



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 21-0221

Project: 21-0221, Piney Point - Phase 2 - [REDACTED]

April 30, 2021

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 21-0221, Piney Point - Phase 2

FROM: [REDACTED]
LSB Inorganic Chemistry Section Chief

THRU: [REDACTED]
Laboratory Services Branch

TO: [REDACTED]

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:

Method Used:

Accreditations:

Classical/Nutrient Analyses (CNA)

Ammonia as N	EPA 350.1 (Water)	ISO
Ammonia/TKN	EPA 351.2 (Water)	ISO
Classical/Nutrients	EPA 300.0 (Water)	ISO
Classical/Nutrients	EPA 300.0 (Water)	ISO/DW
Nitrate and/or Nitrite	EPA 353.2 (Water)	ISO/DW
Phosphorous	EPA 365.1 (Water)	ISO
Solids	USGS I-3765-85 (Water)	ISO

Physical Properties (PHYSP)

Turbidity of Preserved Metals Samples	EPA 180.1 (Water)	NR
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Total Metals (TMTL)

Total Metals	EPA 200.7 (Water)	ISO
Total Metals	EPA 200.7 (Water)	ISO/DW
Total Metals	EPA 200.8 (Water)	ISO/DW



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Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at [REDACTED]

cc: [REDACTED]



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SAMPLES INCLUDED IN THIS REPORT

Project: 21-0221, Piney Point - Phase 2

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
Piney 6	E211710-01	Saline Water	4/22/21 11:20	4/23/21 10:00
Piney 15	E211710-02	Saline Water	4/22/21 11:35	4/23/21 10:00



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DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
B-4	Level in blank impacts MRLs.
D-4	MRL elevated due to interferences.
J	The identification of the analyte is acceptable; the reported value is an estimate.
Q-2	Result greater than MDL but less than MRL.
QC-6	Calibration check standard greater than method control limits.
QI-1	Internal standard was outside of method control limits.
QR-1	MRL verification recovery less than lower control limits.
QR-2	MRL verification recovery greater than upper control limits.



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ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Laboratories.

Refer to the certificate and scope of accreditation FT-0330 at:
<http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd>

NR Not accredited for this test.

DW Accredited for conformance with ISO/IEC 17025:2017 and testing elements in the Fifth Edition of the Manual for the Certification of Laboratories Analyzing Drinking Water, EPA 815-R-05-004, 2005.

Refer to the certificate and scope of accreditation AT-2628 at:
<http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd>

ISO/DW Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Labs, and conformance with ISO/IEC 17025:2017 and testing elements in the Manual for the Certification of Laboratories Analyzing Drinking Water.



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D.A.R.T. Id: 21-0221

Project: 21-0221, Piney Point - Phase 2 - [REDACTED]

Total Metals

Project: 21-0221, Piney Point - Phase 2

Sample ID: Piney 6

Lab ID: E211710-01

Station ID: PINEY 6

Matrix: Saline Water

Date Collected: 4/22/21 11:20

CAS Number	Analyte	Results	Qualifiers	Units	MDL MRL	Prepared	Analyzed	Method
7429-90-5	Aluminum	43		ug/L	14 40	4/23/21 11:35	4/27/21 15:17	EPA 200 8
7440-36-0	Antimony	2.0	U, J, QI-1	ug/L	0 48 2 0	4/23/21 11:35	4/27/21 15:17	EPA 200 8
7440-38-2	Arsenic	7.4		ug/L	3 2 5 0	4/23/21 11:35	4/27/21 15:25	EPA 200 8
7440-41-7	Beryllium	1.0	U	ug/L	0 33 1 0	4/23/21 11:35	4/27/21 15:17	EPA 200 8
7440-42-8	Boron	3200		ug/L	120 1200	4/23/21 11:32	4/26/21 11:51	EPA 200 7
7440-43-9	Cadmium	1.0	U, J, QI-1	ug/L	0 37 1 0	4/23/21 11:35	4/27/21 15:17	EPA 200 8
7440-70-2	Calcium	290000		ug/L	2100 6200	4/23/21 11:32	4/26/21 11:51	EPA 200 7
7440-47-3	Chromium	17	J, QR-2	ug/L	2 4 4 0	4/23/21 11:35	4/27/21 15:17	EPA 200 8
7440-48-4	Cobalt	2.0	U	ug/L	0 65 2 0	4/23/21 11:35	4/27/21 15:17	EPA 200 8
7440-50-8	Copper	1.8	J, Q-2	ug/L	0 95 2 0	4/23/21 11:35	4/27/21 15:17	EPA 200 8
7439-89-6	Iron	2500	U	ug/L	970 2500	4/23/21 11:32	4/26/21 11:51	EPA 200 7
7439-92-1	Lead	2.0	U	ug/L	0 25 2 0	4/23/21 11:35	4/27/21 15:17	EPA 200 8
7439-95-4	Magnesium	890000		ug/L	1500 6200	4/23/21 11:32	4/26/21 11:51	EPA 200 7
7439-96-5	Manganese	120	U	ug/L	22 120	4/23/21 11:32	4/26/21 11:51	EPA 200 7
7439-98-7	Molybdenum	9.6		ug/L	2 2 5 0	4/23/21 11:35	4/27/21 15:25	EPA 200 8
7440-02-0	Nickel	2.0	U	ug/L	1 3 2 0	4/23/21 11:35	4/27/21 15:17	EPA 200 8
7440-09-7	Potassium	270000		ug/L	2100 25000	4/23/21 11:32	4/26/21 11:51	EPA 200 7
7782-49-2	Selenium	10	J, QI-1	ug/L	3 2 4 0	4/23/21 11:35	4/27/21 15:17	EPA 200 8
7440-22-4	Silver	1.0	U, J, QI-1	ug/L	0 20 1 0	4/23/21 11:35	4/27/21 15:17	EPA 200 8
7440-23-5	Sodium	7200000		ug/L	2600 25000	4/23/21 11:32	4/26/21 11:51	EPA 200 7
7440-24-6	Strontium	5200		ug/L	41 120	4/23/21 11:32	4/26/21 11:51	EPA 200 7
7440-28-0	Thallium	2.0	U	ug/L	0 24 2 0	4/23/21 11:35	4/27/21 15:17	EPA 200 8
7440-31-5	Tin	42	J, Q-2	ug/L	38 380	4/23/21 11:32	4/26/21 11:51	EPA 200 7
7440-32-6	Titanium	120	U	ug/L	15 120	4/23/21 11:32	4/26/21 11:51	EPA 200 7
7440-61-1	Uranium	3.0		ug/L	0 42 2 0	4/23/21 11:35	4/27/21 15:17	EPA 200 8
7440-62-2	Vanadium	120	U, J, QR-1	ug/L	47 120	4/23/21 11:32	4/26/21 11:51	EPA 200 7
7440-66-6	Zinc	250	U	ug/L	26 250	4/23/21 11:32	4/26/21 11:51	EPA 200 7



