	10	1

Rounding on totals after summation.
(c) - indicates calculated results

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Eurofins Eaton Analytical

Total Organic Halides

Prep Batch: 935843 **Analytical Batch: 936716** **Analysis Date: 09/14/2016**

201609080401	3540054	Analyzed by: MIA8
201609080402	3540055	Analyzed by: MIA8

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Laboratory QC
Report: 609909

Eurofins Eaton Analytical

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
Total Organic Halides by SW9020/SM5320									
Analytical Batch: 936716							**Analysis Date: 09/14/2016**		
LCS1	Total Organic Halides Rep 1		50	51.0	ug/L	102	(85-115)		
LCS2	Total Organic Halides Rep 1		200	190	ug/L	95	(90-110)		
MBLK	Total Organic Halides Rep 1			<10	ug/L				
MRLHI	Total Organic Halides Rep 1			6.51	ug/L	0			
MS_201609080401	Total Organic Halides Rep 1	ND	50	56.1	ug/L	95	(90-110)		
MSD_201609080401	Total Organic Halides Rep 1	ND	50	55.8	ug/L	95	(90-110)		
LCS1	Total Organic Halides Rep 2		50	49.1	ug/L	98	(85-115)		
LCS2	Total Organic Halides Rep 2		200	208	ug/L	104	(90-110)		
MBLK	Total Organic Halides Rep 2			<10	ug/L				
MRLHI	Total Organic Halides Rep 2			7.23	ug/L	0			
MS_201609080401	Total Organic Halides Rep 2	ND	50	56.1	ug/L	100	(90-110)		
MSD_201609080401	Total Organic Halides Rep 2	ND	50	55.8	ug/L	99	(90-110)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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South Bend, IN 46617
T: 1.800.332.4345
F: 1.574.233.8207

Order # 304462
Batch # 372077

www.eatonanalytical.com

Shaded area for EEA use only

CHAIN OF CUSTODY RECORD

Page 1 of 1

REPORT TO:	SAMPLER (Signature)	PWS ID #	STATE (sample origin)	PROJECT NAME	PO#
Jill Deaney - Lab Manager 235 Government Center Dr. Wilmington NC 28403	Matt S[illegible]	04-65-010	NC	Sweeney TOX-Special Sampling	160094

BILL TO:	COMPLIANCE MONITORING Yes	No	POPULATION SERVED	SOURCE WATER
CAPEFEARPUA-NC Finance 235 Government Center Dr. Wilmington NC 28403		X	128,800	Surface Water

	LAB Number	COLLECTION DATE	TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	3540054	9-6-16	0854	✓		Sweeney WTP - C. Filter	TOX pH<2 ss			X	1	DW	SW
2	3540055	9-6-16	0803	✓		Sweeney WTP - Post	TOX ✓		X		1	DW	SW
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													

RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
Matt S[illegible]	9-6-16	1158 (AM)	Crystal Callahan	9-6-16	1158 (AM)
Crystal Callahan	9-6-16	1230 (PM)			AM PM
		AM PM	RECEIVED FOR LABORATORY BY: [signature]	9-7-16	0930 AM PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT (check one): X Iced (Wet/Blue) ___ Ambient 0.4 °C Upon Receipt ___ N/A

MATRIX CODES:

DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written: (15 working days)	0%	IV* = Immediate Verbal: (3 working days)	100%
RV* = Rush Verbal: (5 working days)	50%	IW* = Immediate Written: (3 working days)	125%
RW* = Rush Written: (5 working days)	75%	SP* = Weekend, Holiday	CALL
		STAT* = Less than 48 hours	CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.

06-LO-F0435 Issue 4.0 Effective Date: 2014-05-01

Sample analysis will be provided according to the standard EEA/Water Services Terms, which are available upon request. Any other terms proposed by Customer are deemed material alterations and are rejected unless expressly agree to in writing by EEA.

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Run Log

Run ID: **221579** Method: **5320 B**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
FS	3540054	Sweeney WTP-C.Filter	DW	R L	09/14/2016 18:54	
FS	3540055	Sweeney WTP-Post	DW	R L	09/14/2016 19:38	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Total Organic Halogens (TOX)	5320 B	10	Sweeney WTP-C.Filter	<	10		ug/L	---	---	---	---	1.0	---	09/14/2016 18:54	3540054
FS	Total Organic Halogens (TOX)	5320 B	10	Sweeney WTP-Post		130		ug/L	---	---	---	---	1.0	---	09/14/2016 19:38	3540055

Sample Type Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
FS	Field Sample		

END OF REPORT

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LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Montana	CERT0026
Alaska	IN00035	Nebraska	E87775
Arizona	AZ0432	Nevada	IN00035
Arkansas	IN00035	New Hampshire*	2124
California	2920	New Mexico	IN00035
Colorado	IN035	New Jersey*	IN598
Colorado Radiochemistry	IN035	New York*	11398
Connecticut	PH-0132	North Carolina	18700
Delaware	IN035	North Dakota	R-035
Florida (Primary AB)*	E87775	Ohio	87775
Georgia	929	Oklahoma	D9508
Hawaii	IN035	Oregon*	4074-001
Idaho	IN00035/E87775	Pennsylvania*	68-00466
Illinois*	200001	Puerto Rico	IN00035
Illinois Microbiology	200001	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-15-8
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA160002	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
Missouri	880		

*NELAP/TNI Recognized Accreditation Bodies

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110 South Hill Street
South Bend, IN 46617
Tel: (574) 233-4777
Fax: (574) 233-8207
1 800 332 4345

Laboratory Report

Client: Cape Fear Public Utility Authority

Attn: Jill Deaney
235 Government Center Drive
Wilmington, NC 28403

Report: 359050
Priority: Standard Written
Status: Final
PWS ID: NC0465010

Sample Information

EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
3412796	Sweeney WTP-C Filter	5320 B	03/10/16 08:33	Client	03/11/16 09:45
3412797	Sweeney WTP-Post	5320 B	03/10/16 08:22	Client	03/11/16 09:45

Report Summary

Note: Method 5320 analysis was performed by Eurofins Eaton Analytical, Monrovia, CA.

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Joseph Mattheis at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Account Manager

Authorized Signature | Title | 04/04/2016 Date

Client Name: Cape Fear Public Utility Authority
Report #: 359050

Client Name: Cape Fear Public Utility Authority Report #: 359050

Sampling Point: Sweeney WTP-C Filter PWS ID: NC0465010

Reference Lab Tests									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
59473-04-0	Total Organic Halogens (TOX)	5320 B	—	10	10	ug/L	—	03/21/16 15:33	3412796

Sampling Point: Sweeney WTP-Post PWS ID: NC0465010

Reference Lab Tests									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed	EEA ID #
59473-04-0	Total Organic Halogens (TOX)	5320 B	—	10	120	ug/L	—	03/21/16 16:58	3412797

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample al6iquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

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ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
AT-1807

Laboratory Report

for

Eurofins Eaton Analytical
110 South Hill Street
South Bend, IN 46617-2702
Attention: Jim Van Fleit
Fax: 574-233-8207

Date of Issue
03/29/2016
Shea Greiner
EUROFINS EATON
ANALYTICAL

TRG6: Shea Greiner
Project Manager

ORELAP 4034

Report: 580237
Project: SUBCONTRACT
Group: TOX

* Accredited in accordance with TNI 2009 and ISO/IEC 17025:2005.
* Laboratory certifies that the test results meet all **TNI 2009 and ISO/IEC 17025:2005** requirements unless noted under the individual analysis.
* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.
* Test results relate only to the sample(s) tested.
* This report shall not be reproduced except in full, without the written approval of the laboratory.

STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	**Mississippi**	Certified
----------	--------	**Montana**	Cert 0035
Arizona	AZ0778	**Nebraska**	Certified
Arkansas	Certified	**Nevada**	CA00006-2016
California-Monrovia-ELAP	2813	**New Hampshire ***	2959
California-Colton- ELAP	2812	**New Jersey ***	CA 008
California-Folsom- ELAP	2820	**New Mexico**	Certified
California-Fresno- ELAP	2966	**New York ***	11320
Colorado	Certified	**North Carolina**	06701
Connecticut	PH-0107	**North Dakota**	R-009
Delaware	CA 006	**Oregon (Primary AB) ***	**ORELAP 4034**
Florida *	E871024	**Pennsylvania ***	68-565
Georgia	947	**Rhode Island**	LAO00326
Guam	15-003r	**South Carolina**	87016
Hawaii	Certified	**South Dakota**	Certified
Idaho	Certified	**Tennessee**	TN02839
Illinois *	200033	**Texas ***	T104704230-14-7
Indiana	C-CA-01	**Utah ***	CA000062015-8
Kansas *	E-10268	**Vermont**	VT0114
Kentucky	90107	**Virginia ***	460260
Louisiana *	LA16003	**Washington**	C838
Maine	CA0006	**West Virginia**	9943 C
Maryland	224	----------	----------
Commonwealth of Northern Marianas Is.	MP0004	**Wyoming**	8TMS-L
Massachusetts	M-CA006	**EPA Region 5**	Certified
Michigan	9906	**Los Angeles County Sanitation Districts**	10264

* NELAP/TNI Recognized Accreditation Bodies

ISO 17025 Accredited Method List

The tests listed below are accredited and meet the requirements of ISO 17025 as verified by the ANSI-ASQ National Accreditation Board/ANAB.
Refer to Certificate and scope of accreditation (AT 1807) found at: http://www.eatonanalytical.com

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
Bicarbonate Alkalinity as HCO3	SM 2320B	x	x	x
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D	x		x
Chlorine -Total/Free Combined Residua	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cryptosporidium	EPA 1622, 1623	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Giardia	EPA 1623	x		x
Glyphosate	EPA 547	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	CDC Legionella	x		x
Mercury	EPA 245.1	x	x	x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
NDMA	EPA 521	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphate	SM 4500P E			x
Ortho Phosphorous	SM 4500P E	x		
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Semi-VOC	EPA 625		x	x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-S⁻ D		x	
Sulfite	SM 4500-SO3B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure (2346)	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2/EPA 524.3	x		x
VOC	EPA 624		x	x
VOC	EPA SW 846 8260	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x

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Acknowledgement of Samples Received

Addr: **Eurofins Eaton Analytical**
110 South Hill Street
South Bend, IN 46617-2702

Attn: Jim Van Fleit
Phone: 800-332-4345

Client ID: EEA-SOUTHBEND
Folder #: 580237
Project: SUBCONTRACT
Sample Group: TOX

Project Manager: Shea Greiner
Phone: (720) 491-1749

The following samples were received from you on **March 15, 2016** at **1017**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical.

Sample #	Sample ID	Sample Date
201603150044	3412796	03/10/2016 0833
	Total Organic Halogen	
201603150045	3412797	03/10/2016 0822
	Total Organic Halogen	

Test Description

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110 South Hill Street
South Bend, IN 46617
800-332-4345
574-233-8207 fax

580237

REC - Subcontractor Laboratory Request Form

Reference Lab Name: EEA
Address: 750 Royal Oaks Drive, Suite 100
City, State, Zip: Monrovia, CA 91016
Telephone Number: 626-386-1100

Total Sent: 2
Shipping Method: UPS Next Day Saver
EEA Contact Name: Joe Matthias

Reference Lab: This form must be returned via email to US25_RefLab@eurofinsUS.com or by fax to 574-233-8207 upon receipt of samples. Note any discrepencies in the number of samples received, analyses requested, sample condition upon receipt, ID discrepencies, or price in the Reference Lab Notes section at the bottom of this form.
Result sheets and Invoice must be emailed to US25_RefLab@eurofinsUS.com upon completion of analysis.

EEA Sample ID#	TAT Requested	Sample Type	Matrix	Collection Date	Collection Time	State of Origin	QC Criteria (circle one)	Analysis Requested	Price	EEA-PM
3412796 (1)	SW	FS	DW	3-10-16	0833	NC	NELAC / State compliance / non-compliance	TOX		
3412797 (1)	↓	↓	↓	3-10-16	0822	↓	NELAC / State compliance / non-compliance	↓		
							NELAC / State compliance / non-compliance			
							NELAC / State compliance / non-compliance			
							NELAC / State compliance / non-compliance			
							NELAC / State compliance / non-compliance			
							NELAC / State compliance / non-compliance			
							NELAC / State compliance / non-compliance			
							NELAC / State compliance / non-compliance			
							NELAC / State compliance / non-compliance			
							NELAC / State compliance / non-compliance			
							NELAC / State compliance / non-compliance			

Reference Lab Notes: Temp: 0.8°C

Relinquished from EEA By: _____ Date/Time: 3-14-16 1600

Received by Reference Lab By: _____ Date/Time: 3/15/16 1017

Matrix: DW, RW, GW, SW, BW, EW, PW, WW
TAT Codes: SW (Standard Written), RW (Rush Written, 5 Day), IW (Immediate Written, 3 Day)
Sample Types: FS, FD, FTB, FEB, MS, MSD, Othe

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INTERNAL CHAIN OF CUSTODY RECORD

COMPANY NAME / EEA CLIENT CODE:	PROJECT CODE:

SAMPLE TEMP RECEIVED: **SAMPLES REC'D DAY OF COLLECTION?** ☐

IR Gun ID = 461A (Observation= 1.1 °C) (Corr.Factor 0.3 °C) (Final = 0.4 °C)

TYPE OF ICE: Real X Synthetic ____ No Ice ____ **CONDITION OF ICE:** Frozen ____ Partially Frozen X Thawed ____ N/A ____

METHOD OF SHIPMENT: Pick-Up / Walk-In / FedEx / (UPS) / DHL / Area Fast / Top Line / Other: ____

Compliance Acceptance Criteria:

1) **Chemistry:** ≤6°C, not frozen (NELAP) (if received after 24 hrs of sample collection)

2) **Microbiology, Distribution:** < 10°C, not frozen (can be ≥10°C if received on ice the same day as sample collection, within 8 hours)

3) **Microbiology, Surface Water:** < 10°C (if received after 2 hours of sample collection)

If over temp is not confirmed, then record each temperature of each quadrant

1 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	2 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)
3 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	4 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

4) UCMR3 : (non-GLEC) **524.3:** (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

522: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

≤ 10°C if received within 48 hours of sample collection (not the same business day); ≤ 6°C if received after 48 hours of sample collection. Measure temperature for each method above.

5) **LT2: Giardia /Cryptosporidium:** <20 °C, not frozen (received after 8 hours of sample collection)

E. Coli: < 10°C, not frozen (if received after 2 hours of sample collection)

Giardia/Crypto: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

E.Coli: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

1Z738664017326 4271
SFKTJFY CARDAIS2
US 9171 HIP 16.3.5

6) **Dioxin (1613 or 2,3,7,8 TCDD):** must be between 0-4 °C, not frozen (if received after 24 hrs of sample collection)

Note: If samples are over temp, let the ASMs know. ASMs will determine whether to proceed with analysis or not.

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RECEIVED BY:			Eurofins Eaton Analytical		

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750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Comments
Report: 580237

Eurofins Eaton Analytical
Jim Van Fleit
110 South Hill Street
South Bend, IN 46617-2702

Flags Legend:

M2 - Matrix spike recovery was low; the associated blank spike recovery was acceptable.

The Comments Report may be blank if there are no comments for this report.

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1 800 566 LABS (1 800 566 5227)

Laboratory Hits
Report: 580237

Eurofins Eaton Analytical
Jim Van Fleit
110 South Hill Street
South Bend, IN 46617-2702

Samples Received on:
03/15/2016 1017

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
	201603150044	**3412796** C. Filter				
03/21/2016 15:33	Total Organic Halides Average		10		ug/L	10
03/21/2016 15:33	Total Organic Halides Rep 1		10		ug/L	10
03/21/2016 15:33	Total Organic Halides Rep 2		11		ug/L	10
	201603150045	**3412797** Post				
03/21/2016 16:58	Total Organic Halides Average		120		ug/L	10
03/21/2016 16:58	Total Organic Halides Rep 1		120		ug/L	10
03/21/2016 16:58	Total Organic Halides Rep 2		130		ug/L	10

SUMMARY OF POSITIVE DATA ONLY

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Fax: (626) 386-1101
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Laboratory Data
Report: 580237

Eurofins Eaton Analytical
Jim Van Fleit
110 South Hill Street
South Bend, IN 46617-2702

