Chemical Analysis Report

SE-DIST-2023-03-23-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **SMP - Seabasstian River**
Request ID: **RQ-2023-02-27-39**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Andrew Luering

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Certified by: Colin Wright, Program Administrator

Date Certified: 14-APR-2023 09:09

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: C-54 confluence with Sebastian near Mockingbird Lane Dock

Collection Date/Time: 03/22/2023 10:00

Field ID: G5SE0106

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2395975	DEP SOP: NU-094-1	Color (true)	20		PCU	P427580	
	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P427583	
	EPA 300.0 Rev. 2.1	Chloride	8.2E+03		mg Cl/L	P427892	
		Sulfate	1.2E+03		mg SO4/L	P427894	
	SM 2320 B-2011	Total Alkalinity	165	A	mg CaCO3/L	P427667	
	SM 2540 C-2015	TDS	1.45E+04		mg/L	P428163	
	SM 2540 D-2015	TSS	3	U	mg/L	P427913	
	SM 4500-F- C-2011	Fluoride	0.75		mg F/L	P427669	
2395976	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P427758	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P428228	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P427917	
	EPA 365.1 Rev. 2.0	Total-P	0.074		mg P/L	P427688	
	SM 5310 B-2011	Organic Carbon	8.3		mg C/L	P427907	
2395979	EPA 200.7 Rev. 4.4	Calcium	237		mg/L	P427684	
		Iron	230	I	ug/L	P427684	
		Magnesium	563		mg/L	P427684	
		Potassium	164		mg/L	P427684	
		Sodium	4.31E+03		mg/L	P427684	
		Strontium	6.20E+03		ug/L	P427684	
		Tin	150	U	ug/L	P427684	
		Titanium	2.2	U	ug/L	P427684	
		Vanadium	6.0	U	ug/L	P427684	
		Zinc	15	U	ug/L	P427684	
	EPA 200.8 Rev. 5.4	Aluminum	53	I	ug/L	P427684	
		Antimony	0.20	U	ug/L	P427684	
		Arsenic	1.33		ug/L	P427684	
		Barium	34.9		ug/L	P427684	
		Beryllium	0.040	U	ug/L	P427684	
		Boron	1.81E+03		ug/L	P427684	
		Cadmium	0.080	U	ug/L	P427684	
		Chromium	1.6	U	ug/L	P427684	
		Cobalt	0.24	I	ug/L	P427684	
		Copper	1.6	U	ug/L	P427684	
		Lead	0.80	U	ug/L	P427684	
		Manganese	12.6		ug/L	P427684	
		Molybdenum	6.9		ug/L	P427684	
		Nickel	2.0	U	ug/L	P427684	
		Selenium	0.80	U	ug/L	P427684	
		Silver	0.040	U	ug/L	P427684	
		Thallium	0.40	U	ug/L	P427684	
	SM 2340 B-2011	Hardness	2.91E+03		mg/L	P427684	

Field ID: G5SE0106 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium, sodium and strontium are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P427580

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P427583

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P427684

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	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: P427684

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	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: P427892

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427894

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427758

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428228

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427917

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427688

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

Reference Method: SM 2320 B-2011
Batch ID: P427667

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

Reference Method: SM 2540 C-2015
Batch ID: P428163

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P427913

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P427669

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P427907

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: P427580

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.5		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P427583

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P427684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	85 - 115
Iron	104		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	101		P	85 - 115
Sodium	95.3		P	85 - 115
Strontium	97.5		P	85 - 115
Tin	101		P	85 - 115
Titanium	100		P	85 - 115
Vanadium	98.1		P	85 - 115
Zinc	94.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P427684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	105		P	80 - 120
Antimony	104		P	80 - 120
Arsenic	103		P	80 - 120
Barium	104		P	80 - 120
Beryllium	94.2		P	80 - 120
Boron	104		P	80 - 120
Cadmium	104		P	80 - 120
Chromium	103		P	80 - 120
Cobalt	104		P	80 - 120
Copper	102		P	80 - 120
Lead	97.1		P	80 - 120
Manganese	103		P	80 - 120
Molybdenum	102		P	80 - 120
Nickel	104		P	80 - 120
Selenium	100		P	80 - 120
Silver	102		P	80 - 120
Thallium	106		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427892

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.7		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427894

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427758

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428228

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	108		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427917

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427688

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.8		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P427667

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.2		P	94 - 106

Reference Method: SM 2540 C-2015
Batch ID: P428163

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

Reference Method: SM 2540 D-2015
Batch ID: P427913

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	99.5		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P427669