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Classical/Nutrient Analyses

Project: 21-0221, Piney Point - Phase 2

Sample ID: Piney 6

Lab ID: E211710-01

Station ID: PINEY 6

Matrix: Saline Water

Date Collected: 4/22/21 11:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MDL MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	0.050	U	mg/L	0.012 0.050	4/23/21 12:51	4/23/21 18:13	EPA 350.1
E17148461	Total Kjeldahl Nitrogen	0.22		mg/L	0.043 0.050	4/26/21 12:51	4/27/21 10:19	EPA 351.2
16887-00-6	Chloride	20000	J, QC-6	mg/L	0.32 2.5	4/28/21 11:14	4/28/21 16:33	EPA 300.0
16984-48-8	Fluoride	0.69	U, D-4	mg/L	0.69 0.69	4/29/21 10:35	4/29/21 13:35	EPA 300.0
14808-79-8	Sulfate as SO ₄	2600	J, QC-6	mg/L	0.48 2.5	4/28/21 11:14	4/28/21 16:33	EPA 300.0
E701177	Nitrate/Nitrite as N	0.020	U, B-4	mg/L	0.020 0.020	4/28/21 8:55	4/28/21 12:53	EPA 353.2
7723-14-0	Total Phosphorus	0.11		mg/L	0.0041 0.010	4/28/21 15:16	4/28/21 15:58	EPA 365.1
E1642818	Total Suspended Solids	130		mg/L	5.0	4/26/21 11:07	4/26/21 11:07	USGS I-3765-85



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Physical Properties

Project: 21-0221, Piney Point - Phase 2

Sample ID: Piney 6

Lab ID: E211710-01

Station ID: PINEY 6

Matrix: Saline Water

Date Collected: 4/22/21 11:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MDL</i>			
					<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
E1640507	Turbidity	2.0		NTU	1.0	4/23/21 11:29	4/23/21 12:08	EPA 180.1



