

February 28, 2019

Jen Hilburn
Altamaha Riverkeeper
150 Spruce St
Richmond Hill, GA 31324

RE: Project: Altamaha Riverkeeper 1/28
Pace Project No.: 92417509

Dear Jen Hilburn:

Enclosed are the analytical results for sample(s) received by the laboratory on February 12, 2019. 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,



Chris Derouen
christopher.derouen@pacelabs.com
(828)254-7176
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
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
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
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

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
Louisiana/NELAP Certification # LA170028
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92417509001	SCH 1		SH1	2	PASI-A
			FDV	9	PASI-O
			RDT	1	PASI-A
			CDC	1	PASI-A
			CDC	1	PASI-A
92417509002	SCH 2		SH1	2	PASI-A
			FDV	9	PASI-O
			RDT	1	PASI-A
			CDC	1	PASI-A
			CDC	1	PASI-A
92417509003	SCH 3		SH1	2	PASI-A
			FDV	9	PASI-O
			RDT	1	PASI-A
			CDC	1	PASI-A
			CDC	1	PASI-A
92417509004	SCH 4		SH1	2	PASI-A
			FDV	9	PASI-O
			RDT	1	PASI-A
			CDC	1	PASI-A
			CDC	1	PASI-A
92417509005	SCH 5		SH1	2	PASI-A
			FDV	9	PASI-O
			RDT	1	PASI-A
			CDC	1	PASI-A
92417509006	CHANCY SCO 1&2	EPA 6010D	SER	7	PASI-A
		EPA 7471B	RDT	1	PASI-A
		ASTM D2974-87	KDF	1	PASI-C
		EPA 7196A	MVC	1	PASI-A
92417509007	CHANCY KJE 1&2	EPA 6010D	SER	7	PASI-A
		EPA 7471B	RDT	1	PASI-A
		ASTM D2974-87	KDF	1	PASI-C
		EPA 7196A	MVC	1	PASI-A

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

Sample: SCH 1		Lab ID: 92417509001	Collected: 01/28/19 15:35	Received: 02/12/19 18:06	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

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Sample: SCH 2		Lab ID: 92417509002	Collected: 01/28/19 15:50	Received: 02/12/19 18:06	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

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ANALYTICAL RESULTS

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

Sample: SCH 2		Lab ID: 92417509002	Collected: 01/28/19 15:50	Received: 02/12/19 18:06	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

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Sample: SCH 3		Lab ID: 92417509003	Collected: 01/28/19 14:30	Received: 02/12/19 18:06	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

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Sample: SCH 4		Lab ID: 92417509004	Collected: 01/28/19 16:50	Received: 02/12/19 18:06	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

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ANALYTICAL RESULTS

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

Sample: SCH 4		Lab ID: 92417509004	Collected: 01/28/19 16:50	Received: 02/12/19 18:06	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

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Sample: SCH 5		Lab ID: 92417509005	Collected: 01/28/19 18:55	Received: 02/12/19 18:06	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

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ANALYTICAL RESULTS

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

Sample: SCH 5		Lab ID: 92417509005	Collected: 01/28/19 18:55	Received: 02/12/19 18:06	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

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Sample: CHANCY SCO 1&2		Lab ID: 92417509006	Collected: 02/05/19 12:20	Received: 02/12/19 18:06	Matrix: Solid			
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.								
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B							
Arsenic	ND	mg/kg	1.3	1	02/20/19 10:23	02/21/19 00:04	7440-38-2	
Boron	16.8	mg/kg	6.4	1	02/20/19 10:23	02/21/19 00:04	7440-42-8	
Cadmium	1.4	mg/kg	0.13	1	02/20/19 10:23	02/21/19 00:04	7440-43-9	
Chromium	40.6	mg/kg	6.4	10	02/20/19 10:23	02/21/19 00:33	7440-47-3	
Lead	3.3	mg/kg	0.64	1	02/20/19 10:23	02/21/19 00:04	7439-92-1	
Selenium	ND	mg/kg	1.3	1	02/20/19 10:23	02/21/19 00:04	7782-49-2	
Thallium	ND	mg/kg	1.3	1	02/20/19 10:23	02/21/19 00:04	7440-28-0	J(M1)

