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 - Reported by Floyd Wellborn

May 6, 2021

MEMORANDUM

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

FROM: Floyd Wellborn
LSB Inorganic Chemistry Section Chief

THRU: Sandra Aker, Chief
Laboratory Services Branch

TO: Floyd Wellborn

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
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

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 R4SampleCustody@epa.gov.

cc: Nardina Turner

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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 13	E211808-01	Saline Water	4/29/21 10:30	4/30/21 10:35

DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
B-2	Reporting level elevated due to trace amounts of analyte present in the method blank.
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-1	Analyte concentration low in continuing calibration verification standard
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.

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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Total Metals

Project: 21-0221, Piney Point - Phase 2

Sample ID: Piney 13 **Lab ID:** E211808-01

Station ID: PINEY 13 **Matrix:** Saline Water

Date Collected: 4/29/21 10:30

CAS Number	Analyte	Results	Qualifiers	Units	MDL / MRL	Prepared	Analyzed	Method
7429-90-5	Aluminum	30	J, Q-2	ug/L	14 / 40	5/03/21 10:36	5/04/21 16:32	EPA 200.8
7440-36-0	Antimony	2.0	U, J, QI-1	ug/L	0.48 / 2.0	5/03/21 10:36	5/04/21 16:32	EPA 200.8
7440-38-2	Arsenic	5.7	J, QI-1	ug/L	1.3 / 2.0	5/03/21 10:36	5/04/21 16:32	EPA 200.8
7440-41-7	Beryllium	1.0	U, J, QI-1	ug/L	0.33 / 1.0	5/03/21 10:36	5/04/21 16:32	EPA 200.8
7440-42-8	Boron	4400		ug/L	120 / 1200	5/03/21 10:32	5/04/21 13:38	EPA 200.7
7440-43-9	Cadmium	1.0	U, J, QI-1	ug/L	0.37 / 1.0	5/03/21 10:36	5/04/21 16:32	EPA 200.8
7440-70-2	Calcium	400000		ug/L	2100 / 6200	5/03/21 10:32	5/04/21 13:38	EPA 200.7
7440-47-3	Chromium	5.1	J, B-2, Q-2	ug/L	2.4 / 5.6	5/03/21 10:36	5/04/21 16:32	EPA 200.8
7440-48-4	Cobalt	2.0	U, J, QI-1	ug/L	0.65 / 2.0	5/03/21 10:36	5/04/21 16:32	EPA 200.8
7440-50-8	Copper	2.6	J, QI-1	ug/L	0.95 / 2.0	5/03/21 10:36	5/04/21 16:32	EPA 200.8
7439-89-6	Iron	2500	U	ug/L	970 / 2500	5/03/21 10:32	5/04/21 13:38	EPA 200.7
7439-92-1	Lead	2.0	U	ug/L	0.25 / 2.0	5/03/21 10:36	5/04/21 16:32	EPA 200.8
7439-95-4	Magnesium	1200000		ug/L	1500 / 6200	5/03/21 10:32	5/04/21 13:38	EPA 200.7
7439-96-5	Manganese	120	U	ug/L	22 / 120	5/03/21 10:32	5/04/21 13:38	EPA 200.7
7439-98-7	Molybdenum	11		ug/L	2.2 / 5.0	5/03/21 10:36	5/04/21 16:39	EPA 200.8
7440-02-0	Nickel	2.0	U, J, QI-1	ug/L	1.3 / 2.0	5/03/21 10:36	5/04/21 16:32	EPA 200.8
7440-09-7	Potassium	380000		ug/L	2100 / 25000	5/03/21 10:32	5/04/21 13:38	EPA 200.7
7782-49-2	Selenium	15		ug/L	8.0 / 10	5/03/21 10:36	5/04/21 16:39	EPA 200.8
7440-22-4	Silver	1.0	U, J, QI-1	ug/L	0.20 / 1.0	5/03/21 10:36	5/04/21 16:32	EPA 200.8
7440-23-5	Sodium	1.0E7		ug/L	2600 / 25000	5/03/21 10:32	5/04/21 13:38	EPA 200.7
7440-24-6	Strontium	7200		ug/L	41 / 120	5/03/21 10:32	5/04/21 13:38	EPA 200.7
7440-28-0	Thallium	2.0	U	ug/L	0.24 / 2.0	5/03/21 10:36	5/04/21 16:32	EPA 200.8
7440-31-5	Tin	44	J, Q-2, QC-1	ug/L	38 / 380	5/03/21 10:32	5/04/21 13:38	EPA 200.7
7440-32-6	Titanium	120	U	ug/L	15 / 120	5/03/21 10:32	5/04/21 13:38	EPA 200.7
7440-61-1	Uranium	2.9		ug/L	0.42 / 2.0	5/03/21 10:36	5/04/21 16:32	EPA 200.8
7440-62-2	Vanadium	120	U, QR-1	ug/L	47 / 120	5/03/21 10:32	5/04/21 13:38	EPA 200.7
7440-66-6	Zinc	250	U	ug/L	26 / 250	5/03/21 10:32	5/04/21 13:38	EPA 200.7

