

Chemical Analysis Report

SO-DIST-2021-04-01-01

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

Event Description: **2021 SMP : Sebring Lakes**
Request ID: **RQ-2021-02-15-39**
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
Attn: Chris Hormuth

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 21-APR-2021 13:29

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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: Lake Glenada

Collection Date/Time: 03/31/2021 10:15

Field ID: G4SD0179

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2235471	EPA 180.1 Rev. 2.0	Turbidity	13	A	NTU	P395822	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P395980	
		Sulfate	13		mg SO4/L	P395982	
	SM 2120 B-2011	Color (true)	49		PCU	P395829	
	SM 2320 B-2011	Total Alkalinity	41		mg CaCO3/L	P396042	
	SM 2540 C-2011	TDS	130		mg/L	P396391	
	SM 2540 D-2011	TSS	9	I	mg/L	P396397	
	SM 4500 F-C-2011	Fluoride	0.092	I	mg F/L	P396044	
2235475	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P396568	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P396069	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P395950	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P395969	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P396052	
2235479	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P395809	

Ref. Method and Comment:

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

SM 4500 F-C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Little Red Water Lake @ Middle

Collection Date/Time: 03/31/2021 11:10

Field ID: G4SD0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2235472	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P395822	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P395980	
		Sulfate	10		mg SO4/L	P395982	
	SM 2120 B-2011	Color (true)	74		PCU	P395830	
	SM 2320 B-2011	Total Alkalinity	8.4		mg CaCO3/L	P396042	
	SM 2540 C-2011	TDS	81		mg/L	P396391	
	SM 2540 D-2011	TSS	2	I	mg/L	P396397	
	SM 4500 F-C-2011	Fluoride	0.061	I	mg F/L	P396044	
2235476	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P396568	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P396376	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.057		mg N/L	P395950	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P395969	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P396053	
2235480	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P395809	

Ref. Method and Comment:

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

SM 4500 F-C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Bonnet Lake @ Middle

Collection Date/Time: 03/31/2021 11:50

Field ID: G4SD0170

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2235473	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P395822	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P395980	
		Sulfate	42		mg SO4/L	P395982	
	SM 2120 B-2011	Color (true)	18		PCU	P395830	
	SM 2320 B-2011	Total Alkalinity	31	A	mg CaCO3/L	P396089	
	SM 2540 C-2011	TDS	158		mg/L	P396391	
	SM 2540 D-2011	TSS	8	I	mg/L	P396397	
	SM 4500 F-C-2011	Fluoride	0.092	I	mg F/L	P396094	
2235477	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P396571	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P396376	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.41		mg N/L	P395950	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P395969	
	SM 5310 B-2011	Organic Carbon	8.6		mg C/L	P396053	
2235481	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P395809	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Little Lake Jackson

Collection Date/Time: 03/31/2021 12:35

Field ID: G4SD0183

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2235474	EPA 180.1 Rev. 2.0	Turbidity	7.4		NTU	P395822	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P395980	
		Sulfate	15		mg SO4/L	P395982	
	SM 2120 B-2011	Color (true)	30		PCU	P395830	
	SM 2320 B-2011	Total Alkalinity	8.4		mg CaCO3/L	P396042	
	SM 2540 C-2011	TDS	74		mg/L	P396391	
	SM 2540 D-2011	TSS	4	I	mg/L	P396397	
	SM 4500 F-C-2011	Fluoride	0.080	I	mg F/L	P396044	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P396568	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P396376	
2235478	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P395950	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P395969	
	SM 5310 B-2011	Organic Carbon	8.1		mg C/L	P396053	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P395809	
	dissolved						

Ref. Method and Comment:

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

SM 4500 F-C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P395822

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395980

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395982

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P396568

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P396571

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396069

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396376

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395950

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395969

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395809

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

Reference Method: SM 2120 B-2011
Batch ID: P395829

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P395830

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P396042

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

Reference Method: SM 2320 B-2011
Batch ID: P396089

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

Reference Method: SM 2540 C-2011
Batch ID: P396391

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P396397

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P396044

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P396094

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: P396052

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

Reference Method: SM 5310 B-2011
Batch ID: P396053

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: P395980

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395982

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P396568

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: P396571

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396069

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396376

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395950

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395969

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395809

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P395829

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2120 B-2011
Batch ID: P395830

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P396042

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	93 - 104

Reference Method: SM 2320 B-2011
Batch ID: P396089

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.5		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P396044

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P396094

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P396052

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

Reference Method: SM 5310 B-2011
Batch ID: P396053

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235396	Chloride	98.5		P	90 - 110
2235503	Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235396	Sulfate	101		P	90 - 110
2235503	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P396568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235447	Ammonia-N	98.6	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P396571