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Total Metals

Project: 21-0221, Piney Point - Phase 2

Sample ID: Piney 15

Lab ID: E211710-02

Station ID: PINEY 15

Matrix: Saline Water

Date Collected: 4/22/21 11:35

CAS Number	Analyte	Results	Qualifiers	Units	MDL MRL	Prepared	Analyzed	Method
7429-90-5	Aluminum	110		ug/L	14 40	4/23/21 11:35	4/27/21 15:41	EPA 200 8
7440-36-0	Antimony	2.0	U, J, QI-1	ug/L	0 48 2 0	4/23/21 11:35	4/27/21 15:41	EPA 200 8
7440-38-2	Arsenic	6.2		ug/L	3 2 5 0	4/23/21 11:35	4/27/21 15:48	EPA 200 8
7440-41-7	Beryllium	1.0	U	ug/L	0 33 1 0	4/23/21 11:35	4/27/21 15:41	EPA 200 8
7440-42-8	Boron	3500		ug/L	120 1200	4/23/21 11:32	4/26/21 11:55	EPA 200 7
7440-43-9	Cadmium	1.0	U, J, QI-1	ug/L	0 37 1 0	4/23/21 11:35	4/27/21 15:41	EPA 200 8
7440-70-2	Calcium	310000		ug/L	2100 6200	4/23/21 11:32	4/26/21 11:55	EPA 200 7
7440-47-3	Chromium	17	J, QR-2	ug/L	2 4 4 0	4/23/21 11:35	4/27/21 15:41	EPA 200 8
7440-48-4	Cobalt	2.0	U	ug/L	0 65 2 0	4/23/21 11:35	4/27/21 15:41	EPA 200 8
7440-50-8	Copper	1.7	J, Q-2	ug/L	0 95 2 0	4/23/21 11:35	4/27/21 15:41	EPA 200 8
7439-89-6	Iron	2500	U	ug/L	970 2500	4/23/21 11:32	4/26/21 11:55	EPA 200 7
7439-92-1	Lead	2.0	U	ug/L	0 25 2 0	4/23/21 11:35	4/27/21 15:41	EPA 200 8
7439-95-4	Magnesium	980000		ug/L	1500 6200	4/23/21 11:32	4/26/21 11:55	EPA 200 7
7439-96-5	Manganese	120	U	ug/L	22 120	4/23/21 11:32	4/26/21 11:55	EPA 200 7
7439-98-7	Molybdenum	10		ug/L	2 2 5 0	4/23/21 11:35	4/27/21 15:48	EPA 200 8
7440-02-0	Nickel	2.0	U	ug/L	1 3 2 0	4/23/21 11:35	4/27/21 15:41	EPA 200 8
7440-09-7	Potassium	290000		ug/L	2100 25000	4/23/21 11:32	4/26/21 11:55	EPA 200 7
7782-49-2	Selenium	9.8	J, QI-1	ug/L	3 2 4 0	4/23/21 11:35	4/27/21 15:41	EPA 200 8
7440-22-4	Silver	1.0	U, J, QI-1	ug/L	0 20 1 0	4/23/21 11:35	4/27/21 15:41	EPA 200 8
7440-23-5	Sodium	7900000		ug/L	2600 25000	4/23/21 11:32	4/26/21 11:55	EPA 200 7
7440-24-6	Strontium	5700		ug/L	41 120	4/23/21 11:32	4/26/21 11:55	EPA 200 7
7440-28-0	Thallium	2.0	U	ug/L	0 24 2 0	4/23/21 11:35	4/27/21 15:41	EPA 200 8
7440-31-5	Tin	380	U	ug/L	38 380	4/23/21 11:32	4/26/21 11:55	EPA 200 7
7440-32-6	Titanium	120	U	ug/L	15 120	4/23/21 11:32	4/26/21 11:55	EPA 200 7
7440-61-1	Uranium	3.0		ug/L	0 42 2 0	4/23/21 11:35	4/27/21 15:41	EPA 200 8
7440-62-2	Vanadium	120	U, J, QR-1	ug/L	47 120	4/23/21 11:32	4/26/21 11:55	EPA 200 7
7440-66-6	Zinc	250	U	ug/L	26 250	4/23/21 11:32	4/26/21 11:55	EPA 200 7



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D.A.R.T. Id: 21-0221

Project: 21-0221, Piney Point - Phase 2 - [REDACTED]

Classical/Nutrient Analyses

Project: 21-0221, Piney Point - Phase 2

Sample ID: Piney 15

Lab ID: E211710-02

Station ID: PINEY 15

Matrix: Saline Water

Date Collected: 4/22/21 11:35

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MDL MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	0.050	U	mg/L	0.012 0.050	4/23/21 12:51	4/23/21 18:13	EPA 350.1
E17148461	Total Kjeldahl Nitrogen	0.32		mg/L	0.043 0.050	4/26/21 12:51	4/27/21 10:19	EPA 351.2
16887-00-6	Chloride	21000	J, QC-6	mg/L	0.32 2.5	4/28/21 11:14	4/28/21 17:06	EPA 300.0
16984-48-8	Fluoride	0.69	U, D-4	mg/L	0.69 0.69	4/29/21 10:35	4/29/21 13:52	EPA 300.0
14808-79-8	Sulfate as SO ₄	2700	J, QC-6	mg/L	0.48 2.5	4/28/21 11:14	4/28/21 17:06	EPA 300.0
E701177	Nitrate/Nitrite as N	0.020	U, B-4	mg/L	0.020 0.020	4/28/21 8:55	4/28/21 12:53	EPA 353.2
7723-14-0	Total Phosphorus	0.057		mg/L	0.0041 0.010	4/28/21 15:16	4/28/21 15:58	EPA 365.1
E1642818	Total Suspended Solids	130		mg/L	5.0	4/26/21 11:07	4/26/21 11:07	USGS I-3765-85



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Physical Properties

Project: 21-0221, Piney Point - Phase 2

Sample ID: Piney 15

Lab ID: E211710-02

Station ID: PINEY 15

Matrix: Saline Water

Date Collected: 4/22/21 11:35

<i>CAS</i>					<i>MDL</i>			
<i>Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
E1640507	Turbidity	6.4		NTU	1.0	4/23/21 11:29	4/23/21 12:10	EPA 180.1



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Total Metals (TMTL) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2104118 - M 200.2 Metals Water

Blank (2104118-BLK1)

Prepared: 04/23/21 Analyzed: 04/26/21

EPA 200.7

Boron	U	50	ug/L							U
Calcium	U	250	"							U
Iron	U	100	"							U
Magnesium	U	250	"							U
Manganese	U	50	"							U
Potassium	U	1000	"							U
Sodium	U	1000	"							U
Strontium	U	50	"							U
Tin	U	15	"							U
Titanium	U	50	"							U
Vanadium	U	50	"							U
Zinc	U	10	"							U

LCS (2104118-BS1)