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Classical/Nutrient Analyses

Project: 21-0221, Piney Point - Phase 2

Sample ID: Piney 13 **Lab ID:** E211808-01

Station ID: PINEY 13 **Matrix:** Saline Water

Date Collected: 4/29/21 10:30

CAS Number	Analyte	Results	Qualifiers	Units	MDL / MRL	Prepared	Analyzed	Method
7664-41-7	Ammonia as N	0.050	U	mg/L	0.012 / 0.050	5/03/21 11:40	5/03/21 12:02	EPA 350.1
E17148461	Total Kjeldahl Nitrogen	0.18	J, QM-1	mg/L	0.043 / 0.050	5/03/21 9:22	5/04/21 11:21	EPA 351.2
16887-00-6	Chloride	20000	J, QM-2	mg/L	0.32 / 2.5	5/04/21 16:13	5/05/21 1:35	EPA 300.0
16984-48-8	Fluoride	0.70	U, D-4	mg/L	0.70 / 0.70	5/05/21 10:43	5/05/21 13:42	EPA 300.0
14808-79-8	Sulfate as SO4	2600	J, QM-2	mg/L	0.48 / 2.5	5/04/21 16:13	5/05/21 1:35	EPA 300.0
E701177	Nitrate/Nitrite as N	0.013	U, B-4	mg/L	0.013 / 0.013	5/04/21 17:32	5/04/21 17:35	EPA 353.2
14265-44-2	Orthophosphate as P	0.038		mg/L	0.0038 / 0.010	4/30/21 12:23	4/30/21 18:13	EPA 365.1
7723-14-0	Total Phosphorus	0.052		mg/L	0.0041 / 0.010	5/04/21 13:07	5/05/21 11:28	EPA 365.1
E1642818	Total Suspended Solids	110		mg/L	5.0	4/30/21 9:20	4/30/21 9:20	USGS I-3765-85

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Physical Properties

Project: 21-0221, Piney Point - Phase 2

Sample ID: Piney 13 **Lab ID:** E211808-01
Station ID: PINEY 13 **Matrix:** Saline Water