7471 Mercury	Analytical Method: EPA 7471B Preparation Method: EPA 7471B							
Mercury	0.036	mg/kg	0.010	1	02/21/19 14:51	02/22/19 15:44	7439-97-6	Q

Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	53.8	%	0.10	1		02/20/19 16:48		

7196 Chromium, Hexavalent	Analytical Method: EPA 7196A Preparation Method: EPA 7196A Modified							
Chromium, Hexavalent	ND	mg/kg	10.0	1	02/19/19 19:36	02/19/19 20:21	18540-29-9	

Sample: CHANCY KJE 1&2		Lab ID: 92417509007	Collected: 02/05/19 13:00	Received: 02/12/19 18:06	Matrix: Solid			
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.								
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B							
Arsenic	ND	mg/kg	1.4	1	02/20/19 10:23	02/21/19 00:29	7440-38-2	
Boron	8.9	mg/kg	6.9	1	02/20/19 10:23	02/21/19 00:29	7440-42-8	
Cadmium	1.6	mg/kg	0.14	1	02/20/19 10:23	02/21/19 00:29	7440-43-9	
Chromium	44.8	mg/kg	0.69	1	02/20/19 10:23	02/21/19 00:29	7440-47-3	
Lead	2.5	mg/kg	0.69	1	02/20/19 10:23	02/21/19 00:29	7439-92-1	
Selenium	ND	mg/kg	1.4	1	02/20/19 10:23	02/21/19 00:29	7782-49-2	
Thallium	ND	mg/kg	1.4	1	02/20/19 10:23	02/21/19 00:29	7440-28-0	

7471 Mercury	Analytical Method: EPA 7471B Preparation Method: EPA 7471B							
Mercury	0.017	mg/kg	0.0096	1	02/21/19 14:51	02/22/19 15:51	7439-97-6	

Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	59.3	%	0.10	1		02/20/19 16:48		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

Sample: CHANCY KJE 1&2 **Lab ID: 92417509007** Collected: 02/05/19 13:00 Received: 02/12/19 18:06 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
7196 Chromium, Hexavalent Analytical Method: EPA 7196A Preparation Method: EPA 7196A Modified								
Chromium, Hexavalent	ND	mg/kg	11.2	1	02/19/19 19:36	02/19/19 20:22	18540-29-9	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

QC Batch: 458622 Analysis Method: EPA 245.1 Rev 3.0 1994

QC Batch Method: EPA 245.1 Rev 3.0 1994 Analysis Description: 245.1 Mercury

Associated Lab Samples: 92417509001, 92417509002, 92417509003, 92417509004, 92417509005

METHOD BLANK: 2500146

Matrix: Water

Associated Lab Samples: 92417509001, 92417509002, 92417509003, 92417509004, 92417509005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	02/18/19 11:27	

LABORATORY CONTROL SAMPLE: 2500147

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2.5	2.2	90	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2500148 2500149

Parameter	Units	92417598001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Mercury	ug/L	ND	2.5	2.5	1.9	1.9	75	77	70-130	2	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2500150 2500151

Parameter	Units	92417509005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Mercury	ug/L	ND	2.5	2.5	1.8	1.7	71	66	70-130	7 J(M1)	

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QUALITY CONTROL DATA

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

QC Batch:	459334	Analysis Method:	EPA 7471B
QC Batch Method:	EPA 7471B	Analysis Description:	7471 Mercury
Associated Lab Samples: 92417509006, 92417509007			

METHOD BLANK: 2503183 Matrix: Solid

Associated Lab Samples: 92417509006, 92417509007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	ND	0.0060	02/22/19 15:32	

LABORATORY CONTROL SAMPLE: 2503184

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.083	0.087	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2503185 2503186

Parameter	92417509006		MS	MSD	MS		MSD		% Rec	RPD	Qual
	Units	Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits		
Mercury	mg/kg	0.036	0.16	0.17	0.16	0.18	76	85	75-125	14	Q

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QUALITY CONTROL DATA

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

QC Batch: 457778 Analysis Method: EPA 200.7 Rev 4.4 1994

QC Batch Method: EPA 200.7 Rev 4.4 1994 Analysis Description: 200.7 MET

Associated Lab Samples: 92417509001, 92417509002, 92417509003, 92417509004, 92417509005