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	96 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P427907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.5		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P427684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2396230	Iron	99.1	100	P/P	80 - 120
2396230	Tin	83.6	81.2	P/P	80 - 120
2396230	Titanium	102	102	P/P	80 - 120
2396230	Vanadium	101	99.5	P/P	80 - 120
2396230	Zinc	92.5	91.6	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P427684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2396230	Aluminum	109	111	P/P	80 - 120
2396230	Antimony	107	108	P/P	80 - 120
2396230	Arsenic	113	116	P/P	80 - 120
2396230	Barium	107	108	P/P	80 - 120
2396230	Beryllium	97.8	99.4	P/P	80 - 120
2396230	Boron	92.1	92.6	P/P	80 - 120
2396230	Cadmium	97.8	99.7	P/P	80 - 120
2396230	Chromium	99.9	101	P/P	80 - 120
2396230	Cobalt	115	117	P/P	80 - 120
2396230	Copper	111	111	P/P	80 - 120
2396230	Lead	104	106	P/P	80 - 120
2396230	Manganese	97.2	98.3	P/P	80 - 120
2396230	Molybdenum	118	120	P/P	80 - 120
2396230	Nickel	115	115	P/P	80 - 120
2396230	Selenium	100	104	P/P	80 - 120
2396230	Silver	93.1	93.7	P/P	80 - 120
2396230	Thallium	115	116	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427892

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2395895	Chloride	101		P	90 - 110
2396077	Chloride	94.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427894

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2395895	Sulfate	99.0		P	90 - 110
2396077	Sulfate	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427758

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2395976	Ammonia-N	101	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428228

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428228

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2395976	Kjeldahl Nitrogen	110	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427917

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2395817	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427688

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2395952	Total-P	95.8	96.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P427669

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2395975	Fluoride	97.8	98.4	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P427907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2395953	Organic Carbon	92.3	90.7	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P427580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395918	Color (true)	7.70	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P427583

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395895	Turbidity	8.14	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P427684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2396230	Calcium	0.0182	Spike	P	0 - 20
2396230	Iron	0.792	Spike	P	0 - 20
2396230	Magnesium	0.174	Spike	P	0 - 20
2396230	Potassium	0.279	Spike	P	0 - 20
2396230	Sodium	1.00	Spike	P	0 - 20
2396230	Strontium	0.321	Spike	P	0 - 20
2396230	Tin	2.98	Spike	P	0 - 20
2396230	Titanium	0.469	Spike	P	0 - 20
2396230	Vanadium	1.60	Spike	P	0 - 20
2396230	Zinc	0.944	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P427684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2396230	Aluminum	1.53	Spike	P	0 - 20
2396230	Antimony	0.813	Spike	P	0 - 20
2396230	Arsenic	1.80	Spike	P	0 - 20
2396230	Barium	0.688	Spike	P	0 - 20
2396230	Beryllium	1.58	Spike	P	0 - 20
2396230	Boron	0.0847	Spike	P	0 - 20
2396230	Cadmium	1.90	Spike	P	0 - 20
2396230	Chromium	0.769	Spike	P	0 - 20
2396230	Cobalt	1.18	Spike	P	0 - 20
2396230	Copper	0.579	Spike	P	0 - 20
2396230	Lead	1.39	Spike	P	0 - 20
2396230	Manganese	0.908	Spike	P	0 - 20
2396230	Molybdenum	1.58	Spike	P	0 - 20
2396230	Nickel	0.310	Spike	P	0 - 20
2396230	Selenium	3.23	Spike	P	0 - 20
2396230	Silver	0.633	Spike	P	0 - 20
2396230	Thallium	0.989	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395895	Chloride	0.546	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395895	Sulfate	1.52	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395976	Ammonia-N	1.89	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395976	Kjeldahl Nitrogen	0.960	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395817	NO2NO3-N	0.473	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427688

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395952	Total-P	0.579	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P427667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395975	Total Alkalinity	0.610	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P428163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395677	TDS	1.72	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P427669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395975	Fluoride	0.480	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P427907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395953	Organic Carbon	1.31	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: DEP SOP: NU-094-1
Run ID: A118165
Included Lab Sample IDs: 2395975

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.9	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A118166
Included Lab Sample IDs: 2395975

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	101	P/P	95 - 105

Reference Method: SM 2320 B-2011
Run ID: A118194
Included Lab Sample IDs: 2395975

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.9	95.9	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A118194
Included Lab Sample IDs: 2395975

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A118235
Included Lab Sample IDs: 2395976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A118236
Included Lab Sample IDs: 2395976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.2	98.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A118247
Included Lab Sample IDs: 2395975

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.7	98.1	P/P	90 - 110
Sulfate	97.7	96.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A118250
Included Lab Sample IDs: 2395979

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	104	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A118250
Included Lab Sample IDs: 2395979

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	99.9	102	P/P	90 - 110
Arsenic	102	103	P/P	90 - 110
Barium	100	103	P/P	90 - 110
Beryllium	99.8	100	P/P	90 - 110
Boron	97.7	100	P/P	90 - 110
Cadmium	99.2	101	P/P	90 - 110
Chromium	99.5	101	P/P	90 - 110
Cobalt	103	105	P/P	90 - 110
Copper	102	103	P/P	90 - 110
Lead	94.5	95.5	P/P	90 - 110
Manganese	99.4	102	P/P	90 - 110
Molybdenum	100	101	P/P	90 - 110
Nickel	103	106	P/P	90 - 110
Selenium	99.5	101	P/P	90 - 110
Silver	98.8	100	P/P	90 - 110
Thallium	103	104	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A118291
Included Lab Sample IDs: 2395979