Date Collected: 4/29/21 10:30

CAS Number	Analyte	Results	Qualifiers	Units	MDL / MRL	Prepared	Analyzed	Method
E1640507	Turbidity	1.5		NTU	0.11 / 1.0	4/30/21 11:39	4/30/21 13:43	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
Batch 2105002 - M 200.2 Metals Water										
Blank (2105002-BLK1)				Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 200.7										
Boron	U	50	ug/L							U
Calcium	99.474	250	"							J
Iron	U	100	"							U
Magnesium	U	250	"							U
Manganese	U	5.0	"							U
Potassium	U	1000	"							U
Sodium	U	1000	"							U
Strontium	1.9180	5.0	"							J
Tin	U	15	"							U
Titanium	U	5.0	"							U
Vanadium	U	5.0	"							U
Zinc	U	10	"							U
LCS (2105002-BS1)				Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 200.7										
Boron	495.36	50	ug/L	500.00		99.1	85-115			
Calcium	5225.6	250	"	5000.0		105	85-115			
Iron	5251.3	100	"	5000.0		105	85-115			
Magnesium	5169.6	250	"	5000.0		103	85-115			
Manganese	512.57	5.0	"	500.00		103	85-115			
Potassium	9633.8	1000	"	10000		96.3	85-115			
Sodium	9996.9	1000	"	10000		100	85-115			
Strontium	100.46	5.0	"	100.00		100	85-115			
Tin	97.205	15	"	100.00		97.2	85-115			
Titanium	97.398	5.0	"	100.00		97.4	85-115			
Vanadium	91.061	5.0	"	100.00		91.1	85-115			
Zinc	198.63	10	"	200.00		99.3	85-115			
Matrix Spike (2105002-MS1)		**Source: E211807-01**		Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 200.7										
Boron	4450.9	1200	ug/L	500.00	4019.9	86.2	70-130			
Calcium	368320	6200	"	5000.0	370620	-46.1	70-130			XM-1
Iron	4971.6	2500	"	5000.0	U	99.4	70-130			
Magnesium	1138600	6200	"	5000.0	1158700	-402	70-130			XM-1
Manganese	475.18	120	"	500.00	U	95.0	70-130			
Potassium	354140	25000	"	10000	348040	61.0	70-130			XM-1
Sodium	9209500	25000	"	10000	9370500	-1610	70-130			XM-1
Strontium	6669.2	120	"	100.00	6693.4	-24.1	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
Batch 2105002 - M 200.2 Metals Water										
Matrix Spike (2105002-MS1)		**Source: E211807-01**		Prepared: 05/03/21 Analyzed: 05/04/21						
Tin	127.68	380	ug/L	100.00	54.793	72.9	70-130			J
Titanium	91.082	120	"	100.00	U	91.1	70-130			J
Vanadium	113.31	120	"	100.00	U	113	70-130			QM-3, J
Zinc	106.99	250	"	200.00	U	53.5	70-130			QM-1, J
Matrix Spike Dup (2105002-MSD1)		**Source: E211807-01**		Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 200.7										
Boron	4801.0	1200	ug/L	500.00	4019.9	156	70-130	7.57	20	QM-2
Calcium	390700	6200	"	5000.0	370620	402	70-130	5.90	20	XM-1
Iron	4980.0	2500	"	5000.0	U	99.6	70-130	0.168	20	
Magnesium	1206900	6200	"	5000.0	1158700	963	70-130	5.82	20	XM-1
Manganese	483.92	120	"	500.00	U	96.8	70-130	1.82	20	
Potassium	372690	25000	"	10000	348040	246	70-130	5.10	20	XM-1
Sodium	9787000	25000	"	10000	9370500	4170	70-130	6.08	20	XM-1
Strontium	7039.5	120	"	100.00	6693.4	346	70-130	5.40	20	XM-1
Tin	118.93	380	"	100.00	54.793	64.1	70-130	7.10	20	QM-1, J
Titanium	93.655	120	"	100.00	U	93.7	70-130	2.78	20	J
Vanadium	77.714	120	"	100.00	U	77.7	70-130	37.3	20	QM-3, J
Zinc	107.76	250	"	200.00	U	53.9	70-130	0.711	20	QM-1, J
MRL Verification (2105002-PS1)				Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 200.7										
Boron	51.712	50	ug/L	50.000		103	70-130			MRL-2
Calcium	327.47	250	"	250.00		131	70-130			MRL-2, QR-2
Iron	111.80	100	"	100.00		112	70-130			MRL-2
Magnesium	254.26	250	"	250.00		102	70-130			MRL-2
Manganese	5.4130	5.0	"	5.0000		108	70-130			MRL-2
Potassium	963.02	1000	"	1000.0		96.3	70-130			MRL-2, J
Sodium	978.78	1000	"	1000.0		97.9	70-130			MRL-2, J
Strontium	6.5453	5.0	"	5.0000		131	70-130			MRL-2, QR-2
Tin	14.866	15	"	15.000		99.1	70-130			MRL-2, J
Titanium	5.1956	5.0	"	5.0000		104	70-130			MRL-2
Vanadium	3.3755	5.0	"	5.0000		67.5	70-130			MRL-2, QR-1, J
Zinc	10.960	10	"	10.000		110	70-130			MRL-2