Prepared: 04/23/21 Analyzed: 04/26/21

EPA 200.7

Boron	475.06	50	ug/L	500.00		95.0	85-115	
Calcium	4874.4	250	"	5000.0		97.5	85-115	
Iron	4979.9	100	"	5000.0		99.6	85-115	
Magnesium	4977.6	250	"	5000.0		99.6	85-115	
Manganese	490.87	50	"	500.00		98.2	85-115	
Potassium	9195.3	1000	"	10000		92.0	85-115	
Sodium	9679.3	1000	"	10000		96.8	85-115	
Strontium	96.282	50	"	100.00		96.3	85-115	
Tin	92.853	15	"	100.00		92.9	85-115	
Titanium	93.612	50	"	100.00		93.6	85-115	
Vanadium	88.726	50	"	100.00		88.7	85-115	
Zinc	192.02	10	"	200.00		96.0	85-115	

Matrix Spike (2104118-MS1)

Source: E211707-02

Prepared: 04/23/21 Analyzed: 04/26/21

EPA 200.7

Boron	3606.8	1200	ug/L	500.00	3413.1	38.7	70-130		QM-1
Calcium	303130	6200	"	5000.0	302770	7.29	70-130		XM-1
Iron	3917.3	2500	"	5000.0	U	78.3	70-130		
Magnesium	931290	6200	"	5000.0	937890	-132	70-130		XM-1
Manganese	375.96	120	"	500.00	U	75.2	70-130		
Potassium	277960	25000	"	10000	280640	-26.9	70-130		XM-1
Sodium	7436100	25000	"	10000	7649400	-2130	70-130		XM-1
Strontium	5496.6	120	"	100.00	5451.1	45.5	70-130		XM-1



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Total Metals (TMTL) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2104118 - M 200.2 Metals Water

Matrix Spike (2104118-MS1)

Source: E211707-02

Prepared: 04/23/21 Analyzed: 04/26/21

Tin	78.631	380	ug/L	100.00	U	78.6	70-130			J
Titanium	74.167	120	"	100.00	U	74.2	70-130			J
Vanadium	78.373	120	"	100.00	U	78.4	70-130			J
Zinc	105.66	250	"	200.00	U	52.8	70-130			QM-1, J

Matrix Spike Dup (2104118-MSD1)

Source: E211707-02

Prepared: 04/23/21 Analyzed: 04/26/21

EPA 200.7

Boron	3600.4	1200	ug/L	500.00	3413.1	37.5	70-130	0.179	20	QM-1
Calcium	289490	6200	"	5000.0	302770	-266	70-130	4.60	20	XM-1
Iron	3863.7	2500	"	5000.0	U	77.3	70-130	1.38	20	
Magnesium	895450	6200	"	5000.0	937890	-849	70-130	3.92	20	XM-1
Manganese	365.71	120	"	500.00	U	73.1	70-130	2.76	20	
Potassium	269000	25000	"	10000	280640	-116	70-130	3.28	20	XM-1
Sodium	7156600	25000	"	10000	7649400	-4930	70-130	3.83	20	XM-1
Strontium	5281.0	120	"	100.00	5451.1	-170	70-130	4.00	20	XM-1
Tin	78.331	380	"	100.00	U	78.3	70-130	0.383	20	J
Titanium	69.406	120	"	100.00	U	69.4	70-130	6.63	20	QM-1, J
Vanadium	66.275	120	"	100.00	U	66.3	70-130	16.7	20	QM-1, J
Zinc	106.33	250	"	200.00	U	53.2	70-130	0.633	20	QM-1, J

MRL Verification (2104118-PS1)

Prepared: 04/23/21 Analyzed: 04/26/21

EPA 200.7

Boron	47.606	50	ug/L	50.000		95.2	70-130			MRL-2, J
Calcium	252.21	250	"	250.00		101	70-130			MRL-2
Iron	105.83	100	"	100.00		106	70-130			MRL-2
Magnesium	239.67	250	"	250.00		95.9	70-130			MRL-2, J
Manganese	4.8236	5.0	"	5.0000		96.5	70-130			MRL-2, J
Potassium	934.23	1000	"	1000.0		93.4	70-130			MRL-2, J
Sodium	936.80	1000	"	1000.0		93.7	70-130			MRL-2, J
Strontium	4.8225	5.0	"	5.0000		96.5	70-130			MRL-2, J
Tin	13.426	15	"	15.000		89.5	70-130			MRL-2, J
Titanium	5.0550	5.0	"	5.0000		101	70-130			MRL-2
Vanadium	3.4360	5.0	"	5.0000		68.7	70-130			MRL-2, QR-1, J
Zinc	9.9981	10	"	10.000		100	70-130			MRL-2, J



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 Region 4 Laboratory Services and Applied Science Division
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D.A.R.T. Id: 21-0221

Project: 21-0221, Piney Point - Phase 2 - [REDACTED]

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2104119 - M 200.2 Metals Water

Blank (2104119-BLK1)

Prepared: 04/23/21 Analyzed: 04/27/21

EPA 200.8

Aluminum	7 6848	10	ug/L							B-3, J
Antimony	U	0 50	"							U
Arsenic	U	0 50	"							U
Beryllium	U	0 25	"							U
Cadmium	U	0 25	"							U
Chromium	2 3902	1 0	"							B-4
Cobalt	U	0 50	"							U
Copper	U	0 50	"							U
Lead	U	0 50	"							U
Molybdenum	U	0 50	"							U
Nickel	U	0 50	"							U
Selenium	U	1 0	"							U
Silver	U	0 25	"							U
Thallium	U	0 50	"							U
Uranium	U	0 50	"							U