Samples Received on:
03/15/2016 1017

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
3412796 (201603150044)						**Sampled on 03/10/2016 0833**		
			SW9020/SM5320 - Total Organic Halides					
3/21/2016	03/21/2016 15:33	898992	(SW9020/SM5320)	Total Organic Halides Average	10 (M2)	ug/L	10	1
3/21/2016	03/21/2016 15:33	898992	(SW9020/SM5320)	Total Organic Halides Rep 1	10 (M2)	ug/L	10	1
3/21/2016	03/21/2016 15:33	898992	(SW9020/SM5320)	Total Organic Halides Rep 2	11 (M2)	ug/L	10	1
3412797 (201603150045)						**Sampled on 03/10/2016 0822**		
			SW9020/SM5320 - Total Organic Halides					
3/21/2016	03/21/2016 16:58	898992	(SW9020/SM5320)	Total Organic Halides Average	120	ug/L	10	1
3/21/2016	03/21/2016 16:58	898992	(SW9020/SM5320)	Total Organic Halides Rep 1	120	ug/L	10	1
3/21/2016	03/21/2016 16:58	898992	(SW9020/SM5320)	Total Organic Halides Rep 2	130	ug/L	10	1

Rounding on totals after summation.
(c) - indicates calculated results

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Eurofins Eaton Analytical

QC Ref # 898992 - Total Organic Halides **Analysis Date: 03/21/2016**

201603150044	3412796	Analyzed by: MYH
201603150045	3412797	Analyzed by: MYH

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Laboratory QC
Report: 580237

Eurofins Eaton Analytical

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
QC Ref# 898992 - Total Organic Halides by SW9020/SM5320						**Analysis Date: 03/21/2016**			
LCS1	Total Organic Halides Rep 1		50	47.5	ug/L	95	(85-115)		
LCS2	Total Organic Halides Rep 1		200	200	ug/L	100	(90-110)		
MBLK	Total Organic Halides Rep 1			<10	ug/L				
MRL_CHK	Total Organic Halides Rep 1		5	4.22	ug/L	84	(50-150)		
MS_201603150044	Total Organic Halides Rep 1	10	50	55.4	ug/L	90	(90-110)		
MSD_201603150044	Total Organic Halides Rep 1	10	50	54.9	ug/L	**89**	(90-110)		
NACL_CHK	Total Organic Halides Rep 1		5	4.96	ug/L	99	(97-103)		
LCS1	Total Organic Halides Rep 2		50	50.1	ug/L	100	(85-115)		
LCS2	Total Organic Halides Rep 2		200	204	ug/L	102	(90-110)		
MBLK	Total Organic Halides Rep 2			<10	ug/L				
MRL_CHK	Total Organic Halides Rep 2		5	4.62	ug/L	92	(50-150)		
MS_201603150044	Total Organic Halides Rep 2	11	50	55.4	ug/L	**89**	(90-110)		
MSD_201603150044	Total Organic Halides Rep 2	11	50	54.9	ug/L	**88**	(90-110)		
NACL_CHK	Total Organic Halides Rep 2		5	4.96	ug/L	99	(97-103)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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110 S. Hill Street
South Bend, IN 46617
T: 1.800.332.4345
F: 1.574.233.8207

Order # 292364
Batch # 359050

www.eatonanalytical.com

Shaded area for EEA use only

CHAIN OF CUSTODY RECORD

Page 1 of 1

REPORT TO:	SAMPLER (Signature)	PWS ID #	STATE (sample origin)	PROJECT NAME	PO#
Jill Deaney - Lab Manager 235 Government Center Dr. Wilmington NC 28403	Paul Lah	04-65-010	NC	Sweeney TOX-Special Sampling	160094

BILL TO:	COMPLIANCE MONITORING	Yes	No	POPULATION SERVED	SOURCE WATER
CAPEFEARPUA-NC Finance 235 Government Center Dr. Wilmington NC 28403			X	128,800	Surface Water

	LAB Number	COLLECTION DATE	COLLECTION TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	3412796	3-10-16	0833	✓		Sweeney WTP - C. Filter	TOX	PHZ		X	1	DW	SW
2	3412797	3-10-16	0822	✓		Sweeney WTP - Post	TOX	PHZ	X		1	DW	SW
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													

RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
Paul Lah	3-10-16	1208 AM PM	Crystal Callahan	3-10-16	1208 AM PM
Crystal Callahan	3-10-16	1220 AM PM		3-10-2016	4:24 AM PM
	3-10-2016	4:52 AM PM	RECEIVED FOR LABORATORY BY: K Davis	3-11-16	0945 AM PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT (check one): X Iced: Wet/Blue ___ Ambient 2.8 °C Upon Receipt ___ N/A

MATRIX CODES:

DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written: (15 working days) 0%
RV* = Rush Verbal: (5 working days) 50%
RW* = Rush Written: (5 working days) 75%
IV* = Immediate Verbal: (3 working days) 100%
IW* = Immediate Written: (3 working days) 125%
SP* = Weekend, Holiday CALL
STAT* = Less than 48 hours CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.

06-LO-F0435 Issue 4.0 Effective Date: 2014-05-01

Page 17 of 27

Sample analysis will be provided according to the standard EEA/Water Services Terms, which are available upon request. Any other terms proposed by Customer are deemed material alterations and are rejected unless expressly agree to in writing by EEA.

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Run Log

Run ID: **214103** Method: **5320 B**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
FS	3412796	Sweeney WTP-C Filter	DW	R L	03/21/2016 15:33	
FS	3412797	Sweeney WTP-Post	DW	R L	03/21/2016 16:58	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Total Organic Halogens (TOX)	5320 B	10	Sweeney WTP-C Filter		10		ug/L	--	--	--	--	1.0	--	03/21/2016 15:33	3412796
FS	Total Organic Halogens (TOX)	5320 B	10	Sweeney WTP-Post		120		ug/L	--	--	--	--	1.0	--	03/21/2016 16:58	3412797

Sample Type Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
FS	Field Sample		

END OF REPORT

Summary of Monitoring for Endocrine Disrupting Compounds (EDCs) and Pharmaceutical & Personal Care Products (PPCPs)

Testing Performed By: *MWH & Eurofins Labs*

Methods Used: *Internally developed; EDCs and PPCPs analyzed using LC-MS; fragrances analyzed using GC-MS.*

***This screen consist of approximately 70 compounds on each sample of raw and treated water. The below summary only lists the componds that had detectable levels present in one or both samples.**

****The samples were not hydraulically paired and consists of discreet grab samples at each location on the date indicated below**

Date	Compound Type	Compound	Concentration		Units	Comments
			Raw Water / WTP	Finished Water/WTP	PPB	
12/06/16	EDCs, P & PCPs	trans-Testosterone	0.0001	<0.0001	µg/L	Testosterone is the prototypic and predominant circulating androgenic steroid. It plays a major role in the growth and function of many reproductive and non-reproductive tissues and organs including muscle, liver, and brain, directing the development of the male phenotype during embryogenesis and at puberty
		Atenolol	0.007	<0.001	µg/L	Beta blockers to treat cardiovascular disease
		Carbamazepine	0.012	<0.001	µg/L	Synthesized; anticonvulsant, treatment of AHD, ADHD, epilepsy and bipolar disorders
		Cotinine	0.002	0.001	µg/L	An alkaloid found in tobacco and is also the predominant metabolite of nicotine
		DEET	0.011	<0.005	µg/L	Active ingredient in mosquito repellent.
		Diltiazem	0.0001	<0.0001	µg/L	Diltiazem is a calcium channel blocker. It works by relaxing the muscles of your heart and blood vessels, used to treat hypertension.
		Lincomycin	0.0007	<0.0001	µg/L	Lincomycin is used to treat severe bacterial infections in people who cannot use penicillin antibiotics
		Meprobamate	0.005	0.001	µg/L	Meprobamate is used to relieve anxiety, nervousness, and tension associated with anxiety disorders
		Primidone	0.016	<0.005	µg/L	Anticonvulsant
		Sulfamethazine	0.002	<0.001	µg/L	Sulfamethazine is a sulfonamide antibacterial.
		Sulfamethoxazole	0.026	<0.001	µg/L	Antibiotic
		Tris(chloropropyl) phosphate	0.08	0.07	µg/L	A chemical compound used as a flame retardant, plasticizer, and viscosity regulator in various types of polymers including polyurethanes, polyester resins, and polyacrylates. No studies on health effects in humans are available. Toxicity values for organisms in the environment are available, LC50 values ranging from 3.6 to 180 mg/L. The no-observed effect concentrations for algae, daphnids, and fish are 6, 32, and 9.8 mg/L, respectivley. (World Health Organization, Geneva, 1998)
		Acesulfame-K	0.26	0.05	µg/L	A calorie-free sugar substitute, and marketed under the trade names Sunett and Sweet One.
		Sucralose	2.5	1.2	µg/L	An artificial sweetener and sugar substitute. The majority of ingested sucralose is not broken down by the body, so it is noncaloric.
09/10/15	EDCs, P & PCPs	Atenolol	0.005	<0.001	µg/L	Beta blockers to treat cardiovascular disease
		Carbamazepine	0.021	<0.001	µg/L	Synthesized; anticonvulsant, treatment of AHD, ADHD, epilepsy and bipolar disorders
		Cotinine	0.007	0.002	µg/L	An alkaloid found in tobacco and is also the predominant metabolite of nicotine
		DEET	0.019	<0.005	µg/L	Active ingredient in mosquito repellent.
		Lincomycin	0.0003	<0.0001	µg/L	Lincomycin is used to treat severe bacterial infections in people who cannot use penicillin antibiotics
		Meprobamate	0.012	0.002	µg/L	Meprobamate is used to relieve anxiety, nervousness, and tension associated with anxiety disorders
		Nicotine	0.006	<0.005	µg/L	Stimulant in tobacco products. Also being studied for helping other neurological conditions such as Parkinson's disease, schizophrenia, mild cognitive impairment, and Tourette's syndrome
		Paraxanthine	0.013	<0.005	µg/L	Used as an adenosine receptor ligand and a major metabolite of caffeine
		Primidone	0.029	<0.005	µg/L	Anticonvulsant