METHOD BLANK: 2496509

Matrix: Water

Associated Lab Samples: 92417509001, 92417509002, 92417509003, 92417509004, 92417509005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Beryllium	ug/L	ND	1.0	02/13/19 21:11	
Iron	ug/L	ND	50.0	02/13/19 21:11	

LABORATORY CONTROL SAMPLE: 2496510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Beryllium	ug/L	500	501	100	85-115	
Iron	ug/L	5000	4900	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2496511 2496512

Parameter	Units	92417509001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Beryllium	ug/L	ND	500	500	500	498	100	99	70-130	1	
Iron	ug/L	ND	5000	5000	5000	4980	99	99	70-130	0	

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QUALITY CONTROL DATA

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

QC Batch: 517340 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 92417509001, 92417509002, 92417509003, 92417509004, 92417509005

METHOD BLANK: 2794298 Matrix: Water
Associated Lab Samples: 92417509001, 92417509002, 92417509003, 92417509004, 92417509005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	10.0	02/21/19 12:08	
Arsenic	ug/L	ND	1.0	02/21/19 12:08	
Cadmium	ug/L	ND	0.10	02/21/19 12:08	
Cobalt	ug/L	ND	1.0	02/21/19 12:08	
Lead	ug/L	ND	1.0	02/21/19 12:08	
Manganese	ug/L	ND	1.0	02/21/19 12:08	
Selenium	ug/L	ND	1.0	02/21/19 12:08	
Thallium	ug/L	ND	0.40	02/21/19 12:08	
Vanadium	ug/L	ND	1.0	02/21/19 12:08	

LABORATORY CONTROL SAMPLE: 2794299

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	500	493	99	85-115	
Arsenic	ug/L	50	50.3	101	85-115	
Cadmium	ug/L	5	4.9	99	85-115	
Cobalt	ug/L	50	50.7	101	85-115	
Lead	ug/L	50	49.5	99	85-115	
Manganese	ug/L	50	50.3	101	85-115	
Selenium	ug/L	50	49.5	99	85-115	
Thallium	ug/L	50	48.5	97	85-115	
Vanadium	ug/L	50	51.2	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2794300 2794301

Parameter	Units	35446803004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Aluminum	ug/L	722	500	500	1400	1410	137	138	70-130	0	J(M1)
Arsenic	ug/L	ND	50	50	52.2	52.2	104	104	70-130	0	
Cadmium	ug/L	ND	5	5	5.0	4.9	99	98	70-130	2	
Cobalt	ug/L	0.53 l	50	50	48.1	48.7	95	96	70-130	1	
Lead	ug/L	1.4	50	50	49.6	49.5	96	96	70-130	0	
Manganese	ug/L	115	50	50	161	163	92	95	70-130	1	
Selenium	ug/L	ND	50	50	48.8	49.8	97	99	70-130	2	
Thallium	ug/L	0.093 l	50	50	47.8	47.2	95	94	70-130	1	
Vanadium	ug/L	1.5	50	50	51.3	52.2	100	102	70-130	2	

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QUALITY CONTROL DATA

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2794302 2794303											
Parameter	Units	35448592003 Result	MS		MSD		MS		MSD		% Rec Limits
			Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	MSD % Rec	RPD	
Aluminum	ug/L	8.6 I	500	500	496	503	97	99	99	70-130	1
Arsenic	ug/L	1.7	50	50	51.1	52.0	99	101	101	70-130	2
Cadmium	ug/L	0.050U	5	5	4.8	4.8	96	96	96	70-130	0
Cobalt	ug/L	0.50U	50	50	49.0	49.5	98	99	99	70-130	1
Lead	ug/L	0.50U	50	50	48.7	49.2	97	98	98	70-130	1
Manganese	ug/L	1.9	50	50	50.1	50.4	96	97	97	70-130	1
Selenium	ug/L	0.50U	50	50	49.1	48.2	98	96	96	70-130	2
Thallium	ug/L	0.065U	50	50	48.3	48.6	97	97	97	70-130	1
Vanadium	ug/L	0.91U	50	50	50.6	50.9	100	101	101	70-130	1

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QUALITY CONTROL DATA

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

QC Batch:	459100	Analysis Method:	EPA 6010D
QC Batch Method:	EPA 3050B	Analysis Description:	6010 MET
Associated Lab Samples: 92417509006, 92417509007			

