

Chemical Analysis Report

NE-DIST-2022-07-29-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **LSJR East**
Request ID: **RQ-2022-06-27-09**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 22-AUG-2022 09:04

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals and Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: GREENFIELD CREEK AT ATLANTIC BLVD.

Collection Date/Time: 07/28/2022 15:20

Field ID: 20030657

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2344509	DEP SOP: NU-094-1	Color (true)	62	A	PCU	P417425	
	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P417430	
	EPA 300.0 Rev. 2.1	Chloride	40		mg Cl/L	P417881	
		Sulfate	46		mg SO4/L	P417886	
	SM 2320 B-2011	Total Alkalinity	86		mg CaCO3/L	P417548	
	SM 2540 C-2011	TDS	268	A	mg/L	P417815	
	SM 2540 D-2011	TSS	6	I	mg/L	P417805	
	SM 4500-F- C-2011	Fluoride	0.093	I	mg F/L	P417551	
2344510	EPA 350.1 Rev. 2.0	Ammonia-N	0.082		mg N/L	P417421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P418073	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.24		mg N/L	P417486	
	EPA 365.1 Rev. 2.0	Total-P	0.085		mg P/L	P417451	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P417698	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: GREENFIELD CREEK @ QUEENS HARBOUR BLVD.

Collection Date/Time: 07/28/2022 15:30

Field ID: 20030809

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2344507	DEP SOP: NU-094-1	Color (true)	65		PCU	P417425	
	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P417430	
	SM 2320 B-2011	Total Alkalinity	82		mg CaCO3/L	P417548	
	SM 2540 D-2011	TSS	5	I	mg/L	P417803	
	SM 4500-F- C-2011	Fluoride	0.15		mg F/L	P417551	
2344508	EPA 350.1 Rev. 2.0	Ammonia-N	0.10		mg N/L	P417421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P418073	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P417486	
	EPA 365.1 Rev. 2.0	Total-P	0.089		mg P/L	P417451	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P417698	
2344515	EPA 200.7 Rev. 4.4	Calcium	61.2		mg/L	P417476	
		Iron	300		ug/L	P417476	
		Magnesium	56.1		mg/L	P417476	
		Strontium	672		ug/L	P417476	
		Tin	15	U	ug/L	P417476	
		Titanium	2.0	I	ug/L	P417476	
		Vanadium	2.0	U	ug/L	P417476	
		Zinc	5.0	U	ug/L	P417476	
		Aluminum	166		ug/L	P417476	
		Antimony	0.18	I	ug/L	P417476	
	EPA 200.8 Rev. 5.4	Arsenic	1.37		ug/L	P417476	
		Beryllium	0.027	I	ug/L	P417476	
		Cadmium	0.020	U	ug/L	P417476	
		Chromium	0.46	I	ug/L	P417476	
		Cobalt	0.084		ug/L	P417476	
		Copper	5.06		ug/L	P417476	
		Lead	0.25	I	ug/L	P417476	
		Manganese	22.4		ug/L	P417476	
		Molybdenum	0.54	I	ug/L	P417476	
		Nickel	0.50	U	ug/L	P417476	
		Selenium	0.20	U	ug/L	P417476	
		Silver	0.010	U	ug/L	P417476	
		Thallium	0.10	U	ug/L	P417476	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P417425

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417430

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P417476

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Titanium	0.75	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417476

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417881

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417886

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417421

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418073

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417486

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417451

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: SM 2320 B-2011
Batch ID: P417548

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-2011
Batch ID: P417815

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P417803

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P417805

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417551

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P417698

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P417425

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417430

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	97.1		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P417476

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	105		P	85 - 115
Iron	109		P	85 - 115
Magnesium	103		P	85 - 115
Strontium	106		P	85 - 115
Tin	107		P	85 - 115
Titanium	106		P	85 - 115
Vanadium	106		P	85 - 115
Zinc	108		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417476

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.3		P	85 - 115
Antimony	98.6		P	85 - 115
Arsenic	98.0		P	85 - 115
Beryllium	91.4		P	85 - 115
Cadmium	96.4		P	85 - 115
Chromium	97.3		P	85 - 115
Cobalt	97.9		P	85 - 115
Copper	97.1		P	85 - 115
Lead	93.5		P	85 - 115
Manganese	97.4		P	85 - 115
Molybdenum	96.0		P	85 - 115
Nickel	98.7		P	85 - 115
Selenium	98.4		P	85 - 115
Silver	96.2		P	85 - 115
Thallium	99.3		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417881