Summary of Monitoring for Endocrine Disrupting Compounds (EDCs) and Pharmaceutical & Personal Care Products (PPCPs)

Testing Performed By: *MWH & Eurofins Labs*

Methods Used: *Internally developed; EDCs and PPCPs analyzed using LC-MS; fragrances analyzed using GC-MS.*

***This screen consist of approximately 70 compounds on each sample of raw and treated water. The below summary only lists the componds that had detectable levels present in one or both samples.**

****The samples were not hydraulically paired and consists of discreet grab samples at each location on the date indicated below**

Date	Compound Type	Compound	Concentration		Units	Comments
			Raw Water / WTP	Finished Water/WTP	PPB	
		Progesterone	0.0001	<0.0001	µg/L	Used in oral contraceptives and hormone replacement therapy
		Sulfadimethoxine	0.0002	<0.0001	µg/L	Veterinary Antibiotic
		Sulfamethoxazole	0.030	<0.01	µg/L	Antibiotic
06/11/14	EDCs, P & PCPs	Acesulfame-K	0.140	<0.020	µg/L	Calorie free artificial sweetner
		Atenolol	0.0096	<0.005	µg/L	Beta blockers to treat cardiovascular disease
		Atrazine	0.130	0.016	µg/L	Herbicide (3 ug/L MCL)
		Carbamazepine	0.008	<0.005	µg/L	Synthesized; anticonvulsant, treatment of AHD, ADHD, epilepsy and bipolar disorders
		DEA	0.017	0.020	µg/L	Atrazine congener (Atrazine MCL of 3 ug/L)
		DEET	0.016	<0.010	µg/L	Active ingredient in mosquito repellent.
		DIA	0.017	0.010	µg/L	Atrazine congener (Atrazine MCL of 3 ug/L)
		Iohexal	0.160	0.020	µg/L	X ray contrast agent
		Iopromide	0.0076	<0.005	µg/L	X ray contrast agent
		Metolachlor	0.014	<0.005	µg/L	Herbicide
		Simazine	0.045	0.0050	µg/L	Herbicide (4 ug/L MCL)
		Sucralose	2.000	1.300	µg/L	Artificial sweetener
		Sulfamethoxazole	0.016	<0.005	µg/L	Antibiotic
06/20/13	EDCs, P & PCPs	2, 4-D	0.041	<0.005	µg/L	Herbicide to control broad leaf weeds
		Acesulfame-K	0.500	<0.020	µg/L	Calorie free artificial sweetner
		Atrazine	0.170	0.027	µg/L	Herbicide (3 ug/L MCL)
		Caffeine	0.022	<0.005	µg/L	Natural; stimulant in coffee, soft drinks, etc.
		Carbamazepine	0.0058	<0.005	µg/L	Synthesized; anticonvulsant, treatment of AHD, ADHD, epilepsy and bipolar disorders
		DACT	0.020	0.044	µg/L	Atrazine congener (Atrazine MCL of 3 ug/L)
		DEA	0.036	0.046	µg/L	Atrazine congener (Atrazine MCL of 3 ug/L)
		DEET	0.049	<0.010	µg/L	Active ingredient in mosquito repellent.
		DIA	0.029	0.020	µg/L	Atrazine congener (Atrazine MCL of 3 ug/L)
		Diuron	0.0061	<0.005	µg/L	Herbicide
		Iohexal	0.15	<0.010	µg/L	X ray contrast agent
		Metolachlor	0.023	<0.005	µg/L	Herbicide
		Simazine	0.034	<0.005	µg/L	Herbicide (4 ug/L MCL)
		Sucralose	1.30	0.600	µg/L	Artificial sweetener
		Sulfamethoxazole	0.0055	<0.005	µg/L	Antibiotic
		Fluoxetine	<0.010	0.012	µg/L	Antidepressant
		Propylparaben	<0.005	0.0085	µg/L	Preservative in skin care products

Summary of Monitoring for Endocrine Disrupting Compounds (EDCs) and Pharmaceutical & Personal Care Products (PPCPs)

Testing Performed By: *MWH & Eurofins Labs*

Methods Used: *Internally developed; EDCs and PPCPs analyzed using LC-MS; fragrances analyzed using GC-MS.*

***This screen consist of approximately 70 compounds on each sample of raw and treated water. The below summary only lists the componds that had detectable levels present in one or both samples.**

****The samples were not hydraulically paired and consists of discreet grab samples at each location on the date indicated below**

Date	Compound Type	Compound	Concentration		Units	Comments
			Raw Water / WTP	Finished Water/WTP	PPB	
12/19/12	EDCs, P & PCPs	2, 4-D	0.014	<0.005	µg/L	Herbicide to control broad leaf weeds
		Acesulfame-K	1.2	0.1	µg/L	Calorie free artificial sweetner
		Atrazine	0.026	0.0066	µg/L	Herbicide (3 ug/L MCL)
		Caffeine	0.0072	<0.005	µg/L	Natural; stimulant in coffee, soft drinks, etc.
		Carbamazepine	0.016	<0.005	µg/L	Synthesized; anticonvulsant, treatment of AHD, ADHD, epilepsy and bipolar disorders
		Carisoprodol	0.0088	<0.005	µg/L	Muscle relaxant
		Cotinine	0.019	<0.010	µg/L	Metobolic of nicotine
		DACT	0.022	0.013	µg/L	Atrazine congener (Atrazine MCL of 3 ug/L)
		DEA	0.0098	0.0067	µg/L	Atrazine congener (Atrazine MCL of 3 ug/L)
		DEET	0.016	<0.010	µg/L	Active ingredient in mosquito repellent.
		Dehydronifedipine	0.0092	<0.005	µg/L	Used to treat heart disease
		DIA	0.011	0.0051	µg/L	Atrazine congener (Atrazine MCL of 3 ug/L)
		Iohexal	0.12	0.025	µg/L	X ray contrast agent
		Meprobamate	0.007	<0.005	µg/L	Drug to treat symptoms of anxiety
		Primidone	0.012	<0.005	µg/L	Anticonvulsant; for grand mal seizures
		Quinoline	0.0087	<0.005	µg/L	Preservative in skin care products
		Simazine	0.014	<0.005	µg/L	Herbicide (4 ug/L MCL)
		Sucralose	4.5	2.1	µg/L	Artificial sweetener
		Sulfamethoxazole	0.015	<0.005	µg/L	Antibiotic
		TCEP	0.018	0.011	µg/L	Flame retardant
		Theobromine	0.021	<0.010	µg/L	Alkaloid of cacao plant; found in chocolate

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PAID
1-25-17

LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Montana	CERT0026
Alaska	IN00035	Nebraska	E87775
Arizona	AZ0432	Nevada	IN00035
Arkansas	IN00035	New Hampshire*	2124
California	2920	New Mexico	IN00035
Colorado	IN035	New Jersey*	IN598
Colorado Radiochemistry	IN035	New York*	11398
Connecticut	PH-0132	North Carolina	18700
Delaware	IN035	North Dakota	R-035
Florida*	E87775	Ohio	87775
Georgia	929	Oklahoma	D9508
Hawaii	IN035	Oregon (Primary AB)*	4074-001
Idaho	IN00035/E87775	Pennsylvania*	68-00466
Illinois*	200001	Puerto Rico	IN00035
Illinois Microbiology	200001	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-15-8
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA160002	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
Missouri	880		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 04/14/2016

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LABORATORY CASE NARRATIVE

Client: Cape Fear Public Utility Authority

Report #: 378462QC

All method QC was within acceptance limits, with the exception of:

Method L220

See Attached QC Summary Report.