LCS (2104119-BS1)

Prepared: 04/23/21 Analyzed: 04/27/21

EPA 200.8

Aluminum	4923 5	40	ug/L	5000 0	98 5	85-115
Antimony	188 39	2 0	"	200 00	94 2	85-115
Arsenic	196 42	2 0	"	200 00	98 2	85-115
Beryllium	48 150	1 0	"	50 000	96 3	85-115
Cadmium	47 850	1 0	"	50 000	95 7	85-115
Chromium	194 58	4 0	"	200 00	97 3	85-115
Cobalt	98 145	2 0	"	100 00	98 1	85-115
Copper	100 52	2 0	"	100 00	101	85-115
Lead	197 60	2 0	"	200 00	98 8	85-115
Molybdenum	95 006	2 0	"	100 00	95 0	85-115
Nickel	199 04	2 0	"	200 00	99 5	85-115
Selenium	196 03	4 0	"	200 00	98 0	85-115
Silver	97 258	1 0	"	100 00	97 3	85-115
Thallium	192 36	2 0	"	200 00	96 2	85-115
Uranium	194 63	2 0	"	200 00	97 3	85-115



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D.A.R.T. Id: 21-0221

Project: 21-0221, Piney Point - Phase 2 - [REDACTED]

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2104119 - M 200.2 Metals Water

LCS (2104119-BS2)

Prepared: 04/23/21 Analyzed: 04/27/21

EPA 200.8

Aluminum	4900 4	100	ug/L	5000 0		98 0	85-115			
Antimony	183 05	5 0	"	200 00		91 5	85-115			
Arsenic	190 43	5 0	"	200 00		95 2	85-115			
Beryllium	47 519	2 5	"	50 000		95 0	85-115			
Cadmium	47 717	2 5	"	50 000		95 4	85-115			
Chromium	195 43	10	"	200 00		97 7	85-115			
Cobalt	99 250	5 0	"	100 00		99 2	85-115			
Copper	100 78	5 0	"	100 00		101	85-115			
Lead	197 91	5 0	"	200 00		99 0	85-115			
Molybdenum	93 273	5 0	"	100 00		93 3	85-115			
Nickel	201 32	5 0	"	200 00		101	85-115			
Selenium	190 53	10	"	200 00		95 3	85-115			
Silver	99 692	2 5	"	100 00		99 7	85-115			
Thallium	193 78	5 0	"	200 00		96 9	85-115			
Uranium	196 17	5 0	"	200 00		98 1	85-115			

Matrix Spike (2104119-MS1)

Source: E211707-02

Prepared: 04/23/21 Analyzed: 04/27/21

EPA 200.8

Aluminum	4808 7	40	ug/L	5000 0	45 680	95 3	70-130			
Antimony	180 92	2 0	"	200 00	U	90 5	70-130			QI-1
Arsenic	175 81	2 0	"	200 00	4 4963	85 7	70-130			QI-1
Beryllium	44 106	1 0	"	50 000	U	88 2	70-130			QI-1
Cadmium	37 521	1 0	"	50 000	U	75 0	70-130			QI-1
Chromium	204 56	4 0	"	200 00	20 075	92 2	70-130			
Cobalt	90 953	2 0	"	100 00	U	91 0	70-130			QI-1
Copper	82 804	2 0	"	100 00	1 9016	80 9	70-130			QI-1
Lead	168 29	2 0	"	200 00	U	84 1	70-130			
Molybdenum	111 50	2 0	"	100 00	10 338	101	70-130			QI-1
Nickel	169 52	2 0	"	200 00	U	84 8	70-130			QI-1
Selenium	180 29	4 0	"	200 00	9 2797	85 5	70-130			QI-1
Silver	72 816	1 0	"	100 00	U	72 8	70-130			QI-1
Thallium	173 16	2 0	"	200 00	U	86 6	70-130			
Uranium	190 54	2 0	"	200 00	2 9295	93 8	70-130			



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Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 21-0221

Project: 21-0221, Piney Point - Phase 2 - [REDACTED]

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2104119 - M 200.2 Metals Water

Matrix Spike (2104119-MS2)

Source: E211707-02

Prepared: 04/23/21 Analyzed: 04/27/21

EPA 200.8

Aluminum	4731.2	100	ug/L	5000.0	45.680	93.7	70-130			
Antimony	186.36	5.0	"	200.00	U	93.2	70-130			
Arsenic	197.02	5.0	"	200.00	4.4963	96.3	70-130			
Beryllium	44.059	2.5	"	50.000	U	88.1	70-130			
Cadmium	41.861	2.5	"	50.000	U	83.7	70-130			
Chromium	194.34	10	"	200.00	20.075	87.1	70-130			
Cobalt	95.247	5.0	"	100.00	U	95.2	70-130			
Copper	92.202	5.0	"	100.00	U	92.2	70-130			
Lead	173.72	5.0	"	200.00	U	86.9	70-130			
Molybdenum	111.94	5.0	"	100.00	10.338	102	70-130			
Nickel	179.37	5.0	"	200.00	U	89.7	70-130			
Selenium	189.52	10	"	200.00	9.2797	90.1	70-130			
Silver	81.978	2.5	"	100.00	U	82.0	70-130			
Thallium	176.00	5.0	"	200.00	U	88.0	70-130			
Uranium	194.65	5.0	"	200.00	2.9295	95.9	70-130			