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.5	98.8	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	101	99.8	P/P	90 - 110
Sodium	94.7	94.0	P/P	90 - 110
Strontium	98.7	95.5	P/P	90 - 110
Tin	98.9	98.7	P/P	90 - 110
Titanium	99.5	99.8	P/P	90 - 110
Vanadium	98.1	98.7	P/P	90 - 110
Zinc	95.6	96.5	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A118311
Included Lab Sample IDs: 2395976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	94.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A118313
Included Lab Sample IDs: 2395976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A118511
Included Lab Sample IDs: 2395976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	104	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		
					LCS	SMP	MS
DEP SOP: NU-094-1	Color (true)	96.5				7.70	
EPA 180.1 Rev. 2.0	Turbidity	100				8.14	
EPA 200.7 Rev. 4.4	Calcium	100					0.0182
	Iron	104	100	99.1			0.792
	Magnesium	102					0.174
	Potassium	101					0.279
	Sodium	95.3					1.00
	Strontium	97.5					0.321
	Tin	101	83.6	81.2			2.98
	Titanium	100	102	102			0.469
	Vanadium	98.1	101	99.5			1.60
	Zinc	94.8	92.5	91.6			0.944
EPA 200.8 Rev. 5.4	Aluminum	105	109	111			1.53
	Antimony	104	107	108			0.813
	Arsenic	103	113	116			1.80
	Barium	104	107	108			0.688
	Beryllium	94.2	97.8	99.4			1.58
	Boron	104	92.1	92.6			0.0847
	Cadmium	104	97.8	99.7			1.90
	Chromium	103	99.9	101			0.769
	Cobalt	104	115	117			1.18
	Copper	102	111	111			0.579
	Lead	97.1	104	106			1.39
	Manganese	103	97.2	98.3			0.908
	Molybdenum	102	118	120			1.58
	Nickel	104	115	115			0.310
	Selenium	100	100	104			3.23
	Silver	102	93.1	93.7			0.633
	Thallium	106	115	116			0.989
EPA 300.0 Rev. 2.1	Chloride	98.7	101	94.8		0.546	
	Sulfate	96.7	99.0	96.4		1.52	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	101	104			1.89
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	110	108			0.960
EPA 353.2 Rev. 2.0	NO2NO3-N	104	106	106			0.473
EPA 365.1 Rev. 2.0	Total-P	97.8	95.8	96.5			0.579
SM 2320 B-2011	Total Alkalinity	95.2				0.610	
SM 2540 C-2015	TDS	97.1				1.72	
SM 2540 D-2015	TSS	99.5					
SM 4500-F- C-2011	Fluoride	98.6	97.8	98.4			0.480
SM 5310 B-2011	Organic Carbon	98.5	92.3	90.7			1.31

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2395975
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2395975
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2395979
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2395979
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2395975
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2395975
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2395976

Reference Method Descriptions

Method	Description	Associated Samples
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2395976
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2395976
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2395976
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2395975
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2395979
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2395975
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2395975
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2395975
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2395976

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	03/23/2023			03/23/2023 14:08	Alexis Price	2395975
EPA 180.1 Rev. 2.0	03/23/2023			03/23/2023 13:48	Anna M. Plaviak	2395975
EPA 200.7 Rev. 4.4	03/23/2023	03/27/2023 11:20	George D Taylor	03/30/2023 03:52	McKinley C Carter	2395979
	03/23/2023	03/27/2023 11:20	George D Taylor	03/30/2023 04:00	McKinley C Carter	2395979
EPA 200.8 Rev. 5.4	03/23/2023	03/27/2023 11:20	George D Taylor	03/28/2023 19:23	Conrad Hartmann	2395979
EPA 300.0 Rev. 2.1	03/23/2023			03/30/2023 14:32	James L Waggerby	2395975
EPA 350.1 Rev. 2.0	03/23/2023			03/28/2023 11:40	Khloe J Berg	2395976
EPA 351.2 Rev. 2.0	03/23/2023	04/10/2023 12:45	Simonne.V. Calhoun	04/11/2023 16:17	Samantha L Bates	2395976
EPA 353.2 Rev. 2.0	03/23/2023			03/31/2023 09:57	Beverly Y. Sanders	2395976
EPA 365.1 Rev. 2.0	03/23/2023	03/27/2023 13:30	Alexis Price	03/28/2023 13:45	James L Waggerby	2395976
SM 2320 B-2011	03/23/2023			03/25/2023 04:34	Chandler E Cox	2395975
SM 2340 B-2011	03/23/2023			03/30/2023 04:00	McKinley C Carter	2395979
SM 2540 C-2015	03/23/2023			03/24/2023 15:34	Yijie Li	2395975
SM 2540 D-2015	03/23/2023			03/24/2023 15:34	Yijie Li	2395975
SM 4500-F- C-2011	03/23/2023			03/25/2023 02:55	Chandler E Cox	2395975
SM 5310 B-2011	03/23/2023			03/31/2023 00:59	Elise M. Gillis	2395976