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417886

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.9		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417421

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417486

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417451

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	100		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P417548

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.6		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P417551

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P417698

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P417476

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344552	Calcium	104		P	80 - 120
2344552	Iron	102	103	P/P	80 - 120
2344552	Magnesium	101	104	P/P	80 - 120
2344552	Strontium	105	107	P/P	80 - 120
2344552	Tin	102	104	P/P	80 - 120
2344552	Titanium	102	105	P/P	80 - 120
2344552	Vanadium	104	107	P/P	80 - 120
2344552	Zinc	106	110	P/P	80 - 120
2344553	Calcium	102		P	80 - 120
2344553	Iron	102		P	80 - 120
2344553	Magnesium	97.0		P	80 - 120
2344553	Strontium	103		P	80 - 120
2344553	Tin	102		P	80 - 120
2344553	Titanium	101		P	80 - 120
2344553	Vanadium	102		P	80 - 120
2344553	Zinc	104		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P417476

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344552	Aluminum	102	103	P/P	80 - 120
2344552	Antimony	99.8	100	P/P	80 - 120
2344552	Arsenic	98.3	99.5	P/P	80 - 120
2344552	Beryllium	94.1	93.0	P/P	80 - 120
2344552	Cadmium	96.7	98.2	P/P	80 - 120
2344552	Chromium	96.8	97.1	P/P	80 - 120
2344552	Cobalt	97.5	96.5	P/P	80 - 120
2344552	Copper	96.4	96.2	P/P	80 - 120
2344552	Lead	94.7	95.9	P/P	80 - 120
2344552	Manganese	97.8	99.0	P/P	80 - 120
2344552	Molybdenum	98.2	99.2	P/P	80 - 120
2344552	Nickel	97.5	97.2	P/P	80 - 120
2344552	Selenium	94.0	94.4	P/P	80 - 120
2344552	Silver	94.6	95.2	P/P	80 - 120
2344552	Thallium	101	103	P/P	80 - 120
2344553	Aluminum	101		P	80 - 120
2344553	Antimony	102		P	80 - 120
2344553	Arsenic	99.7		P	80 - 120
2344553	Beryllium	94.7		P	80 - 120
2344553	Cadmium	99.4		P	80 - 120
2344553	Chromium	101		P	80 - 120
2344553	Cobalt	98.2		P	80 - 120
2344553	Copper	97.1		P	80 - 120
2344553	Lead	97.4		P	80 - 120
2344553	Manganese	99.6		P	80 - 120
2344553	Molybdenum	99.5		P	80 - 120
2344553	Nickel	98.5		P	80 - 120
2344553	Selenium	95.7		P	80 - 120
2344553	Silver	96.4		P	80 - 120
2344553	Thallium	104		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344532	Chloride	95.3		P	90 - 110
2344584	Chloride	96.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344532	Sulfate	94.1		P	90 - 110
2344584	Sulfate	96.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344567	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344648	Kjeldahl Nitrogen	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417486

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344453	NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417451

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344510	Total-P	102	101	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P417551

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344733	Fluoride	97.2	97.2	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P417698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344317	Organic Carbon	99.4	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P417425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344509	Color (true)	0.857	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344526	Turbidity	7.68	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P417476

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344552	Calcium	3.87	Spike	P	0 - 20
2344552	Iron	0.820	Spike	P	0 - 20
2344552	Magnesium	1.60	Spike	P	0 - 20
2344552	Strontium	1.71	Spike	P	0 - 20
2344552	Tin	1.65	Spike	P	0 - 20
2344552	Titanium	2.73	Spike	P	0 - 20
2344552	Vanadium	3.32	Spike	P	0 - 20
2344552	Zinc	3.35	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417476