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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
Batch 2105003 - M 200.2 Metals Water										
Blank (2105003-BLK1)				Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 200.8										
Aluminum	37.068	10	ug/L							B-3
Antimony	U	0.50	"							U
Arsenic	U	0.50	"							U
Beryllium	U	0.25	"							U
Cadmium	U	0.25	"							U
Chromium	1.2327	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	1.6424	0.50	"							B-3
Selenium	U	1.0	"							U
Silver	U	0.25	"							U
Thallium	U	0.50	"							U
Uranium	U	0.50	"							U
LCS (2105003-BS1)				Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 200.8										
Aluminum	5070.8	40	ug/L	5000.0		101	85-115			
Antimony	190.96	2.0	"	200.00		95.5	85-115			
Arsenic	203.52	2.0	"	200.00		102	85-115			
Beryllium	49.713	1.0	"	50.000		99.4	85-115			
Cadmium	48.277	1.0	"	50.000		96.6	85-115			
Chromium	197.61	4.0	"	200.00		98.8	85-115			
Cobalt	102.32	2.0	"	100.00		102	85-115			
Copper	104.89	2.0	"	100.00		105	85-115			
Lead	200.76	2.0	"	200.00		100	85-115			
Molybdenum	95.466	2.0	"	100.00		95.5	85-115			
Nickel	207.56	2.0	"	200.00		104	85-115			
Selenium	199.52	4.0	"	200.00		99.8	85-115			
Silver	102.71	1.0	"	100.00		103	85-115			
Thallium	197.50	2.0	"	200.00		98.8	85-115			
Uranium	197.85	2.0	"	200.00		98.9	85-115			

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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
Batch 2105003 - M 200.2 Metals Water										
LCS (2105003-BS2)				Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 200.8										
Aluminum	5177.7	100	ug/L	5000.0		104	85-115			
Antimony	187.05	5.0	"	200.00		93.5	85-115			
Arsenic	208.41	5.0	"	200.00		104	85-115			
Beryllium	48.349	2.5	"	50.000		96.7	85-115			
Cadmium	47.248	2.5	"	50.000		94.5	85-115			
Chromium	199.90	10	"	200.00		99.9	85-115			
Cobalt	103.74	5.0	"	100.00		104	85-115			
Copper	105.88	5.0	"	100.00		106	85-115			
Lead	205.58	5.0	"	200.00		103	85-115			
Molybdenum	96.150	5.0	"	100.00		96.2	85-115			
Nickel	208.25	5.0	"	200.00		104	85-115			
Selenium	209.56	10	"	200.00		105	85-115			
Silver	103.95	2.5	"	100.00		104	85-115			
Thallium	204.48	5.0	"	200.00		102	85-115			
Uranium	204.84	5.0	"	200.00		102	85-115			
Matrix Spike (2105003-MS1)		**Source: E211807-01**		Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 200.8										
Aluminum	4914.0	40	ug/L	5000.0	19.404	97.9	70-130			
Antimony	187.07	2.0	"	200.00	U	93.5	70-130			QI-1
Arsenic	191.37	2.0	"	200.00	3.7715	93.8	70-130			QI-1
Beryllium	45.982	1.0	"	50.000	U	92.0	70-130			QI-1
Cadmium	38.528	1.0	"	50.000	U	77.1	70-130			QI-1
Chromium	183.53	4.0	"	200.00	4.0651	89.7	70-130			
Cobalt	100.25	2.0	"	100.00	U	100	70-130			QI-1
Copper	90.887	2.0	"	100.00	1.6062	89.3	70-130			QI-1
Lead	169.20	2.0	"	200.00	U	84.6	70-130			
Molybdenum	110.79	2.0	"	100.00	9.7715	101	70-130			QI-1
Nickel	186.47	2.0	"	200.00	U	93.2	70-130			QI-1
Selenium	193.58	4.0	"	200.00	14.845	89.4	70-130			QI-1
Silver	75.092	1.0	"	100.00	U	75.1	70-130			QI-1
Thallium	174.20	2.0	"	200.00	U	87.1	70-130			
Uranium	182.17	2.0	"	200.00	2.8566	89.7	70-130			