METHOD BLANK: 2502010 Matrix: Solid

Associated Lab Samples: 92417509006, 92417509007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	1.0	02/20/19 23:58	
Boron	mg/kg	ND	5.0	02/20/19 23:58	
Cadmium	mg/kg	ND	0.10	02/20/19 23:58	
Chromium	mg/kg	ND	0.50	02/20/19 23:58	
Lead	mg/kg	ND	0.50	02/20/19 23:58	
Selenium	mg/kg	ND	1.0	02/20/19 23:58	
Thallium	mg/kg	ND	1.0	02/20/19 23:58	

LABORATORY CONTROL SAMPLE: 2502011

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	50	46.2	92	80-120	
Boron	mg/kg	50	46.1	92	80-120	
Cadmium	mg/kg	50	47.8	96	80-120	
Chromium	mg/kg	50	49.7	99	80-120	
Lead	mg/kg	50	48.5	97	80-120	
Selenium	mg/kg	50	45.7	91	80-120	
Thallium	mg/kg	50	47.8	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2502012 2502013

Parameter	92417509006		MS		MSD		MS		MSD		% Rec		Qual
	Units	Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	MS % Rec	MSD % Rec	Limits	RPD	
Arsenic	mg/kg	ND	63	63.7	61.7	61.7	98	97	75-125	0			
Boron	mg/kg	16.8	63	63.7	77.1	78.7	96	97	75-125	2			
Cadmium	mg/kg	1.4	63	63.7	64.3	65.4	100	101	75-125	2			
Chromium	mg/kg	40.6	63	63.7	105	97.7	102	90	75-125	7			
Lead	mg/kg	3.3	63	63.7	57.3	57.7	86	85	75-125	1			
Selenium	mg/kg	ND	63	63.7	60.5	60.5	96	95	75-125	0			
Thallium	mg/kg	ND	63	63.7	46.1	47.1	73	74	75-125	2 J(M1)			

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QUALITY CONTROL DATA

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

QC Batch:	459244	Analysis Method:	ASTM D2974-87
QC Batch Method:	ASTM D2974-87	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples: 92417509006, 92417509007			

SAMPLE DUPLICATE: 2502860

Parameter	Units	92417509006 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	53.8	55.5	3	

SAMPLE DUPLICATE: 2502861

Parameter	Units	92418382001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	24.6	28.0	13	

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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QUALITY CONTROL DATA

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

QC Batch: 458581 Analysis Method: EPA 218.7 Rev 1.0 2011
QC Batch Method: EPA 218.7 Rev 1.0 2011 Analysis Description: 218.7 Chromium, Hexavalent
Associated Lab Samples: 92417509001, 92417509002, 92417509003, 92417509004, 92417509005

METHOD BLANK: 2500062 Matrix: Water
Associated Lab Samples: 92417509001, 92417509002, 92417509003, 92417509004, 92417509005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Hexavalent	ug/L	ND	0.025	02/16/19 13:30	

LABORATORY CONTROL SAMPLE: 2500063

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	ug/L	0.1	0.086	86	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2500064 2500065

Parameter	Units	92417787003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium, Hexavalent	ug/L	0.067	0.1	0.1	0.17	0.16	99	97	90-110	1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2500066 2500067

Parameter	Units	92417790004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium, Hexavalent	ug/L	0.30	0.1	0.1	0.44	0.40	140	100	90-110	10	J(M1)

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

QC Batch: 458042 Analysis Method: EPA 300.0 Rev 2.1 1993

QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions

Associated Lab Samples: 92417509001, 92417509002, 92417509003, 92417509004, 92417509005

METHOD BLANK: 2497608

Matrix: Water

Associated Lab Samples: 92417509001, 92417509002, 92417509003, 92417509004, 92417509005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	02/14/19 22:27	

LABORATORY CONTROL SAMPLE: 2497609

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	50	52.3	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2497610 2497611

Parameter	Units	92416981026 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Sulfate	mg/L	0.71 l	50	50	54.1	54.4	107	107	90-110	1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2497612 2497613

Parameter	Units	92417509002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Sulfate	mg/L	ND	50	50	54.9	55.0	108	108	90-110	0	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