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235445	Ammonia-N	96.6	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396069

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235395	Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395950

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235425	NO2NO3-N	96.6	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235475	Total-P	100	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235479	O-Phosphate-P	100	98.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P396094

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235473	Fluoride	98.0	99.1	P/P	94 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P396052

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235317	Organic Carbon	95.2	95.9	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P396053

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235727	Organic Carbon	97.4	99.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P395822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235471	Turbidity	0.778	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235396	Chloride	0.703	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235396	Sulfate	0.255	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P396568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235447	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P396571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235445	Ammonia-N	1.80	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396069

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235395	Kjeldahl Nitrogen	0.608	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235477	Kjeldahl Nitrogen	5.21	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235425	NO2NO3-N	0.454	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P395969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235475	Total-P	2.13	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P395809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235479	O-Phosphate-P	2.22	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P395829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235365	Color (true)	3.13	Sample	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P395830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235492	Color (true)	1.71	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P396042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235759	Total Alkalinity	0.609	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011

Batch ID: P396089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235473	Total Alkalinity	0.542	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011

Batch ID: P396391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235366	TDS	2.76	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011

Batch ID: P396044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235759	Fluoride	0.502	Spike	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P396094

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235473	Fluoride	0.943	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P396052

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235317	Organic Carbon	0.479	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P396053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235727	Organic Carbon	0.991	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A104426

Included Lab Sample IDs: 2235479, 2235480, 2235481, 2235482

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A104429

Included Lab Sample IDs: 2235471, 2235472, 2235473, 2235474

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

Reference Method: SM 2120 B-2011

Run ID: A104430

Included Lab Sample IDs: 2235471, 2235472, 2235473, 2235474

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A104482

Included Lab Sample IDs: 2235475, 2235476, 2235477, 2235478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A104495

Included Lab Sample IDs: 2235471, 2235472, 2235473, 2235474

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104502

Included Lab Sample IDs: 2235475

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104507

Included Lab Sample IDs: 2235476, 2235477, 2235478

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

Reference Method: SM 2320 B-2011

Run ID: A104518

Included Lab Sample IDs: 2235471, 2235472, 2235474

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A104518

Included Lab Sample IDs: 2235471, 2235472, 2235474

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.8	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A104518

Included Lab Sample IDs: 2235471, 2235472, 2235474

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A104530

Included Lab Sample IDs: 2235475, 2235476, 2235477, 2235478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	97.8	P/P	90 - 110
Organic Carbon	97.6	96.8	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A104549

Included Lab Sample IDs: 2235473

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

Reference Method: SM 4500 F-C-2011

Run ID: A104549

Included Lab Sample IDs: 2235473

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104602

Included Lab Sample IDs: 2235475

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104729

Included Lab Sample IDs: 2235476, 2235477, 2235478

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A104733

Included Lab Sample IDs: 2235475, 2235476, 2235477, 2235478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.5	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A104733

Included Lab Sample IDs: 2235475, 2235476, 2235477, 2235478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	97.2	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	MS
EPA 180.1 Rev. 2.0	Turbidity				0.778	
EPA 300.0 Rev. 2.1	Chloride	101	98.5	99.7	0.703	
	Sulfate	101	101	101	0.255	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	98.6	98.6		0.0
	Ammonia-N	98.6	96.6	98.6		1.80
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	103	104		0.608
	Kjeldahl Nitrogen	101				5.21
EPA 353.2 Rev. 2.0	NO2NO3-N	100	96.6	97.0		0.454
EPA 365.1 Rev. 2.0	Total-P	100	100	103		2.13
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	100	98.0		2.22
SM 2120 B-2011	Color (true)	101			3.13	
	Color (true)	102			1.71	
SM 2320 B-2011	Total Alkalinity	100			0.609	
	Total Alkalinity	99.5			0.542	
SM 2540 C-2011	TDS				2.76	
SM 4500 F-C-2011	Fluoride	99.0				0.502
	Fluoride	99.3	98.0	99.1		0.943
SM 5310 B-2011	Organic Carbon	93.5	95.2	95.9		0.479
	Organic Carbon	95.4	97.4	99.0		0.991

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2235471, 2235472, 2235473, 2235474
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2235471, 2235472, 2235473, 2235474
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2235471, 2235472, 2235473, 2235474
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2235475, 2235476, 2235477, 2235478
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2235475, 2235476, 2235477, 2235478
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2235475, 2235476, 2235477, 2235478
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2235475, 2235476, 2235477, 2235478
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2235479, 2235480, 2235481, 2235482
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2235471, 2235472, 2235473, 2235474
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2235471, 2235472, 2235473, 2235474
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2235471, 2235472, 2235473, 2235474
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2235471, 2235472, 2235473, 2235474
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2235471, 2235472, 2235473, 2235474
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2235475, 2235476, 2235477, 2235478

