

Chemical Analysis Report

SO-DIST-2021-03-19-01

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

Event Description: **2021 SMP : Wilderness Waterway**
Request ID: **RQ-2021-03-15-56**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 12-APR-2021 15:19

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 group are included in this report: 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: ENRE9 Lopez River

Collection Date/Time: 03/18/2021 12:20

Field ID: G5SD0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2232837	EPA 180.1 Rev. 2.0	Turbidity	7.3		NTU	P395219	
	EPA 300.0 Rev. 2.1	Bromide	54		mg Br/L	P395414	
	SM 2320 B-2011	Total Alkalinity	170		mg CaCO3/L	P395331	
	SM 2540 D-2011	TSS	8	I	mg/L	P395625	
	SM 4500 F-C-2011	Fluoride	0.93		mg F/L	P395518	
2232839	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P395903	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P395718	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P395594	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P395542	
	SM 5310 B-2011	Organic Carbon	8.7		mg C/L	P395502	
2232841	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P395243	

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: ENRE10 Lopez River

Collection Date/Time: 03/18/2021 12:00

Field ID: G5SD0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2232838	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P395219	
	EPA 300.0 Rev. 2.1	Bromide	61		mg Br/L	P395414	
	SM 2320 B-2011	Total Alkalinity	165	A	mg CaCO3/L	P395331	
	SM 2540 D-2011	TSS	8	IA	mg/L	P395625	
	SM 4500 F-C-2011	Fluoride	1.1		mg F/L	P395518	
2232840	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P395903	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P395790	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P395594	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P395542	
	SM 5310 B-2011	Organic Carbon	6.7		mg C/L	P395502	
2232842	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P395243	

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: ENRE9 Lopez River

Collection Date/Time: 03/18/2021 15:55

Field ID: FB_03182021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2232843	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P395219	
	EPA 300.0 Rev. 2.1	Bromide	0.013	U	mg Br/L	P395414	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P395328	
	SM 2540 D-2011	TSS	2	U	mg/L	P395624	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P395332	
2232844	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P395908	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P395607	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P395338	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P395486	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P395667	
2232845	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P395242	

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: EPA 180.1 Rev. 2.0
Batch ID: P395219

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395414

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395903

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395908

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395607

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395718

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395790

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395338

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395594

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395486

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395542

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395242

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395243

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: SM 2320 B-2011
Batch ID: P395328

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

Reference Method: SM 2320 B-2011
Batch ID: P395331

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

Reference Method: SM 2540 D-2011
Batch ID: P395624

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P395625

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P395332

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P395518

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P395502

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

Reference Method: SM 5310 B-2011
Batch ID: P395667

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395414

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395903

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395908

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: P395607

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	109		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395718

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	102		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395790

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: P395338

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395594

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395486

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395542

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395242

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395243

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.9		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P395328

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Reference Method: SM 2320 B-2011
Batch ID: P395331

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P395332

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P395518

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P395502

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.5		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P395667

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395414

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232315	Bromide	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233142	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233012	Ammonia-N	95.4	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395607

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232748	Kjeldahl Nitrogen	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232839	Kjeldahl Nitrogen	95.7	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395790

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232840	Kjeldahl Nitrogen	95.0	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232796	NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395594

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232840	NO2NO3-N	98.2	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395486

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233005	Total-P	107	109	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232839	Total-P	98.2	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232749	O-Phosphate-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395243

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232842	O-Phosphate-P	99.0	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P395332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232751	Fluoride	98.3	98.3	P/P	94 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P395518

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232838	Fluoride	96.7	96.7	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P395502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232839	Organic Carbon	93.4	94.1	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P395667

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233012	Organic Carbon	93.5	94.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P395219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232795	Turbidity	6.83	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395414

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232315	Bromide	0.879	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233142	Ammonia-N	1.41	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233012	Ammonia-N	2.47	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395607

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232748	Kjeldahl Nitrogen	1.07	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232839	Kjeldahl Nitrogen	1.76	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232840	Kjeldahl Nitrogen	8.40	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232796	NO2NO3-N	0.504	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P395594

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232840	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P395486

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233005	Total-P	1.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P395542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232839	Total-P	1.83	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P395242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232749	O-Phosphate-P	1.18	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P395243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232842	O-Phosphate-P	0.0884	Spike	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P395328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232751	Total Alkalinity	0.0288	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011

Batch ID: P395331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232838	Total Alkalinity	0.555	Sample	P	0 - 8.1

Reference Method: SM 4500 F-C-2011

Batch ID: P395332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232751	Fluoride	0.0	Spike	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P395518

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232838	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P395502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232839	Organic Carbon	0.563	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P395667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233012	Organic Carbon	1.12	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A104168

Included Lab Sample IDs: 2232837, 2232838, 2232843

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A104176

Included Lab Sample IDs: 2232841, 2232842, 2232845

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.4	98.1	P/P	90 - 110
O-Phosphate-P	98.1	99.3	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A104210

Included Lab Sample IDs: 2232837, 2232838, 2232843

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	97.2	P/P	90 - 110
Total Alkalinity	97.2	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A104210

Included Lab Sample IDs: 2232843

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A104215

Included Lab Sample IDs: 2232844

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A104244

Included Lab Sample IDs: 2232837, 2232838, 2232843

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	101	105	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A104280