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344552	Aluminum	0.807	Spike	P	0 - 20
2344552	Antimony	0.282	Spike	P	0 - 20
2344552	Arsenic	1.18	Spike	P	0 - 20
2344552	Beryllium	1.18	Spike	P	0 - 20
2344552	Cadmium	1.53	Spike	P	0 - 20
2344552	Chromium	0.360	Spike	P	0 - 20
2344552	Cobalt	1.03	Spike	P	0 - 20
2344552	Copper	0.219	Spike	P	0 - 20
2344552	Lead	1.24	Spike	P	0 - 20
2344552	Manganese	1.01	Spike	P	0 - 20
2344552	Molybdenum	0.981	Spike	P	0 - 20
2344552	Nickel	0.245	Spike	P	0 - 20
2344552	Selenium	0.446	Spike	P	0 - 20
2344552	Silver	0.644	Spike	P	0 - 20
2344552	Thallium	2.38	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344532	Chloride	0.678	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344532	Sulfate	0.680	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344567	Ammonia-N	2.17	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344648	Kjeldahl Nitrogen	0.0645	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417486

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344453	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344510	Total-P	0.488	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P417548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344733	Total Alkalinity	0.601	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P417815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344509	TDS	6.36	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P417551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344733	Fluoride	0.0	Spike	P	0 - 1.6

Quality Assurance Report

Precision

Reference Method: SM 5310 B-2011
Batch ID: P417698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344317	Organic Carbon	0.363	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113803

Included Lab Sample IDs: 2344508, 2344510

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	98.8	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A113805

Included Lab Sample IDs: 2344507, 2344509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A113809

Included Lab Sample IDs: 2344507, 2344509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113846

Included Lab Sample IDs: 2344508, 2344510

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A113848

Included Lab Sample IDs: 2344508, 2344510

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.4	98.5	P/P	90 - 110
Total-P	98.5	98.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A113866

Included Lab Sample IDs: 2344515

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	96.4	97.7	P/P	90 - 110
Arsenic	98.6	98.0	P/P	90 - 110
Cadmium	98.1	99.0	P/P	90 - 110
Chromium	97.4	97.8	P/P	90 - 110
Cobalt	97.1	98.1	P/P	90 - 110
Copper	97.5	97.6	P/P	90 - 110
Lead	92.4	93.4	P/P	90 - 110
Manganese	96.4	99.6	P/P	90 - 110
Molybdenum	96.4	97.0	P/P	90 - 110
Nickel	97.4	97.5	P/P	90 - 110
Selenium	94.7	96.7	P/P	90 - 110
Silver	97.5	98.7	P/P	90 - 110
Thallium	98.2	99.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A113869

Included Lab Sample IDs: 2344507, 2344509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	97.6	P/P	90 - 110
Total Alkalinity	97.0	100	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A113869

Included Lab Sample IDs: 2344507, 2344509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	104	P/P	90 - 110
Fluoride	104	102	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A113903

Included Lab Sample IDs: 2344515

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	104	P/P	90 - 110
Iron	98.3	99.0	P/P	90 - 110
Magnesium	99.4	100	P/P	90 - 110
Strontium	102	102	P/P	90 - 110
Tin	98.7	101	P/P	90 - 110
Titanium	99.4	99.7	P/P	90 - 110
Vanadium	100	101	P/P	90 - 110
Zinc	100	102	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A113927

Included Lab Sample IDs: 2344508, 2344510

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A113944

Included Lab Sample IDs: 2344515

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.8	99.1	P/P	90 - 110
Beryllium	97.1	96.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A114002

Included Lab Sample IDs: 2344509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	98.9	99.5	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114125

Included Lab Sample IDs: 2344508, 2344510

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.5	94.6	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
DEP SOP: NU-094-1	Color (true)	101				0.857	
EPA 180.1 Rev. 2.0	Turbidity	97.1				7.68	
EPA 200.7 Rev. 4.4	Calcium	105	104	102			3.87
	Iron	109	102	103	102		0.820
	Magnesium	103	101	104	97.0		1.60
	Strontium	106	105	107	103		1.71
	Tin	107	102	104	102		1.65
	Titanium	106	102	105	101		2.73
	Vanadium	106	104	107	102		3.32
	Zinc	108	106	110	104		3.35
EPA 200.8 Rev. 5.4	Aluminum	97.3	102	103	101		0.807
	Antimony	98.6	99.8	100	102		0.282
	Arsenic	98.0	98.3	99.5	99.7		1.18
	Beryllium	91.4	94.1	93.0	94.7		1.18
	Cadmium	96.4	96.7	98.2	99.4		1.53
	Chromium	97.3	96.8	97.1	101		0.360
	Cobalt	97.9	97.5	96.5	98.2		1.03
	Copper	97.1	96.4	96.2	97.1		0.219
	Lead	93.5	94.7	95.9	97.4		1.24
	Manganese	97.4	97.8	99.0	99.6		1.01
	Molybdenum	96.0	98.2	99.2	99.5		0.981
	Nickel	98.7	97.5	97.2	98.5		0.245
	Selenium	98.4	94.0	94.4	95.7		0.446
	Silver	96.2	94.6	95.2	96.4		0.644
	Thallium	99.3	101	103	104		2.38
EPA 300.0 Rev. 2.1	Chloride	100	95.3	96.5		0.678	
	Sulfate	97.9	94.1	96.8		0.680	
EPA 350.1 Rev. 2.0	Ammonia-N	94.0	102	100			2.17
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.2	103	103			0.0645
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	99.0	100			1.01
EPA 365.1 Rev. 2.0	Total-P	100	102	101			0.488
SM 2320 B-2011	Total Alkalinity	98.6				0.601	
SM 2540 C-2011	TDS					6.36	
SM 4500-F- C-2011	Fluoride	101	97.2	97.2			0.0
SM 5310 B-2011	Organic Carbon	96.3	99.4	100			0.363