Method L221

See Attached QC Summary Report.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Account Manager — 01/20/2017

Authorized Signature | Title | Date

Page 1 of 1

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110 South Hill Street
South Bend, IN 46617
Tel: (574) 233-4777
Fax: (574) 233-8207
1 800 332 4345

Laboratory Report

Client: Cape Fear Public Utility Authority

Attn: Jill Deaney
235 Government Center Drive
Wilmington, NC 28403

Report: 378462
Priority: Standard Written
Status: Final
PWS ID: NC0465010

Sample Information

EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
3599465	Sweeney WTP-Post	L211	12/06/16 08:18	Client	12/07/16 09:30
3599466	Sweeney WTP-Post	L221	12/06/16 08:18	Client	12/07/16 09:30
3599467	Sweeney WTP-Post	L220	12/06/16 08:18	Client	12/07/16 09:30
3599468	Sweeney WTP-Post	L200	12/06/16 08:18	Client	12/07/16 09:30

Report Summary

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Joseph Mattheis at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Joseph M. Mattheis Account Manager 01/20/2017

Authorized Signature Title Date

Client Name: Cape Fear Public Utility Authority
Report #: 378462

Client Name: Cape Fear Public Utility Authority

Report #: 378462

Sampling Point: Sweeney WTP-Post

PWS ID: NC0465010

EEA Methods

Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
80-05-7	Bisphenol A	L200	—	0.1	< 0.1	ug/L	12/13/16 09:55	12/18/16 01:17	3599468
25154-52-3	Nonylphenol, isomer mix	L200	—	0.5	< 0.5	ug/L	12/13/16 09:55	12/17/16 06:39	3599468
1806-26-4	4-n-Octylphenol	L200	—	0.5	< 0.5	ug/L	12/13/16 09:55	12/18/16 01:17	3599468
140-66-9	4-tert-Octylphenol	L200	—	0.5	< 0.5	ug/L	12/13/16 09:55	12/17/16 06:39	3599468
87-86-5	Pentachlorophenol	L200	—	0.1	< 0.1	ug/L	12/13/16 09:55	12/18/16 01:17	3599468
92-69-3	Phenylphenol	L200	—	0.1	< 0.1	ug/L	12/13/16 09:55	12/17/16 06:39	3599468
79-94-7	Tetrabromobisphenol A	L200	—	0.1	< 0.1	ug/L	12/13/16 09:55	12/17/16 06:39	3599468
88-06-2	2,4,6-Trichlorophenol	L200	—	0.1	< 0.1	ug/L	12/13/16 09:55	12/18/16 01:17	3599468
56-53-1	Diethylstilbestrol (DES)	L211	—	0.5	< 0.5	ng/L	12/16/16 09:30	01/05/17 22:08	3599465
57-91-0	17alpha-Estradiol	L211	—	0.5	< 0.5	ng/L	12/16/16 09:30	01/05/17 22:08	3599465
50-28-2	17beta-Estradiol	L211	—	0.5	< 0.5	ng/L	12/16/16 09:30	01/05/17 22:08	3599465
50-27-1	Estriol	L211	—	0.5	< 0.5	ng/L	12/16/16 09:30	01/05/17 22:08	3599465
53-16-7	Estrone	L211	—	0.5	< 0.5	ng/L	12/16/16 09:30	01/05/17 22:08	3599465
57-63-6	17alpha-Ethynyl estradiol	L211	—	0.5	< 0.5	ng/L	12/16/16 09:30	01/05/17 22:08	3599465
57-83-0	Progesterone	L211	—	0.1	< 0.1	ng/L	12/16/16 09:30	01/05/17 22:08	3599465
481-30-1	cis-Testosterone	L211	—	0.1	< 0.1	ng/L	12/16/16 09:30	01/05/17 22:08	3599465
58-22-0	trans-Testosterone	L211	—	0.1	< 0.1	ng/L	12/16/16 09:30	01/05/17 22:08	3599465
103-90-2	Acetaminophen	L220	—	0.005	< 0.005	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
60-80-0	Antipyrine	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
29122-68-7	Atenolol	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
83905-01-5	Azithromycin	L220	—	0.005	< 0.005	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
58-08-2	Caffeine	L220	—	0.05	< 0.05	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
6804-07-5	Carbadox	L220	—	0.005	< 0.005	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
298-46-4	Carbamazepine	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
486-56-6	Cotinine	L220	—	0.001	0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
134-62-3	DEET	L220	—	0.005	< 0.005	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
50-02-2	Dexamethasone	L220	—	0.005	< 0.005	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
439-14-5	Diazepam	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
42399-41-7	Diltiazem	L220	—	0.0001	< 0.0001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
114-07-8	Erythromycin	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
59333-67-4	Fluoxetine (Prozac)	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
73334-07-3	Iopromide	L220	—	0.05	< 0.05	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
154-21-2	Lincomycin	L220	—	0.0001	< 0.0001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
57-53-4	Meprobamate	L220	—	0.001	0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
17090-79-8	Monensin	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
55134-13-9	Narasin	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
22083-74-5	Nicotine	L220	—	0.01	< 0.01	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
7060-74-4	Oleandomycin	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
611-59-6	Paraxanthine	L220	—	0.005	< 0.005	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
125-33-7	Primidone	L220	—	0.005	< 0.005	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
80214-83-1	Roxithromycin	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
53003-10-4	Salinomycin	L220	—	0.0001	< 0.0001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
68-35-9	Sulfadiazine	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
122-11-2	Sulfadimethoxine	L220	—	0.0001	< 0.0001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
57-68-1	Sulfamethazine	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
144-82-1	Sulfamethizole	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
723-46-6	Sulfamethoxazole	L220	—	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467

599-79-1	Sulfasalazine	L220	---	0.005	< 0.005	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
72-14-0	Sulfathiazole	L220	---	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
83-67-0	Theobromine	L220	---	0.05	< 0.05	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
738-70-5	Trimethoprim	L220	---	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
115-96-8	Tris(2-chloroethyl) phosphate	L220	---	0.01	< 0.01	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
13674-84-5	Tris(chloropropyl) phosphate	L220	---	0.01	0.07	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
74610-55-2	Tylosin	L220	---	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
21411-53-0	Virginiamycin M1	L220	---	0.001	< 0.001	ug/L	12/19/16 07:10	01/10/17 11:54	3599467
55589-62-3	Acesulfame-K	L221	---	0.01	0.05	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
41859-67-0	Bezafibrate	L221	---	0.0005	< 0.0005	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
56-75-7	Chloramphenicol	L221	---	0.005	< 0.005	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
64-72-2	Chlorotetracycline	L221	---	0.05	< 0.05	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
882-09-7	Clofibric acid	L221	---	0.0005	< 0.0005	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
15307-86-5	Diclofenac	L221	---	0.0005	< 0.0005	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
57-41-0	Dilantin	L221	---	0.002	< 0.002	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
25812-30-0	Gemfibrozil	L221	---	0.0005	< 0.0005	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
15687-27-1	Ibuprofen	L221	---	0.05	< 0.05	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
51-48-9	Levothyroxine (Synthroid)	L221	---	0.002	< 0.002	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
22204-53-1	Naproxen	L221	---	0.002	< 0.002	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
61-33-6	Penicillin G	L221	---	0.002	< 0.002	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
87-08-1	Penicillin V	L221	---	0.002	< 0.002	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
53-03-2	Prednisone	L221	---	0.002	< 0.002	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
69-72-7	Salicylic acid	L221	---	0.05	< 0.05	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
56038-13-2	Sucralose	L221	---	0.025	1.2	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
58-55-9	Theophylline	L221	---	0.005	< 0.005	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
101-20-2	Triclocarban	L221	---	0.0005	< 0.0005	ug/L	12/12/16 07:54	01/04/17 06:13	3599466
3380-34-5	Triclosan	L221	---	0.050	< 0.050	ug/L	12/12/16 07:54	01/04/17 06:13	3599466

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample al6iquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