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	04/01/2021			04/01/2021 15:12	Yen Ta	2235471, 2235472, 2235473, 2235474
EPA 300.0 Rev. 2.1	04/01/2021			04/06/2021 02:35	Lipi Saha	2235471
	04/01/2021			04/06/2021 02:47	Lipi Saha	2235472
	04/01/2021			04/06/2021 03:00	Lipi Saha	2235473
	04/01/2021			04/06/2021 03:12	Lipi Saha	2235474
EPA 350.1 Rev. 2.0	04/01/2021			04/14/2021 17:55	Ping Hua	2235475
	04/01/2021			04/14/2021 17:56	Ping Hua	2235476
	04/01/2021			04/14/2021 17:57	Ping Hua	2235478
	04/01/2021			04/14/2021 18:27	Ping Hua	2235477
EPA 351.2 Rev. 2.0	04/01/2021	04/07/2021 12:41	Yen Ta	04/08/2021 17:02	Virginia P. Brown	2235475
	04/01/2021	04/12/2021 14:15	Yen Ta	04/14/2021 13:22	Virginia P. Brown	2235476
	04/01/2021	04/12/2021 14:15	Yen Ta	04/14/2021 13:23	Virginia P. Brown	2235477
	04/01/2021	04/12/2021 14:15	Yen Ta	04/14/2021 13:28	Virginia P. Brown	2235478
EPA 353.2 Rev. 2.0	04/01/2021			04/05/2021 11:19	Beverly Y. Sanders	2235475
	04/01/2021			04/05/2021 11:20	Beverly Y. Sanders	2235476
	04/01/2021			04/05/2021 11:21	Beverly Y. Sanders	2235477
	04/01/2021			04/05/2021 11:22	Beverly Y. Sanders	2235478
EPA 365.1 Rev. 2.0	04/01/2021	04/05/2021 12:50	Yen Ta	04/06/2021 10:54	Shengyu Ding	2235475
	04/01/2021	04/05/2021 12:50	Yen Ta	04/06/2021 12:51	Shengyu Ding	2235476
	04/01/2021	04/05/2021 12:50	Yen Ta	04/06/2021 12:52	Shengyu Ding	2235477
	04/01/2021	04/05/2021 12:50	Yen Ta	04/06/2021 12:53	Shengyu Ding	2235478
EPA 365.1 Rev. 2.0 dissolved	04/01/2021			04/01/2021 13:57	Lipi Saha	2235479
	04/01/2021			04/01/2021 14:00	Lipi Saha	2235480, 2235481
	04/01/2021			04/01/2021 14:01	Lipi Saha	2235482
SM 2120 B-2011	04/01/2021			04/01/2021 16:21	Benjamin T. Nordmann	2235471
	04/01/2021			04/01/2021 16:25	Benjamin T. Nordmann	2235472
	04/01/2021			04/01/2021 16:26	Benjamin T. Nordmann	2235473, 2235474
SM 2320 B-2011	04/01/2021			04/06/2021 06:41	Dale L. Simmons	2235471
	04/01/2021			04/06/2021 06:51	Dale L. Simmons	2235472
	04/01/2021			04/06/2021 07:02	Dale L. Simmons	2235474
	04/01/2021			04/07/2021 10:43	Dale L. Simmons	2235473
SM 2540 C-2011	04/01/2021			04/06/2021 15:21	Yijie Li	2235471, 2235472, 2235473, 2235474
SM 2540 D-2011	04/01/2021			04/06/2021 15:05	Yijie Li	2235471, 2235472, 2235473, 2235474
SM 4500 F-C-2011	04/01/2021			04/06/2021 06:41	Dale L. Simmons	2235471
	04/01/2021			04/06/2021 06:51	Dale L. Simmons	2235472
	04/01/2021			04/06/2021 07:02	Dale L. Simmons	2235474
	04/01/2021			04/07/2021 10:32	Dale L. Simmons	2235473
SM 5310 B-2011	04/01/2021			04/06/2021 02:05	Madeline Gruver	2235475
	04/01/2021			04/06/2021 03:39	Madeline Gruver	2235476
	04/01/2021			04/06/2021 03:49	Madeline Gruver	2235477

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	04/01/2021			04/06/2021 04:00	Madeline Gruver	2235478