Matrix Spike Dup (2104119-MSD1)

Source: E211707-02

Prepared: 04/23/21 Analyzed: 04/27/21

EPA 200.8

Aluminum	4687.3	40	ug/L	5000.0	45.680	92.8	70-130	2.56	20	
Antimony	174.57	2.0	"	200.00	U	87.3	70-130	3.57	20	QI-1
Arsenic	178.38	2.0	"	200.00	4.4963	86.9	70-130	1.45	20	QI-1
Beryllium	43.261	1.0	"	50.000	U	86.5	70-130	1.93	20	
Cadmium	37.979	1.0	"	50.000	U	76.0	70-130	1.21	20	QI-1
Chromium	197.19	4.0	"	200.00	20.075	88.6	70-130	3.67	20	
Cobalt	90.641	2.0	"	100.00	U	90.6	70-130	0.344	20	
Copper	82.749	2.0	"	100.00	1.9016	80.8	70-130	0.0665	20	
Lead	169.43	2.0	"	200.00	U	84.7	70-130	0.679	20	
Molybdenum	108.83	2.0	"	100.00	10.338	98.5	70-130	2.43	20	QI-1
Nickel	167.51	2.0	"	200.00	U	83.8	70-130	1.19	20	
Selenium	176.14	4.0	"	200.00	9.2797	83.4	70-130	2.33	20	QI-1
Silver	72.302	1.0	"	100.00	U	72.3	70-130	0.707	20	QI-1
Thallium	173.45	2.0	"	200.00	U	86.7	70-130	0.166	20	
Uranium	191.17	2.0	"	200.00	2.9295	94.1	70-130	0.331	20	



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D.A.R.T. Id: 21-0221

Project: 21-0221, Piney Point - Phase 2 - [REDACTED]

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2104119 - M 200.2 Metals Water

Matrix Spike Dup (2104119-MSD2)

Source: E211707-02

Prepared: 04/23/21 Analyzed: 04/27/21

EPA 200.8

Aluminum	4765.6	100	ug/L	5000.0	45.680	94.4	70-130	0.723	20	
Antimony	186.05	5.0	"	200.00	U	93.0	70-130	0.169	20	
Arsenic	194.37	5.0	"	200.00	4.4963	94.9	70-130	1.35	20	
Beryllium	44.555	2.5	"	50.000	U	89.1	70-130	1.12	20	
Cadmium	37.115	2.5	"	50.000	U	74.2	70-130	12.0	20	
Chromium	197.51	10	"	200.00	20.075	88.7	70-130	1.62	20	
Cobalt	95.038	5.0	"	100.00	U	95.0	70-130	0.219	20	
Copper	89.201	5.0	"	100.00	U	89.2	70-130	3.31	20	
Lead	172.21	5.0	"	200.00	U	86.1	70-130	0.872	20	
Molybdenum	112.66	5.0	"	100.00	10.338	102	70-130	0.638	20	
Nickel	178.75	5.0	"	200.00	U	89.4	70-130	0.345	20	
Selenium	205.33	10	"	200.00	9.2797	98.0	70-130	8.01	20	
Silver	80.268	2.5	"	100.00	U	80.3	70-130	2.11	20	
Thallium	174.69	5.0	"	200.00	U	87.3	70-130	0.748	20	
Uranium	189.13	5.0	"	200.00	2.9295	93.1	70-130	2.88	20	

MRL Verification (2104119-PS1)

Prepared: 04/23/21 Analyzed: 04/27/21

EPA 200.8

Aluminum	23.856	10	ug/L	20.000	119	65-135	MRL-2
Antimony	0.53459	0.50	"	0.50000	107	65-135	MRL-2
Arsenic	0.94059	0.50	"	1.0000	94.1	65-135	MRL-2
Beryllium	0.46811	0.25	"	0.50000	93.6	65-135	MRL-2
Cadmium	0.52580	0.25	"	0.50000	105	65-135	MRL-2
Chromium	4.1362	1.0	"	2.0000	207	65-135	MRL-2, QR-2
Cobalt	0.99828	0.50	"	1.0000	99.8	65-135	MRL-2
Copper	0.96962	0.50	"	1.0000	97.0	65-135	MRL-2
Lead	0.84786	0.50	"	1.0000	84.8	65-135	MRL-2
Molybdenum	0.48752	0.50	"	0.50000	97.5	65-135	MRL-2, J
Nickel	0.93725	0.50	"	1.0000	93.7	65-135	MRL-2
Selenium	2.0127	1.0	"	2.0000	101	65-135	MRL-2
Silver	0.50467	0.25	"	0.50000	101	65-135	MRL-2
Thallium	0.47998	0.50	"	0.50000	96.0	65-135	MRL-2, J
Uranium	1.0121	0.50	"	1.0000	101	65-135	MRL-2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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D.A.R.T. Id: 21-0221

Project: 21-0221, Piney Point - Phase 2 - [REDACTED]

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2104112 - C 350.1 Ammonia

Blank (2104112-BLK1)

Prepared & Analyzed: 04/23/21

EPA 350.1

Ammonia as N

U

0 050

mg/L

U

LCS (2104112-BS1)