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Batch # 378462

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Shaded area for EEA use only

CHAIN OF CUSTODY RECORD

Page 1 of 1

REPORT TO:	SAMPLER (Signature)	PWS ID #	STATE (sample origin)	PROJECT NAME	PO#
Jill Deaney - Lab Manager 235 Government Center Dr. Wilmington NC 28403	Debbie DeBoer	04-65-010	NC	Sweeney EDC/PPCP- Special Sampling	170004

BILL TO:	COMPLIANCE MONITORING	Yes	No	POPULATION SERVED	SOURCE WATER
CAPEFEARPUA-NC Finance 235 Government Center Dr. Wilmington NC 28403			X	135,204	Surface Water

	LAB Number	COLLECTION DATE	COLLECTION TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	35994465	12-6-16	0818	✓		Sweeney WTP - Post	EDC/PPCP L211		X		1	DW	SW
2	466						L221						
3	467						L220						
4	468						L200						
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													

RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
Debbie DeBoer	12-6-16	1244 AM (PM)	Crystal Callahan	12-6-16	1244 AM (PM)
Crystal Callahan	12-6-16	1328 AM (PM)			AM PM
		AM PM	RECEIVED FOR LABORATORY BY: amattis	12/7/16	0930 AM PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT (check one): ✓ Ice: Wet Blue ___ Ambient ___ 0°C °C Upon Receipt ___ N/A

MATRIX CODES:

DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written: (15 working days)	0%	IV* = Immediate Verbal: (3 working days)	100%
RV* = Rush Verbal: (5 working days)	50%	IW* =Immediate Written: (3 working days)	125%
RW* = Rush Written: (5 working days)	75%	SP* = Weekend, Holiday	CALL
		STAT* = Less than 48 hours	CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.

06-LO-F0435 Issue 4.0 Effective Date: 2014-05-01

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Run Log

Run ID: **224279** Method: **L200**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
ICL	3606746		OS	PW6	12/16/2016 20:10	121616L200b.mdb
ICS	3606747		OS	PW6	12/16/2016 20:45	121616L200b.mdb
ICS	3606748		OS	PW6	12/16/2016 21:20	121616L200b.mdb
ICS	3606749		OS	PW6	12/16/2016 21:55	121616L200b.mdb
ICS	3606750		OS	PW6	12/16/2016 22:30	121616L200b.mdb
LFB	3598625		RW	PW6	12/16/2016 23:39	121616L200b.mdb
LFB	3603726		RW	PW6	12/17/2016 00:49	121616L200b.mdb
LMB	3603725		RW	PW6	12/17/2016 02:34	121616L200b.mdb
FS	3599468	Sweeney WTP-Post	DW	PW6	12/17/2016 06:39	121616L200b.mdb
CCC	3606751		OS	PW6	12/17/2016 07:50	121616L200b.mdb

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
ICL	IS-Bisphenol A-d16	L200	N/A	---		94179.30	92532	ug/L	102	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 20:10	3606746
ICL	IS-Pentachlorophenol-13C6	L200	N/A	---		723839.00	619082	ug/L	117	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 20:10	3606746
ICL	SS-4-(4'-Bromophenyl)phenol	L200	N/A	---		19.9114	20.0	ug/L	100	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 20:10	3606746
ICL	Nonylphenol, isomer mix	L200	N/A	---		0.1016	0.1	ug/L	102	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 20:10	3606746
ICL	4-tert-Octylphenol	L200	N/A	---		0.0986	0.1	ug/L	99	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 20:10	3606746
ICL	Phenylphenol	L200	N/A	---		0.0983	0.1	ug/L	98	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 20:10	3606746
ICL	Tetrabromobisphenol A	L200	N/A	---		0.0536	0.1	ug/L	54	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 20:10	3606746
ICS	IS-Bisphenol A-d16	L200	N/A	---		90065.90	92532	ug/L	97	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 20:45	3606747
ICS	IS-Pentachlorophenol-13C6	L200	N/A	---		671213.00	619082	ug/L	108	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 20:45	3606747
ICS	SS-4-(4'-Bromophenyl)phenol	L200	N/A	---		20.6059	20.0	ug/L	103	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 20:45	3606747
ICS	Nonylphenol, isomer mix	L200	N/A	---		0.4907	0.5	ug/L	98	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 20:45	3606747
ICS	4-tert-Octylphenol	L200	N/A	---		0.5030	0.5	ug/L	101	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 20:45	3606747
ICS	Phenylphenol	L200	N/A	---		0.5127	0.5	ug/L	103	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 20:45	3606747
ICS	Tetrabromobisphenol A	L200	N/A	---		0.6319	0.5	ug/L	126	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 20:45	3606747
ICS	IS-Bisphenol A-d16	L200	N/A	---		95603.70	92532	ug/L	103	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 21:20	3606748
ICS	IS-Pentachlorophenol-13C6	L200	N/A	---		647512.00	619082	ug/L	105	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 21:20	3606748
ICS	SS-4-(4'-Bromophenyl)phenol	L200	N/A	---		19.7655	20.0	ug/L	99	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 21:20	3606748
ICS	Nonylphenol, isomer mix	L200	N/A	---		0.9955	1.0	ug/L	100	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 21:20	3606748
ICS	4-tert-Octylphenol	L200	N/A	---		1.0141	1.0	ug/L	101	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 21:20	3606748
ICS	Phenylphenol	L200	N/A	---		0.9970	1.0	ug/L	100	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 21:20	3606748
ICS	Tetrabromobisphenol A	L200	N/A	---		1.2110	1.0	ug/L	121	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 21:20	3606748
ICS	IS-Bisphenol A-d16	L200	N/A	---		91009.50	92532	ug/L	98	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 21:55	3606749
ICS	IS-Pentachlorophenol-13C6	L200	N/A	---		566478.00	619082	ug/L	92	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 21:55	3606749
ICS	SS-4-(4'-Bromophenyl)phenol	L200	N/A	---		19.9762	20.0	ug/L	100	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 21:55	3606749
ICS	Nonylphenol, isomer mix	L200	N/A	---		2.0166	2.0	ug/L	101	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 21:55	3606749
ICS	4-tert-Octylphenol	L200	N/A	---		1.9863	2.0	ug/L	99	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 21:55	3606749
ICS	Phenylphenol	L200	N/A	---		1.9868	2.0	ug/L	99	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 21:55	3606749
ICS	Tetrabromobisphenol A	L200	N/A	---		2.1600	2.0	ug/L	108	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 21:55	3606749
ICS	IS-Bisphenol A-d16	L200	N/A	---		91801.60	92532	ug/L	99	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 22:30	3606750
ICS	IS-Pentachlorophenol-13C6	L200	N/A	---		486372.00	619082	ug/L	79	50 - 150	---	---	1.0	11/17/2016 13:34	12/16/2016 22:30	3606750
ICS	SS-4-(4'-Bromophenyl)phenol	L200	N/A	---		19.7410	20.0	ug/L	99	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 22:30	3606750
ICS	Nonylphenol, isomer mix	L200	N/A	---		4.9955	5.0	ug/L	100	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 22:30	3606750
ICS	Phenylphenol	L200	N/A	---		5.0054	5.0	ug/L	100	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 22:30	3606750
ICS	Tetrabromobisphenol A	L200	N/A	---		4.5434	5.0	ug/L	91	70 - 130	---	---	1.0	11/17/2016 13:34	12/16/2016 22:30	3606750
LFB	IS-Bisphenol A-d16	L200	N/A	---		83828.70	92532	ug/L	91	50 - 150	---	---	1.0	12/06/2016 08:31	12/16/2016 23:39	3598625
LFB	IS-Pentachlorophenol-13C6	L200	N/A	---		612135.00	619082	ug/L	99	50 - 150	---	---	1.0	12/06/2016 08:31	12/16/2016 23:39	3598625
LFB	SS-4-(4'-Bromophenyl)phenol	L200	N/A	---		19.6665	20.0	ug/L	98	70 - 130	---	---	1.0	12/06/2016 08:31	12/16/2016 23:39	3598625
LFB	Nonylphenol, isomer mix	L200	0.5	---		0.7149	1.0	ug/L	71	70 - 130	---	---	1.0	12/06/2016 08:31	12/16/2016 23:39	3598625
LFB	4-tert-Octylphenol	L200	0.5	---		0.6979	1.0	ug/L	70	70 - 130	---	---	1.0	12/06/2016 08:31	12/16/2016 23:39	3598625
LFB	Phenylphenol	L200	0.1	---		0.7278	1.0	ug/L	73	70 - 130	---	---	1.0	12/06/2016 08:31	12/16/2016 23:39	3598625

QC Summary Report (cont.)