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2344507, 2344509
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2344507, 2344509
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2344515
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2344515
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2344509
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2344509
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2344508, 2344510
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2344508, 2344510
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2344508, 2344510
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2344508, 2344510
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2344507, 2344509
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2344509

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2344507, 2344509
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2344507, 2344509
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2344508, 2344510

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	07/29/2022			07/29/2022 14:45	Anna M. Plaviak	2344509
	07/29/2022			07/29/2022 14:46	Anna M. Plaviak	2344507
EPA 180.1 Rev. 2.0	07/29/2022			07/29/2022 13:42	Khloe J Berg	2344509
	07/29/2022			07/29/2022 13:43	Khloe J Berg	2344507
EPA 200.7 Rev. 4.4	07/29/2022	08/02/2022 10:00	Megan Whitefoot	08/03/2022 19:20	McKinley C Carter	2344515
	07/29/2022	08/02/2022 10:00	Megan Whitefoot	08/03/2022 19:28	McKinley C Carter	2344515
EPA 200.8 Rev. 5.4	07/29/2022	08/02/2022 10:00	Megan Whitefoot	08/02/2022 18:20	Emily M Philpot	2344515
	07/29/2022	08/02/2022 10:00	Megan Whitefoot	08/05/2022 15:22	Alexander Thompson	2344515
EPA 300.0 Rev. 2.1	07/29/2022			08/08/2022 19:56	Anna M. Plaviak	2344509
EPA 350.1 Rev. 2.0	07/29/2022			07/29/2022 12:30	Ping Hua	2344508
	07/29/2022			07/29/2022 12:31	Ping Hua	2344510
EPA 351.2 Rev. 2.0	07/29/2022	08/15/2022 14:45	Simonne.V. Calhoun	08/16/2022 12:09	Alexandra J Mattheus	2344508
	07/29/2022	08/15/2022 14:45	Simonne.V. Calhoun	08/16/2022 12:11	Alexandra J Mattheus	2344510
EPA 353.2 Rev. 2.0	07/29/2022			08/02/2022 09:10	Beverly Y. Sanders	2344508
	07/29/2022			08/02/2022 09:11	Beverly Y. Sanders	2344510
EPA 365.1 Rev. 2.0	07/29/2022	08/01/2022 14:20	Simonne.V. Calhoun	08/02/2022 09:23	Simonne.V. Calhoun	2344510
	07/29/2022	08/01/2022 14:20	Simonne.V. Calhoun	08/02/2022 09:35	Simonne.V. Calhoun	2344508
SM 2320 B-2011	07/29/2022			08/03/2022 02:02	Dale L. Simmons	2344507
	07/29/2022			08/03/2022 05:00	Dale L. Simmons	2344509
SM 2540 C-2011	07/29/2022			08/04/2022 13:20	Yijie Li	2344509
SM 2540 D-2011	07/29/2022			08/02/2022 15:05	Yijie Li	2344507, 2344509
SM 4500-F- C-2011	07/29/2022			08/03/2022 02:02	Dale L. Simmons	2344507
	07/29/2022			08/03/2022 05:00	Dale L. Simmons	2344509
SM 5310 B-2011	07/29/2022			08/04/2022 02:36	Khloe J Berg	2344508
	07/29/2022			08/04/2022 02:52	Khloe J Berg	2344510