QC Batch:	459039	Analysis Method:	EPA 7196A
QC Batch Method:	EPA 7196A Modified	Analysis Description:	7196 Chromium, Hexavalent
Associated Lab Samples:	92417509006, 92417509007		

METHOD BLANK: 2501896 Matrix: Solid

Associated Lab Samples: 92417509006, 92417509007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Hexavalent	mg/kg	ND	4.5	02/19/19 20:18	

LABORATORY CONTROL SAMPLE: 2501897

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/kg	25	24.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2501898 2501899

Parameter	Units	92417509006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chromium, Hexavalent	mg/kg	ND	52	50	47.1	46.2	91	92	75-125	2	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

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.

TNTC - Too Numerous To Count

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

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-A Pace Analytical Services - Asheville

PASI-C Pace Analytical Services - Charlotte

PASI-O Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

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

Q Sample held beyond the accepted holding time. Sample was received outside EPA method holding time.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Altamaha Riverkeeper 1/28

Pace Project No.: 92417509

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92417509001	SCH 1	EPA 200.7 Rev 4.4 1994	457778	EPA 200.7 Rev 4.4 1994	457790
92417509002	SCH 2	EPA 200.7 Rev 4.4 1994	457778	EPA 200.7 Rev 4.4 1994	457790
92417509003	SCH 3	EPA 200.7 Rev 4.4 1994	457778	EPA 200.7 Rev 4.4 1994	457790
92417509004	SCH 4	EPA 200.7 Rev 4.4 1994	457778	EPA 200.7 Rev 4.4 1994	457790
92417509005	SCH 5	EPA 200.7 Rev 4.4 1994	457778	EPA 200.7 Rev 4.4 1994	457790
92417509006	CHANCY SCO 1&2	EPA 3050B	459100	EPA 6010D	459167
92417509007	CHANCY KJE 1&2	EPA 3050B	459100	EPA 6010D	459167
92417509001	SCH 1	EPA 200.8	517340	EPA 200.8	517343
92417509002	SCH 2	EPA 200.8	517340	EPA 200.8	517343
92417509003	SCH 3	EPA 200.8	517340	EPA 200.8	517343
92417509004	SCH 4	EPA 200.8	517340	EPA 200.8	517343
92417509005	SCH 5	EPA 200.8	517340	EPA 200.8	517343
92417509001	SCH 1	EPA 245.1 Rev 3.0 1994	458622	EPA 245.1 Rev 3.0 1994	458646
92417509002	SCH 2	EPA 245.1 Rev 3.0 1994	458622	EPA 245.1 Rev 3.0 1994	458646
92417509003	SCH 3	EPA 245.1 Rev 3.0 1994	458622	EPA 245.1 Rev 3.0 1994	458646
92417509004	SCH 4	EPA 245.1 Rev 3.0 1994	458622	EPA 245.1 Rev 3.0 1994	458646
92417509005	SCH 5	EPA 245.1 Rev 3.0 1994	458622	EPA 245.1 Rev 3.0 1994	458646
92417509006	CHANCY SCO 1&2	EPA 7471B	459334	EPA 7471B	459477
92417509007	CHANCY KJE 1&2	EPA 7471B	459334	EPA 7471B	459477
92417509006	CHANCY SCO 1&2	ASTM D2974-87	459244		
92417509007	CHANCY KJE 1&2	ASTM D2974-87	459244		
92417509001	SCH 1	EPA 218.7 Rev 1.0 2011	458581		
92417509002	SCH 2	EPA 218.7 Rev 1.0 2011	458581		
92417509003	SCH 3	EPA 218.7 Rev 1.0 2011	458581		
92417509004	SCH 4	EPA 218.7 Rev 1.0 2011	458581		
92417509005	SCH 5	EPA 218.7 Rev 1.0 2011	458581		
92417509001	SCH 1	EPA 300.0 Rev 2.1 1993	458042		
92417509002	SCH 2	EPA 300.0 Rev 2.1 1993	458042		
92417509003	SCH 3	EPA 300.0 Rev 2.1 1993	458042		
92417509004	SCH 4	EPA 300.0 Rev 2.1 1993	458042		
92417509005	SCH 5	EPA 300.0 Rev 2.1 1993	458042		
92417509006	CHANCY SCO 1&2	EPA 7196A Modified	459039	EPA 7196A	459045
92417509007	CHANCY KJE 1&2	EPA 7196A Modified	459039	EPA 7196A	459045