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
LFB	Tetrabromobisphenol A	L200	0.1	---		0.8437	1.0	ug/L	84	70 - 130	---	---	1.0	12/06/2016 08:31	12/16/2016 23:39	3598625
LFB	IS-Bisphenol A-d16	L200	N/A	---		90352.80	92532	ug/L	98	50 - 150	---	---	1.0	12/13/2016 09:55	12/17/2016 00:49	3603726
LFB	IS-Pentachlorophenol-13C6	L200	N/A	---		628032.00	619082	ug/L	101	50 - 150	---	---	1.0	12/13/2016 09:55	12/17/2016 00:49	3603726
LFB	SS-4-(4'-Bromophenyl)phenol	L200	N/A	---		18.9604	20.0	ug/L	95	70 - 130	---	---	1.0	12/13/2016 09:55	12/17/2016 00:49	3603726
LFB	Nonylphenol, isomer mix	L200	0.5	---		0.7416	1.0	ug/L	74	70 - 130	---	---	1.0	12/13/2016 09:55	12/17/2016 00:49	3603726
LFB	4-tert-Octylphenol	L200	0.5	---		0.6963	1.0	ug/L	70	70 - 130	---	---	1.0	12/13/2016 09:55	12/17/2016 00:49	3603726
LFB	Phenylphenol	L200	0.1	---		0.7101	1.0	ug/L	71	70 - 130	---	---	1.0	12/13/2016 09:55	12/17/2016 00:49	3603726
LFB	Tetrabromobisphenol A	L200	0.1	---		0.7266	1.0	ug/L	73	70 - 130	---	---	1.0	12/13/2016 09:55	12/17/2016 00:49	3603726
LMB	IS-Bisphenol A-d16	L200	N/A	---		85956.90	92532	ug/L	93	50 - 150	---	---	1.04	12/13/2016 09:55	12/17/2016 02:34	3603725
LMB	IS-Pentachlorophenol-13C6	L200	N/A	---		676983.00	619082	ug/L	109	50 - 150	---	---	1.04	12/13/2016 09:55	12/17/2016 02:34	3603725
LMB	SS-4-(4'-Bromophenyl)phenol	L200	N/A	---		20.0527	20.0	ug/L	96	70 - 130	---	---	1.04	12/13/2016 09:55	12/17/2016 02:34	3603725
LMB	Nonylphenol, isomer mix	L200	0.5	---	<	0.5		ug/L	---	---	---	---	1.04	12/13/2016 09:55	12/17/2016 02:34	3603725
LMB	4-tert-Octylphenol	L200	0.5	---	<	0.5		ug/L	---	---	---	---	1.04	12/13/2016 09:55	12/17/2016 02:34	3603725
LMB	Phenylphenol	L200	0.1	---	<	0.1		ug/L	---	---	---	---	1.04	12/13/2016 09:55	12/17/2016 02:34	3603725
LMB	Tetrabromobisphenol A	L200	0.1	---	<	0.1		ug/L	---	---	---	---	1.04	12/13/2016 09:55	12/17/2016 02:34	3603725
FS	IS-Bisphenol A-d16	L200	N/A	Sweeney WTP-Post		93710.20	92532	ug/L	101	50 - 150	---	---	1.09	12/13/2016 09:55	12/17/2016 06:39	3599468
FS	IS-Pentachlorophenol-13C6	L200	N/A	Sweeney WTP-Post		725301.00	619082	ug/L	117	50 - 150	---	---	1.09	12/13/2016 09:55	12/17/2016 06:39	3599468
FS	SS-4-(4'-Bromophenyl)phenol	L200	N/A	Sweeney WTP-Post		21.3549	20.0	ug/L	98	70 - 130	---	---	1.09	12/13/2016 09:55	12/17/2016 06:39	3599468
FS	Nonylphenol, isomer mix	L200	0.5	Sweeney WTP-Post	<	0.5		ug/L	---	---	---	---	1.09	12/13/2016 09:55	12/17/2016 06:39	3599468
FS	4-tert-Octylphenol	L200	0.5	Sweeney WTP-Post	<	0.5		ug/L	---	---	---	---	1.09	12/13/2016 09:55	12/17/2016 06:39	3599468
FS	Phenylphenol	L200	0.1	Sweeney WTP-Post	<	0.1		ug/L	---	---	---	---	1.09	12/13/2016 09:55	12/17/2016 06:39	3599468
FS	Tetrabromobisphenol A	L200	0.1	Sweeney WTP-Post	<	0.1		ug/L	---	---	---	---	1.09	12/13/2016 09:55	12/17/2016 06:39	3599468
CCC	IS-Bisphenol A-d16	L200	N/A	---		95682.60	92532	ug/L	103	50 - 150	---	---	1.0	11/17/2016 13:34	12/17/2016 07:50	3606751
CCC	IS-Pentachlorophenol-13C6	L200	N/A	---		620578.00	619082	ug/L	100	50 - 150	---	---	1.0	11/17/2016 13:34	12/17/2016 07:50	3606751
CCC	SS-4-(4'-Bromophenyl)phenol	L200	N/A	---		18.2881	20.0	ug/L	91	70 - 130	---	---	1.0	11/17/2016 13:34	12/17/2016 07:50	3606751
CCC	Nonylphenol, isomer mix	L200	0.5	---		1.0354	1.0	ug/L	104	70 - 130	---	---	1.0	11/17/2016 13:34	12/17/2016 07:50	3606751
CCC	4-tert-Octylphenol	L200	0.5	---		1.0505	1.0	ug/L	105	70 - 130	---	---	1.0	11/17/2016 13:34	12/17/2016 07:50	3606751
CCC	Phenylphenol	L200	0.1	---		1.0335	1.0	ug/L	103	70 - 130	---	---	1.0	11/17/2016 13:34	12/17/2016 07:50	3606751
CCC	Tetrabromobisphenol A	L200	0.1	---		1.1037	1.0	ug/L	110	70 - 130	---	---	1.0	11/17/2016 13:34	12/17/2016 07:50	3606751

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Run Log

Run ID: **224281** Method: **L200**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
ICL	3606780		OS	PW6	12/17/2016 14:46	121716L200b.mdb
ICS	3606781		OS	PW6	12/17/2016 15:21	121716L200b.mdb
ICS	3606782		OS	PW6	12/17/2016 15:56	121716L200b.mdb
ICS	3606783		OS	PW6	12/17/2016 16:31	121716L200b.mdb
ICS	3606784		OS	PW6	12/17/2016 17:06	121716L200b.mdb
LFB	3598625		RW	PW6	12/17/2016 18:16	121716L200b.mdb
LFB	3603726		RW	PW6	12/17/2016 19:26	121716L200b.mdb
LMB	3603725		RW	PW6	12/17/2016 21:12	121716L200b.mdb
FS	3599468	Sweeney WTP-Post	DW	PW6	12/18/2016 01:17	121716L200b.mdb
CCC	3606785		OS	PW6	12/18/2016 02:28	121716L200b.mdb