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Total Metals (TMTL) - Quality Control
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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2105003 - M 200.2 Metals Water										
Matrix Spike (2105003-MS2)		**Source: E211807-01**		Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 200.8										
Aluminum	5066.4	100	ug/L	5000.0	U	101	70-130			
Antimony	194.74	5.0	"	200.00	U	97.4	70-130			
Arsenic	206.36	5.0	"	200.00	3.7715	101	70-130			
Beryllium	49.570	2.5	"	50.000	U	99.1	70-130			
Cadmium	40.457	2.5	"	50.000	U	80.9	70-130			
Chromium	186.43	10	"	200.00	U	93.2	70-130			
Cobalt	101.01	5.0	"	100.00	U	101	70-130			
Copper	94.312	5.0	"	100.00	U	94.3	70-130			
Lead	173.86	5.0	"	200.00	U	86.9	70-130			
Molybdenum	112.63	5.0	"	100.00	9.7715	103	70-130			
Nickel	191.03	5.0	"	200.00	U	95.5	70-130			
Selenium	221.86	10	"	200.00	14.845	104	70-130			
Silver	84.505	2.5	"	100.00	U	84.5	70-130			
Thallium	175.87	5.0	"	200.00	U	87.9	70-130			
Uranium	181.31	5.0	"	200.00	2.8566	89.2	70-130			
Matrix Spike Dup (2105003-MSD1)		**Source: E211807-01**		Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 200.8										
Aluminum	5017.0	40	ug/L	5000.0	19.404	100	70-130	2.07	20	
Antimony	182.70	2.0	"	200.00	U	91.3	70-130	2.37	20	QI-1
Arsenic	190.88	2.0	"	200.00	3.7715	93.6	70-130	0.253	20	QI-1
Beryllium	47.127	1.0	"	50.000	U	94.3	70-130	2.46	20	QI-1
Cadmium	36.186	1.0	"	50.000	U	72.4	70-130	6.27	20	QI-1
Chromium	183.30	4.0	"	200.00	4.0651	89.6	70-130	0.125	20	
Cobalt	100.43	2.0	"	100.00	U	100	70-130	0.176	20	QI-1
Copper	90.491	2.0	"	100.00	1.6062	88.9	70-130	0.437	20	QI-1
Lead	169.96	2.0	"	200.00	U	85.0	70-130	0.449	20	
Molybdenum	113.75	2.0	"	100.00	9.7715	104	70-130	2.64	20	QI-1
Nickel	183.18	2.0	"	200.00	U	91.6	70-130	1.78	20	QI-1
Selenium	196.28	4.0	"	200.00	14.845	90.7	70-130	1.39	20	QI-1
Silver	74.984	1.0	"	100.00	U	75.0	70-130	0.144	20	QI-1
Thallium	175.55	2.0	"	200.00	U	87.8	70-130	0.773	20	
Uranium	187.16	2.0	"	200.00	2.8566	92.2	70-130	2.70	20	