Prepared & Analyzed: 04/23/21

EPA 350.1

Ammonia as N

1 0170

0 050

mg/L

1 0000

102

90-110

Matrix Spike (2104112-MS1)

Source: E211710-02

Prepared & Analyzed: 04/23/21

EPA 350.1

Ammonia as N

1 0470

0 050

mg/L

1 0000

U

105

90-110

Matrix Spike Dup (2104112-MSD1)

Source: E211710-02

Prepared & Analyzed: 04/23/21

EPA 350.1

Ammonia as N

1 0500

0 050

mg/L

1 0000

U

105

90-110

0 286

10

MRL Verification (2104112-PS1)

Prepared & Analyzed: 04/23/21

EPA 350.1

Ammonia as N

0 040000

0 050

mg/L

0 050000

80 0

70-130

MRL-2, J

Batch 2104114 - C 351.2 TKN

Blank (2104114-BLK1)

Prepared: 04/26/21 Analyzed: 04/27/21

EPA 351.2

Total Kjeldahl Nitrogen

U

0 050

mg/L

U

LCS (2104114-BS1)

Prepared: 04/26/21 Analyzed: 04/27/21

EPA 351.2

Total Kjeldahl Nitrogen

1 8340

0 050

mg/L

1 7500

105

90-110

Matrix Spike (2104114-MS1)

Source: E211712-02

Prepared: 04/26/21 Analyzed: 04/27/21

EPA 351.2

Total Kjeldahl Nitrogen

1 2370

0 050

mg/L

1 0000

0 28700

95 0

90-110

Matrix Spike Dup (2104114-MSD1)

Source: E211712-02

Prepared: 04/26/21 Analyzed: 04/27/21

EPA 351.2

Total Kjeldahl Nitrogen

1 2500

0 050

mg/L

1 0000

0 28700

96 3

90-110

1 05

20



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Project: 21-0221, Piney Point - Phase 2 - [REDACTED]

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2104114 - C 351.2 TKN

MRL Verification (2104114-PS1)

Prepared: 04/26/21 Analyzed: 04/27/21

EPA 351.2

Total Kjeldahl Nitrogen	0 055000	0 050	mg/L	0 050000		110	70-130			MRL-2
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Batch 2104122 - C 365.1 TPhos

Blank (2104122-BLK1)

Prepared & Analyzed: 04/28/21

EPA 365.1

Total Phosphorus	U	0 010	mg/L							U
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LCS (2104122-BS1)

Prepared & Analyzed: 04/28/21

EPA 365.1

Total Phosphorus	0 37800	0 010	mg/L	0 37800		100	90-110			
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Matrix Spike (2104122-MS1)

Source: E211710-01

Prepared & Analyzed: 04/28/21

EPA 365.1

Total Phosphorus	0 62500	0 010	mg/L	0 50050	0 10900	103	90-110			
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Matrix Spike Dup (2104122-MSD1)

Source: E211710-01

Prepared & Analyzed: 04/28/21

EPA 365.1

Total Phosphorus	0 62400	0 010	mg/L	0 50050	0 10900	103	90-110	0 160	10	
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MRL Verification (2104122-PS1)

Prepared & Analyzed: 04/28/21

EPA 365.1

Total Phosphorus	0 0090000	0 010	mg/L	0 010000		90 0	70-130			MRL-2, J
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Batch 2104135 - C 2540 Solids

Blank (2104135 BLK1)

Prepared & Analyzed: 04/26/21

USGS I-3765-85

Total Suspended Solids	U	5 0	mg/L							U
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LCS (2104135-BS1)

Prepared & Analyzed: 04/26/21

USGS I-3765-85

Total Suspended Solids	100 10	5 0	mg/L	100 00		100	77 1-110			
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Laboratory Services and Applied Science Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 21-0221

Project: 21-0221, Piney Point - Phase 2 - [REDACTED]

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2104135 - C 2540 Solids

LCS Dup (2104135-BSD1)

Prepared & Analyzed: 04/26/21

USGS I-3765-85

Total Suspended Solids	105 50	5 0	mg/L	100 00		106	77 1-110	5 25	10	
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Duplicate (2104135-DUP1)

Source: E211707-01

Prepared & Analyzed: 04/26/21

USGS I-3765-85

Total Suspended Solids	112 90	5 0	mg/L		107 30			5 09	10	
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MRL Verification (2104135-PS1)

Prepared & Analyzed: 04/26/21

USGS I-3765-85

Total Suspended Solids	3 1000	5 0	mg/L	5 0000		62 0	57 1-130			MRL-2, U
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Batch 2104149 - C 353.2 NO3-NO2

Blank (2104149-BLK1)

Prepared & Analyzed: 04/28/21

EPA 353.2

Nitrate/Nitrite as N	0 015500	0 050	mg/L							J
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LCS (2104149-BS1)

Prepared & Analyzed: 04/28/21

EPA 353.2

Nitrate/Nitrite as N	0 50000	0 050	mg/L	0 50150		99 7	90-110			
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Matrix Spike (2104149-MS1)

Source: E211806-01

Prepared & Analyzed: 04/28/21

EPA 353.2

Nitrate/Nitrite as N	0 50160	0 050	mg/L	0 50150	0 017200	96 6	90-110			
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Matrix Spike Dup (2104149-MSD1)