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
ICL	Bisphenol A	L200	N/A	---		0.1005	0.1	ug/L	101	50 - 150	---	---	1.0	12/17/2016 13:04	12/17/2016 14:46	3606780
ICL	4-n-Octylphenol	L200	N/A	---		0.1005	0.1	ug/L	101	50 - 150	---	---	1.0	12/17/2016 13:04	12/17/2016 14:46	3606780
ICL	Pentachlorophenol	L200	N/A	---		0.0884	0.1	ug/L	88	50 - 150	---	---	1.0	12/17/2016 13:04	12/17/2016 14:46	3606780
ICL	2,4,6-Trichlorophenol	L200	N/A	---		0.1012	0.1	ug/L	101	50 - 150	---	---	1.0	12/17/2016 13:04	12/17/2016 14:46	3606780
ICS	Bisphenol A	L200	N/A	---		0.4946	0.5	ug/L	99	70 - 130	---	---	1.0	12/17/2016 13:04	12/17/2016 15:21	3606781
ICS	4-n-Octylphenol	L200	N/A	---		0.4950	0.5	ug/L	99	70 - 130	---	---	1.0	12/17/2016 13:04	12/17/2016 15:21	3606781
ICS	Pentachlorophenol	L200	N/A	---		0.5181	0.5	ug/L	104	70 - 130	---	---	1.0	12/17/2016 13:04	12/17/2016 15:21	3606781
ICS	2,4,6-Trichlorophenol	L200	N/A	---		0.5137	0.5	ug/L	103	70 - 130	---	---	1.0	12/17/2016 13:04	12/17/2016 15:21	3606781
ICS	Bisphenol A	L200	N/A	---		1.0068	1.0	ug/L	101	70 - 130	---	---	1.0	12/17/2016 13:04	12/17/2016 15:56	3606782
ICS	4-n-Octylphenol	L200	N/A	---		1.0057	1.0	ug/L	101	70 - 130	---	---	1.0	12/17/2016 13:04	12/17/2016 15:56	3606782
ICS	Pentachlorophenol	L200	N/A	---		1.0549	1.0	ug/L	105	70 - 130	---	---	1.0	12/17/2016 13:04	12/17/2016 15:56	3606782
ICS	2,4,6-Trichlorophenol	L200	N/A	---		0.9902	1.0	ug/L	99	70 - 130	---	---	1.0	12/17/2016 13:04	12/17/2016 15:56	3606782
ICS	Bisphenol A	L200	N/A	---		1.9981	2.0	ug/L	100	70 - 130	---	---	1.0	12/17/2016 13:04	12/17/2016 16:31	3606783
ICS	4-n-Octylphenol	L200	N/A	---		1.9986	2.0	ug/L	100	70 - 130	---	---	1.0	12/17/2016 13:04	12/17/2016 16:31	3606783
ICS	Pentachlorophenol	L200	N/A	---		2.1242	2.0	ug/L	106	70 - 130	---	---	1.0	12/17/2016 13:04	12/17/2016 16:31	3606783
ICS	2,4,6-Trichlorophenol	L200	N/A	---		2.0015	2.0	ug/L	100	70 - 130	---	---	1.0	12/17/2016 13:04	12/17/2016 16:31	3606783
ICS	Pentachlorophenol	L200	N/A	---		4.8144	5.0	ug/L	96	70 - 130	---	---	1.0	12/17/2016 13:04	12/17/2016 17:06	3606784
LFB	Bisphenol A	L200	0.1	---		0.7362	1.0	ug/L	74	70 - 130	---	---	1.0	12/06/2016 08:31	12/17/2016 18:16	3598625
LFB	4-n-Octylphenol	L200	0.5	---		0.7187	1.0	ug/L	72	70 - 130	---	---	1.0	12/06/2016 08:31	12/17/2016 18:16	3598625
LFB	Pentachlorophenol	L200	0.1	---		0.7074	1.0	ug/L	71	70 - 130	---	---	1.0	12/06/2016 08:31	12/17/2016 18:16	3598625
LFB	2,4,6-Trichlorophenol	L200	0.1	---		0.6992	1.0	ug/L	70	70 - 130	---	---	1.0	12/06/2016 08:31	12/17/2016 18:16	3598625
LFB	IS-Bisphenol A-d16	L200	N/A	---		82247.80	83209	ug/L	99	50 - 150	---	---	1.0	12/13/2016 09:55	12/17/2016 19:26	3603726
LFB	IS-Pentachlorophenol-13C6	L200	N/A	---		576879.00	552278	ug/L	104	50 - 150	---	---	1.0	12/13/2016 09:55	12/17/2016 19:26	3603726
LFB	SS-4-(4'-Bromophenyl)phenol	L200	N/A	---		20.0374	20.0	ug/L	100	70 - 130	---	---	1.0	12/13/2016 09:55	12/17/2016 19:26	3603726
LFB	Bisphenol A	L200	0.1	---		0.7075	1.0	ug/L	71	70 - 130	---	---	1.0	12/13/2016 09:55	12/17/2016 19:26	3603726
LFB	4-n-Octylphenol	L200	0.5	---		0.6979	1.0	ug/L	70	70 - 130	---	---	1.0	12/13/2016 09:55	12/17/2016 19:26	3603726
LFB	Pentachlorophenol	L200	0.1	---		0.7053	1.0	ug/L	71	70 - 130	---	---	1.0	12/13/2016 09:55	12/17/2016 19:26	3603726
LFB	2,4,6-Trichlorophenol	L200	0.1	---		0.7069	1.0	ug/L	71	70 - 130	---	---	1.0	12/13/2016 09:55	12/17/2016 19:26	3603726
LMB	IS-Bisphenol A-d16	L200	N/A	---		79187.20	83209	ug/L	95	50 - 150	---	---	1.04	12/13/2016 09:55	12/17/2016 21:12	3603725
LMB	IS-Pentachlorophenol-13C6	L200	N/A	---		631842.00	552278	ug/L	114	50 - 150	---	---	1.04	12/13/2016 09:55	12/17/2016 21:12	3603725
LMB	SS-4-(4'-Bromophenyl)phenol	L200	N/A	---		20.9258	20.0	ug/L	101	70 - 130	---	---	1.04	12/13/2016 09:55	12/17/2016 21:12	3603725
LMB	Bisphenol A	L200	0.1	---	<	0.1		ug/L	---	---	---	---	1.04	12/13/2016 09:55	12/17/2016 21:12	3603725
LMB	4-n-Octylphenol	L200	0.5	---	<	0.5		ug/L	---	---	---	---	1.04	12/13/2016 09:55	12/17/2016 21:12	3603725
LMB	Pentachlorophenol	L200	0.1	---	<	0.1		ug/L	---	---	---	---	1.04	12/13/2016 09:55	12/17/2016 21:12	3603725
LMB	2,4,6-Trichlorophenol	L200	0.1	---	<	0.1		ug/L	---	---	---	---	1.04	12/13/2016 09:55	12/17/2016 21:12	3603725
FS	Bisphenol A	L200	0.1	Sweeney WTP-Post	<	0.1		ug/L	---	---	---	---	1.09	12/13/2016 09:55	12/18/2016 01:17	3599468
FS	4-n-Octylphenol	L200	0.5	Sweeney WTP-Post	<	0.5		ug/L	---	---	---	---	1.09	12/13/2016 09:55	12/18/2016 01:17	3599468
FS	Pentachlorophenol	L200	0.1	Sweeney WTP-Post	<	0.1		ug/L	---	---	---	---	1.09	12/13/2016 09:55	12/18/2016 01:17	3599468
FS	2,4,6-Trichlorophenol	L200	0.1	Sweeney WTP-Post	<	0.1		ug/L	---	---	---	---	1.09	12/13/2016 09:55	12/18/2016 01:17	3599468
CCC	Bisphenol A	L200	0.1	---		0.9772	1.0	ug/L	98	70 - 130	---	---	1.0	12/17/2016 13:04	12/18/2016 02:28	3606785

EEA Run ID 224281 / EEA Report # 378462

QC Summary Report (cont.)															
Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
CCC	4-n-Octylphenol	L200	0.5	---		0.9752	1.0	ug/L	98	70 - 130	---	---	1.0	12/17/2016 13:04	12/18/2016 02:28	3606785
CCC	Pentachlorophenol	L200	0.1	---		1.0456	1.0	ug/L	105	70 - 130	---	---	1.0	12/17/2016 13:04	12/18/2016 02:28	3606785
CCC	2,4,6-Trichlorophenol	L200	0.1	---		1.1516	1.0	ug/L	115	70 - 130	---	---	1.0	12/17/2016 13:04	12/18/2016 02:28	3606785

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Run Log

Run ID: **225109** Method: **L211**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
ICL	3616224		OS	DQ	01/05/2017 19:20	010517L211a.mdb
ICS	3616225		OS	DQ	01/05/2017 19:33	010517L211a.mdb
ICS	3616226		OS	DQ	01/05/2017 19:46	010517L211a.mdb
ICS	3616227		OS	DQ	01/05/2017 19:59	010517L211a.mdb
ICS	3616228		OS	DQ	01/05/2017 20:12	010517L211a.mdb
ICS	3616229		OS	DQ	01/05/2017 20:25	010517L211a.mdb
ICS	3616230		OS	DQ	01/05/2017 20:38	010517L211a.mdb
LFB	3606213		RW	DQ	01/05/2017 20:51	010517L211a.mdb
LMB	3606212		RW	DQ	01/05/2017 21:55	010517L211a.mdb
FS	3599465	Sweeney WTP-Post	DW	DQ	01/05/2017 22:08	010517L211a.mdb
CCC	3616231		OS	DQ	01/05/2017 22:34	010517L211a.mdb