Total Metals (TMTL) - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2105003 - M 200.2 Metals Water										
Matrix Spike Dup (2105003-MSD2)		**Source: E211807-01**		Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 200.8										
Aluminum	5149.8	100	ug/L	5000.0	U	103	70-130	1.63	20	
Antimony	195.95	5.0	"	200.00	U	98.0	70-130	0.618	20	
Arsenic	203.63	5.0	"	200.00	3.7715	99.9	70-130	1.33	20	
Beryllium	48.360	2.5	"	50.000	U	96.7	70-130	2.47	20	
Cadmium	41.591	2.5	"	50.000	U	83.2	70-130	2.76	20	
Chromium	189.69	10	"	200.00	U	94.8	70-130	1.73	20	
Cobalt	103.75	5.0	"	100.00	U	104	70-130	2.67	20	
Copper	96.274	5.0	"	100.00	U	96.3	70-130	2.06	20	
Lead	175.26	5.0	"	200.00	U	87.6	70-130	0.800	20	
Molybdenum	117.58	5.0	"	100.00	9.7715	108	70-130	4.30	20	
Nickel	195.76	5.0	"	200.00	U	97.9	70-130	2.45	20	
Selenium	205.19	10	"	200.00	14.845	95.2	70-130	7.81	20	
Silver	85.486	2.5	"	100.00	U	85.5	70-130	1.15	20	
Thallium	176.27	5.0	"	200.00	U	88.1	70-130	0.228	20	
Uranium	184.33	5.0	"	200.00	2.8566	90.7	70-130	1.66	20	
MRL Verification (2105003-PS1)				Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 200.8										
Aluminum	27.668	10	ug/L	20.000		138	65-135			MRL-2, QR-2
Antimony	0.42540	0.50	"	0.50000		85.1	65-135			MRL-2, J
Arsenic	0.91268	0.50	"	1.0000		91.3	65-135			MRL-2
Beryllium	0.52406	0.25	"	0.50000		105	65-135			MRL-2
Cadmium	0.39937	0.25	"	0.50000		79.9	65-135			MRL-2
Chromium	2.7670	1.0	"	2.0000		138	65-135			MRL-2, QR-2
Cobalt	1.0439	0.50	"	1.0000		104	65-135			MRL-2
Copper	1.1029	0.50	"	1.0000		110	65-135			MRL-2
Lead	0.85776	0.50	"	1.0000		85.8	65-135			MRL-2
Molybdenum	0.46088	0.50	"	0.50000		92.2	65-135			MRL-2, J
Nickel	1.0917	0.50	"	1.0000		109	65-135			MRL-2
Selenium	2.3003	1.0	"	2.0000		115	65-135			MRL-2
Silver	0.51121	0.25	"	0.50000		102	65-135			MRL-2
Thallium	0.45572	0.50	"	0.50000		91.1	65-135			MRL-2, J
Uranium	1.0192	0.50	"	1.0000		102	65-135			MRL-2

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Classical/Nutrient Analyses (CNA) - Quality Control
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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2104144 - C 351.2 TKN										
Blank (2104144-BLK1)				Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 351.2										
Total Kjeldahl Nitrogen	U	0.050	mg/L							U
LCS (2104144-BS1)				Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 351.2										
Total Kjeldahl Nitrogen	1.8490	0.050	mg/L	1.7500		106	90-110			
Matrix Spike (2104144-MS1)		**Source: E211808-01**		Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 351.2										
Total Kjeldahl Nitrogen	1.1710	0.050	mg/L	1.0000	0.18400	98.7	90-110			
Matrix Spike Dup (2104144-MSD1)		**Source: E211808-01**		Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 351.2										
Total Kjeldahl Nitrogen	1.0810	0.050	mg/L	1.0000	0.18400	89.7	90-110	7.99	20	QM-1
MRL Verification (2104144-PS1)				Prepared: 05/03/21 Analyzed: 05/04/21						
EPA 351.2										
Total Kjeldahl Nitrogen	0.063000	0.050	mg/L	0.050000		126	70-130			MRL-2
Batch 2104168 - C 2540 Solids										
Blank (2104168-BLK1)				Prepared & Analyzed: 04/30/21						
USGS I-3765-85										
Total Suspended Solids	U	5.0	mg/L							U
LCS (2104168-BS1)				Prepared & Analyzed: 04/30/21						
USGS I-3765-85										
Total Suspended Solids	103.70	5.0	mg/L	100.00		104	77.1-110			
LCS Dup (2104168-BSD1)				Prepared & Analyzed: 04/30/21						
USGS I-3765-85										
Total Suspended Solids	101.10	5.0	mg/L	100.00		101	77.1-110	2.54	10	
Duplicate (2104168-DUP1)		**Source: E211806-01**		Prepared & Analyzed: 04/30/21						
USGS I-3765-85										
Total Suspended Solids	99.000	5.0	mg/L		92.100			7.22	10	