Source: E211806-01

Prepared & Analyzed: 04/28/21

EPA 353.2

Nitrate/Nitrite as N	0 50280	0 050	mg/L	0 50150	0 017200	96 8	90-110	0 239	10	
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MRL Verification (2104149-PS1)

Prepared & Analyzed: 04/28/21

EPA 353.2

Nitrate/Nitrite as N	0 059800	0 050	mg/L	0 050000		120	70-130			MRL-2
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Batch 2104155 - C 300.0 Ion Chromat

Blank (2104155-BLK1)

Prepared & Analyzed: 04/28/21

EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Laboratory Services and Applied Science Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 21-0221

Project: 21-0221, Piney Point - Phase 2 -

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2104155 - C 300.0 Ion Chromat

Blank (2104155-BLK1)

Prepared & Analyzed: 04/28/21

Chloride	U	0 10	mg/L							U
Sulfate as SO4	U	0 10	"							U

LCS (2104155-BS1)

Prepared & Analyzed: 04/28/21

EPA 300.0

Chloride	259 97	0 10	mg/L	250 00		104	90-110			
Sulfate as SO4	255 86	0 10	"	250 00		102	90-110			

Matrix Spike (2104155-MS1)

Source: E211803-01

Prepared & Analyzed: 04/28/21

EPA 300.0

Chloride	1085 4		mg/L	200 00	855 42	115	90-110			QM-2
Sulfate as SO4	346 60		"	200 00	110 70	118	90-110			QM-2

Matrix Spike Dup (2104155-MSD1)

Source: E211803-01

Prepared & Analyzed: 04/28/21

EPA 300.0

Chloride	1105 7		mg/L	200 00	855 42	125	90-110	1 85	10	QM-2
Sulfate as SO4	354 39		"	200 00	110 70	122	90-110	2 22	10	QM-2

MRL Verification (2104155-PS1)

Prepared & Analyzed: 04/28/21

EPA 300.0

Chloride	48 269	0 10	mg/L	50 000		96 5	70-130			MRL-2
Sulfate as SO4	45 565	0 10	"	50 000		91 1	70-130			MRL-2

Batch 2104161 - C 300.0 Ion Chromat

Blank (2104161-BLK1)

Prepared & Analyzed: 04/29/21

Fluoride	U	0 050	mg/L							U
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LCS (2104161-BS1)

Prepared & Analyzed: 04/29/21

EPA 300.0

Fluoride	4 9270	0 050	mg/L	5 0000		98 5	90-110			
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Region 4 Laboratory Services and Applied Science Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 21-0221

Project: 21-0221, Piney Point - Phase 2 - [REDACTED]

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2104161 - C 300.0 Ion Chromat

Matrix Spike (2104161-MS1)

Source: E211803-01

Prepared & Analyzed: 04/29/21

EPA 300.0

Fluoride	0.79500		mg/L	1.0000	0.068000	72.7	90-110			D-4, QM-1, XM-1
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Matrix Spike Dup (2104161-MSD1)

Source: E211803-01

Prepared & Analyzed: 04/29/21

EPA 300.0

Fluoride	0.80000		mg/L	1.0000	0.068000	73.2	90-110	0.627	10	D-4, QM-1, XM-1
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MRL Verification (2104161-PS1)

Prepared & Analyzed: 04/29/21

EPA 300.0

Fluoride	0.040000	0.050	mg/L	0.050000		80.0	70-130			MRL-2, J
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 Region 4 Laboratory Services and Applied Science Division
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D.A.R.T. Id: 21-0221

Project: 21-0221, Piney Point - Phase 2 - [REDACTED]

Physical Properties (PHYSP) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2104117 - M Turbidity

Blank (2104117-BLK1)

Prepared & Analyzed: 04/23/21

EPA 180.1

Turbidity	U	1.0	NTU							U
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Blank (2104117-BLK2)

Prepared & Analyzed: 04/23/21

EPA 180.1

Turbidity	U	1.0	NTU							U
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Reference (2104117-SRM1)

Prepared & Analyzed: 04/23/21

EPA 180.1

Turbidity	1.4900	1.0	NTU	1.4800		101	0-200			
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Reference (2104117-SRM2)

Prepared & Analyzed: 04/23/21

EPA 180.1

Turbidity	16.200	1.0	NTU	16.100		101	0-200			
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Reference (2104117-SRM3)

Prepared & Analyzed: 04/23/21

EPA 180.1

Turbidity	1.4900	1.0	NTU	1.4800		101	0-200			
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Reference (2104117-SRM4)

Prepared & Analyzed: 04/23/21

EPA 180.1

Turbidity	16.300	1.0	NTU	16.100		101	0-200			
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D.A.R.T. Id: 21-0221

Project: 21-0221, Piney Point - Phase 2 - [REDACTED]

Notes and Definitions for QC Samples

U	The analyte was not detected at or above the reporting limit.
B-3	Level in blank does not impact data quality
B-4	Level in blank impacts MRLs.
D-4	MRL elevated due to interferences.
J	The identification of the analyte is acceptable; the reported value is an estimate.
MRL-2	MRL verification for Non-Potable Water matrix
QI-1	Internal standard was outside of method control limits.
QM-1	Matrix Spike Recovery less than method control limits
QM-2	Matrix Spike Recovery greater than method control limits
QR-1	MRL verification recovery less than lower control limits.
QR-2	MRL verification recovery greater than upper control limits.
XM-1	Sample background/spike ratio higher than method evaluation criteria