REPORT OF LABORATORY ANALYSIS

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	Document Name:	Document Revised: February 7, 2018
	Sample Condition Upon Receipt(SCUR)	Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:

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

Sample Condition Upon Receipt

Client Name:

Altamaha

Project #:

WO#: 92417509



92417509

Courier: ☐ Fed Ex ☒ UPS ☐ USPS ☐ Client
☐ Commercial ☐ Pace ☐ Other: _____

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

Date/Initials Person Examining Contents: ID 2/12/19

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

Thermometer:

☐ IR Gun ID: 937046

Type of Ice: ☐ Wet ☐ Blue ☒ None

Biological Tissue Frozen?

☐ Yes ☐ No ☒ N/A

Cooler Temp (°C): 12.0 Correction Factor: Add/Subtract (°C) 0

Cooler Temp Corrected (°C): 12.0

Temp should be above freezing to 6°C

☒ Samples out of temp criteria. Samples on ice, cooling process has begun

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.
Dissolved analysis: Samples Field Filtered? ☐ Yes ☐ No ☒ N/A	8.
Sample Labels Match COC? ☒ Yes ☐ No ☐ N/A	9. <u>COC did not mark containers for sulfate</u>
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>	
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	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: _____

Date: 2/13/19

Project Manager SRF Review: _____

Date: 2/13/19

	Document Name:	Document Revised: February 7, 2018
	Sample Condition Upon Receipt(SCUR)	Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

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

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

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

Project # **W0# : 92417509**

PM: CD1

Due Date: 02/22/19

CLIENT: 93-AItamahaR

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)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 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 Na2SO3 (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 – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1		—				—																				—			
2		—				—																				—			
3		—				—																				—			
4		—				—																				—			
5		—				—																				—			
6									2																				
7									2																				
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 #

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).

CHAIN-OF-CUSTODY / Analytical Request Document

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

SAMPLER NAME AND SIGNATURE		TEMP IN C
PRINT Name of SAMPLER:		
SIGNATURE of SAMPLER:	DATE Signed:	
		Received on Ice (Y/N)
		Custody Sealed Cooler (Y/N)
		Samples Intact (Y/N)

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A

Required Client Information:

Company:

Address:

Email To:

Phone:

Requested Due Date/TAT:

Section B

Required Project Information:

Report To:

Copy To:

Purchase Order No.:

Project Name:

Project Number:

Section C

Invoice Information:

Attention:

Company Name:

Address:

Pace Quote Reference:

Pace Project Manager:

Pace Profile #:

Page: 1 of 1

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

Requested Analysis Filtered (Y/N)

Preservatives

Unpreserved

HNO₃

Ammonium Sulfate

(200.7) B, Fe

(200.8) Al, As, Cd, Co, Pb, Mn, Se, TL, V

(218.7) Hexavalent chrom

(300.0) Sulfate

Analysis Test ↓

Residual Chlorine (Y/N)

Pace Project No./ Lab I.D.

Section D Required Client Information		Matrix Codes		COLLECTED				SAMPLE TEMP AT COLLECTION		# OF CONTAINERS		Preservatives		Requested Analysis Filtered (Y/N)		SAMPLE CONDITIONS		
ITEM #	SAMPLE ID (A-Z, 0-9 / .) Sample IDs MUST BE UNIQUE	DW WATER WASTE WATER PRODUCT SOL/SOLID OIL WIFE AIR OTHER TS	DW WT WW P SL OL WP AR OT TS	COMPOSITE START	COMPOSITE END/GRAB	DATE	TIME	DATE	TIME	Unpreserved	HNO ₃	Ammonium Sulfate	(200.7) B, Fe	(200.8) Al, As, Cd, Co, Pb, Mn, Se, TL, V	(218.7) Hexavalent chrom	(300.0) Sulfate	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1																		
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				

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

DATE Signed

(MM/DD/YY):

Temp in °C

Received on

Ice (Y/N)

Custody

Sealed Cooler

(Y/N)

Samples Intact

(Y/N)