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2104168 - C 2540 Solids										
MRL Verification (2104168-PS1)				Prepared & Analyzed: 04/30/21						
USGS I-3765-85										
Total Suspended Solids	3.5000	5.0	mg/L	5.0000		70.0	57.1-130			MRL-2, U
Batch 2104170 - C 365.1 Ortho Phos										
Blank (2104170-BLK1)				Prepared & Analyzed: 04/30/21						
EPA 365.1										
Orthophosphate as P	U	0.010	mg/L							U
LCS (2104170-BS1)				Prepared & Analyzed: 04/30/21						
EPA 365.1										
Orthophosphate as P	0.51000	0.010	mg/L	0.50050		102	90-110			
Matrix Spike (2104170-MS1)		**Source: E211808-01**		Prepared & Analyzed: 04/30/21						
EPA 365.1										
Orthophosphate as P	0.53300	0.010	mg/L	0.50050	0.038000	98.9	90-110			
Matrix Spike Dup (2104170-MSD1)		**Source: E211808-01**		Prepared & Analyzed: 04/30/21						
EPA 365.1										
Orthophosphate as P	0.53200	0.010	mg/L	0.50050	0.038000	98.7	90-110	0.188	10	
MRL Verification (2104170-PS1)				Prepared & Analyzed: 04/30/21						
EPA 365.1										
Orthophosphate as P	0.0090000	0.010	mg/L	0.010000		90.0	70-130			MRL-2, J
Batch 2105001 - C 350.1 Ammonia										
Blank (2105001-BLK1)				Prepared & Analyzed: 05/03/21						
EPA 350.1										
Ammonia as N	U	0.050	mg/L							U
LCS (2105001-BS1)				Prepared & Analyzed: 05/03/21						
EPA 350.1										
Ammonia as N	1.0100	0.050	mg/L	1.0000		101	90-110			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2105001 - C 350.1 Ammonia										
Matrix Spike (2105001-MS1)		**Source: E211808-01**		Prepared & Analyzed: 05/03/21						
EPA 350.1										
Ammonia as N	1.0460	0.050	mg/L	1.0000	U	105	90-110			
Matrix Spike Dup (2105001-MSD1)		**Source: E211808-01**		Prepared & Analyzed: 05/03/21						
EPA 350.1										
Ammonia as N	1.0400	0.050	mg/L	1.0000	U	104	90-110	0.575	10	
MRL Verification (2105001-PS1)				Prepared & Analyzed: 05/03/21						
EPA 350.1										
Ammonia as N	0.036000		mg/L	0.050000		72.0	70-130			MRL-2
Batch 2105011 - C 365.1 TPhos										
Blank (2105011-BLK1)				Prepared: 05/04/21 Analyzed: 05/05/21						
EPA 365.1										
Total Phosphorus	U	0.010	mg/L							U
LCS (2105011-BS1)				Prepared: 05/04/21 Analyzed: 05/05/21						
EPA 365.1										
Total Phosphorus	0.36900	0.010	mg/L	0.37800		97.6	90-110			
Matrix Spike (2105011-MS1)		**Source: E211808-01**		Prepared: 05/04/21 Analyzed: 05/05/21						
EPA 365.1										
Total Phosphorus	0.56000	0.010	mg/L	0.50050	0.052000	101	90-110			
Matrix Spike Dup (2105011-MSD1)		**Source: E211808-01**		Prepared: 05/04/21 Analyzed: 05/05/21						
EPA 365.1										
Total Phosphorus	0.55800	0.010	mg/L	0.50050	0.052000	101	90-110	0.358	10	
MRL Verification (2105011-PS1)				Prepared: 05/04/21 Analyzed: 05/05/21						
EPA 365.1										
Total Phosphorus	0.010000	0.010	mg/L	0.010000		100	70-130			MRL-2
Batch 2105013 - C 300.0 Ion Chromat										
Blank (2105013-BLK1)				Prepared & Analyzed: 05/04/21						
EPA 300.0										
Chloride	U	0.10	mg/L							U