Included Lab Sample IDs: 2232839, 2232840

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.7	96.4	P/P	90 - 110
Organic Carbon	96.4	96.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A104288

Included Lab Sample IDs: 2232837, 2232838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104298

Included Lab Sample IDs: 2232844

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A104327

Included Lab Sample IDs: 2232839, 2232840

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104334

Included Lab Sample IDs: 2232839, 2232840

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.5	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A104362

Included Lab Sample IDs: 2232844

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104367

Included Lab Sample IDs: 2232844

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104425

Included Lab Sample IDs: 2232839

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104453

Included Lab Sample IDs: 2232840

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.9	96.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A104463

Included Lab Sample IDs: 2232839, 2232840

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	99.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A104465

Included Lab Sample IDs: 2232844

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	98.1	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					6.83	
EPA 300.0 Rev. 2.1	Bromide	103	100	101			0.879
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	101	102			1.41
	Ammonia-N	97.4	95.4	99.4			2.47
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	101	102			1.07
	Kjeldahl Nitrogen	102	95.7	97.9			1.76
	Kjeldahl Nitrogen	98.2	95.0	105			8.40
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.0	99.5			0.504
	NO2NO3-N	98.0	98.2	98.2			0.0
EPA 365.1 Rev. 2.0	Total-P	106	107	109			1.40
	Total-P	108	98.2	100			1.83
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	103	101			1.18
	O-Phosphate-P	98.9	99.0	99.1			0.0884
SM 2320 B-2011	Total Alkalinity	101				0.0288	
	Total Alkalinity	101				0.555	
SM 4500 F-C-2011	Fluoride	99.2	98.3	98.3			0.0
	Fluoride	98.9	96.7	96.7			0.0
SM 5310 B-2011	Organic Carbon	96.5	93.4	94.1			0.563
	Organic Carbon	95.2	93.5	94.9			1.12

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2232837, 2232838, 2232843
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2232837, 2232838, 2232843
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2232839, 2232840, 2232844
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2232839, 2232840, 2232844
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2232839, 2232840, 2232844
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2232839, 2232840, 2232844
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2232841, 2232842, 2232845
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2232837, 2232838, 2232843
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2232837, 2232838, 2232843
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2232837, 2232838, 2232843
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2232839, 2232840, 2232844

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	03/19/2021			03/19/2021 14:00	Yen Ta	2232837, 2232838, 2232843
EPA 300.0 Rev. 2.1	03/19/2021			03/23/2021 08:30	Lipi Saha	2232837
	03/19/2021			03/23/2021 08:48	Lipi Saha	2232838
	03/19/2021			03/23/2021 09:06	Lipi Saha	2232843
EPA 350.1 Rev. 2.0	03/19/2021			04/02/2021 18:12	Ping Hua	2232839
	03/19/2021			04/02/2021 18:14	Ping Hua	2232840
	03/19/2021			04/03/2021 09:41	Ping Hua	2232844
EPA 351.2 Rev. 2.0	03/19/2021	03/29/2021 13:13	Benjamin T. Nordmann	03/30/2021 12:06	Virginia P. Brown	2232844
	03/19/2021	03/31/2021 13:16	Benjamin T. Nordmann	04/01/2021 12:42	Virginia P. Brown	2232839
	03/19/2021	04/01/2021 12:36	Benjamin T. Nordmann	04/02/2021 12:36	Virginia P. Brown	2232840
EPA 353.2 Rev. 2.0	03/19/2021			03/23/2021 10:11	Beverly Y. Sanders	2232844
	03/19/2021			03/29/2021 10:06	Beverly Y. Sanders	2232840
	03/19/2021			03/29/2021 10:12	Beverly Y. Sanders	2232839
EPA 365.1 Rev. 2.0	03/19/2021	03/25/2021 12:45	Yen Ta	03/26/2021 13:11	Shengyu Ding	2232844
	03/19/2021	03/26/2021 12:49	Yen Ta	03/29/2021 13:45	Shengyu Ding	2232839
	03/19/2021	03/26/2021 12:49	Yen Ta	03/29/2021 13:46	Shengyu Ding	2232840
EPA 365.1 Rev. 2.0 dissolved	03/19/2021			03/19/2021 15:41	Blanca Fach	2232845
	03/19/2021			03/19/2021 15:47	Blanca Fach	2232842
	03/19/2021			03/19/2021 15:54	Blanca Fach	2232841
SM 2320 B-2011	03/19/2021			03/22/2021 21:58	Dale L. Simmons	2232843
	03/19/2021			03/22/2021 23:52	Dale L. Simmons	2232838
	03/19/2021			03/23/2021 00:07	Dale L. Simmons	2232837
SM 2540 D-2011	03/19/2021			03/22/2021 14:26	Yijie Li	2232837, 2232838, 2232843
SM 4500 F-C-2011	03/19/2021			03/22/2021 21:58	Dale L. Simmons	2232843
	03/19/2021			03/24/2021 22:21	Dale L. Simmons	2232838
	03/19/2021			03/24/2021 22:34	Dale L. Simmons	2232837
SM 5310 B-2011	03/19/2021			03/25/2021 04:11	Madeline Gruver	2232839
	03/19/2021			03/25/2021 14:08	Madeline Gruver	2232840
	03/19/2021			03/30/2021 02:03	Madeline Gruver	2232844