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2105013 - C 300.0 Ion Chromat										
Blank (2105013-BLK1)				Prepared & Analyzed: 05/04/21						
Sulfate as SO4	U	0.10	mg/L							U
LCS (2105013-BS1)				Prepared: 05/04/21 Analyzed: 05/05/21						
EPA 300.0										
Chloride	259.14	0.10	mg/L	250.00		104	90-110			
Sulfate as SO4	259.89	0.10	"	250.00		104	90-110			
Matrix Spike (2105013-MS1)		**Source: E211808-01**		Prepared: 05/04/21 Analyzed: 05/05/21						
EPA 300.0										
Chloride	1056.5		mg/L	200.00	802.24	127	90-110			QM-2
Sulfate as SO4	337.04		"	200.00	105.66	116	90-110			QM-2
Matrix Spike Dup (2105013-MSD1)		**Source: E211808-01**		Prepared: 05/04/21 Analyzed: 05/05/21						
EPA 300.0										
Chloride	1045.7		mg/L	200.00	802.24	122	90-110	1.03	10	QM-2
Sulfate as SO4	332.65		"	200.00	105.66	113	90-110	1.31	10	QM-2
MRL Verification (2105013-PS1)				Prepared & Analyzed: 05/04/21						
EPA 300.0										
Chloride	48.999	0.10	mg/L	50.000		98.0	70-130			MRL-2
Sulfate as SO4	47.738	0.10	"	50.000		95.5	70-130			MRL-2
Batch 2105014 - C 353.2 NO3-NO2										
Blank (2105014-BLK1)				Prepared & Analyzed: 05/04/21						
EPA 353.2										
Nitrate/Nitrite as N	U	0.050	mg/L							U
LCS (2105014-BS1)				Prepared & Analyzed: 05/04/21						
EPA 353.2										
Nitrate/Nitrite as N	0.47140	0.050	mg/L	0.50150		94.0	90-110			
Matrix Spike (2105014-MS1)		**Source: E211808-01**		Prepared & Analyzed: 05/04/21						
EPA 353.2										
Nitrate/Nitrite as N	0.47940	0.050	mg/L	0.50150	0.011700	93.3	90-110			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2105014 - C 353.2 NO3-NO2										
Matrix Spike Dup (2105014-MSD1)		**Source: E211808-01**		Prepared & Analyzed: 05/04/21						
EPA 353.2										
Nitrate/Nitrite as N	0.48130	0.050	mg/L	0.50150	0.011700	93.6	90-110	0.396	10	
MRL Verification (2105014-PS1)				Prepared & Analyzed: 05/04/21						
EPA 353.2										
Nitrate/Nitrite as N	0.052000	0.050	mg/L	0.050000		104	70-130			MRL-2
Batch 2105016 - C 300.0 Ion Chromat										
Blank (2105016-BLK1)				Prepared & Analyzed: 05/05/21						
EPA 300.0										
Fluoride	U	0.050	mg/L							U
LCS (2105016-BS1)				Prepared & Analyzed: 05/05/21						
EPA 300.0										
Fluoride	4.9910	0.050	mg/L	5.0000		99.8	90-110			
Matrix Spike (2105016-MS1)		**Source: E211808-01**		Prepared & Analyzed: 05/05/21						
EPA 300.0										
Fluoride	0.80300		mg/L	1.0000	0.069000	73.4	90-110			D-4, QM-1, XM-1
Matrix Spike Dup (2105016-MSD1)		**Source: E211808-01**		Prepared & Analyzed: 05/05/21						
EPA 300.0										
Fluoride	0.80600		mg/L	1.0000	0.069000	73.7	90-110	0.373	10	D-4, QM-1, XM-1
MRL Verification (2105016-PS1)				Prepared & Analyzed: 05/05/21						
EPA 300.0										
Fluoride	0.042000	0.050	mg/L	0.050000		84.0	70-130			MRL-2, J

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Physical Properties (PHYSP) - Quality Control
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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2104169 - M Turbidity										
Blank (2104169-BLK1)				Prepared & Analyzed: 04/30/21						
EPA 180.1										
Turbidity	U	1.0	NTU							U
Blank (2104169-BLK2)				Prepared & Analyzed: 04/30/21						
EPA 180.1										
Turbidity	U	1.0	NTU							U
Reference (2104169-SRM1)				Prepared & Analyzed: 04/30/21						
EPA 180.1										
Turbidity	1.4500	1.0	NTU	1.4800		98.0	0-200			
Reference (2104169-SRM2)				Prepared & Analyzed: 04/30/21						
EPA 180.1										
Turbidity	15.500	1.0	NTU	16.100		96.3	0-200			
Reference (2104169-SRM3)				Prepared & Analyzed: 04/30/21						
EPA 180.1										
Turbidity	1.4500	1.0	NTU	1.4800		98.0	0-200			
Reference (2104169-SRM4)				Prepared & Analyzed: 04/30/21						
EPA 180.1										
Turbidity	15.500	1.0	NTU	16.100		96.3	0-200			

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
QM-3	Matrix Spike Precision outside 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