Chemical Analysis Report

SO-DIST-2020-07-16-01

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

Event Description: **bonnet lake, Lake Tulane LVI**
Request ID: **RQ-2020-07-13-55**
Customer: **SO-DIST**
Project ID: **SMP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 31-JUL-2020 18:01

B. Steinbock

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: Bonnet Lake @ Middle **Collection Date/Time: 07/15/2020 10:05**

Field ID: G4SD0170 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2183527	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P385092	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P385199	
		Sulfate	38		mg SO4/L	P385203	
	SM 2120 B-2011	Color (true)	23	A	PCU	P384756	
	SM 2320 B-2011	Total Alkalinity	36		mg CaCO3/L	P385001	
	SM 2540 C-2011	TDS	169		mg/L	P385025	
	SM 2540 D-2011	TSS	14		mg/L	P384910	
	SM 4500 F-C-2011	Fluoride	0.091	I	mg F/L	P385004	
2183529	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P384830	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P384985	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P384915	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P384880	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P384843	
2183531	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P384788	

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

Sample Location: Lake Tulane @ Center **Collection Date/Time: 07/15/2020 10:45**

Field ID: G4SD0177 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2183528	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P385092	
	EPA 300.0 Rev. 2.1	Chloride	7.6		mg Cl/L	P385199	
		Sulfate	19		mg SO4/L	P385203	
	SM 2120 B-2011	Color (true)	2.5	U	PCU	P384752	
	SM 2320 B-2011	Total Alkalinity	18		mg CaCO3/L	P385001	
	SM 2540 C-2011	TDS	71		mg/L	P385024	
	SM 2540 D-2011	TSS	2	U	mg/L	P384909	
	SM 4500 F-C-2011	Fluoride	0.039	I	mg F/L	P385004	
2183530	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P384827	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P384985	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P384915	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P385033	
	SM 5310 B-2011	Organic Carbon	3.9		mg C/L	P384843	
2183532	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P384788	

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.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P385092

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385199

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385203

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384827

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384830

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384985

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384915

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P384880

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385033

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: P384788

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

Reference Method: SM 2120 B-2011
Batch ID: P384752

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P384756

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P385001

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

Reference Method: SM 2540 C-2011
Batch ID: P385024

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P385025

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P384909

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P384910

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P385004

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: P384843

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: P385199

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385203

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384827

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384830

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384985

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384915

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: P384880

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385033

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384788

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.8		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P384752

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.0		P	85 - 115

Reference Method: SM 2120 B-2011
Batch ID: P384756

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.0		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P385001

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

Reference Method: SM 4500 F-C-2011
Batch ID: P385004

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P384843

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.7		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2183497	Chloride	96.1		P	90 - 110
2183528	Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385203

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2183497	Sulfate	94.5		P	90 - 110
2183528	Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2183530	Ammonia-N	98.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384830

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2183529	Ammonia-N	99.7	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384915

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2183513	NO2NO3-N	98.2	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P384880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2183466	Total-P	110	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2183530	Total-P	109	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384788

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2183470	O-Phosphate-P	96.2	96.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P385004

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184058	Fluoride	99.6	99.6	P/P	94 - 107

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P384843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2183529	Organic Carbon	99.4	99.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P385092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183497	Turbidity	0.258	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183497	Chloride	0.144	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183497	Sulfate	0.0679	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183530	Ammonia-N	1.34	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183529	Ammonia-N	0.145	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183529	Kjeldahl Nitrogen	0.948	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183513	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P384880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183466	Total-P	2.60	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183530	Total-P	0.0227	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183470	O-Phosphate-P	0.291	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P384752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183566	Color (true)	1.49	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P384756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183527	Color (true)	10.6	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P385001

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184058	Total Alkalinity	1.86	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P385024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183339	TDS	1.82	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P385025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183563	TDS	1.50	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P384910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183563	TSS	0.0	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P385004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184058	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P384843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183529	Organic Carbon	0.296	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
Run ID: A100005
Included Lab Sample IDs: 2183529

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	95.5	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A100019
Included Lab Sample IDs: 2183527, 2183528

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A100019
Included Lab Sample IDs: 2183527, 2183528

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100044
Included Lab Sample IDs: 2183529, 2183530

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	98.8	P/P	90 - 110
Kjeldahl Nitrogen	98.8	99.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A100047
Included Lab Sample IDs: 2183527, 2183528

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A100083
Included Lab Sample IDs: 2183530

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	98.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A100104
Included Lab Sample IDs: 2183527, 2183528

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B-2011
Run ID: A99921
Included Lab Sample IDs: 2183527, 2183528

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115
Color (true)	99.5	99.8	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A99941
Included Lab Sample IDs: 2183532

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A99942
Included Lab Sample IDs: 2183531

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.3	96.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A99955
Included Lab Sample IDs: 2183530

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A99956
Included Lab Sample IDs: 2183529

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	97.2	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A99964
Included Lab Sample IDs: 2183529, 2183530

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	103	P/P	90 - 110
Organic Carbon	98.3	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A99985
Included Lab Sample IDs: 2183529, 2183530

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	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
EPA 180.1 Rev. 2.0	Turbidity					0.258	
EPA 300.0 Rev. 2.1	Chloride	98.9	96.1	99.6		0.144	
	Sulfate	97.5	94.5	96.2		0.0679	
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	98.8	100			1.34
	Ammonia-N	98.3	99.7	99.5			0.145
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.6					0.948
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	98.2	98.2			0.0
EPA 365.1 Rev. 2.0	Total-P	107	110	104			2.60
	Total-P	107	109	109			0.0227
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.8	96.2	96.7			0.291
SM 2120 B-2011	Color (true)	99.0				1.49	
	Color (true)	98.0				10.6	
SM 2320 B-2011	Total Alkalinity	104				1.86	
SM 2540 C-2011	TDS					1.82	
	TDS					1.50	
SM 2540 D-2011	TSS					0.0	
SM 4500 F-C-2011	Fluoride	102	99.6	99.6			0.0
SM 5310 B-2011	Organic Carbon	98.7	99.4	99.8			0.296

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2183527, 2183528
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2183527, 2183528
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2183527, 2183528
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2183529, 2183530
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2183529, 2183530
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2183529, 2183530
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2183529, 2183530
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2183531, 2183532
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2183527, 2183528
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2183527, 2183528
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2183527, 2183528
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2183527, 2183528
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2183527, 2183528
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2183529, 2183530

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	07/16/2020			07/16/2020 16:02	Samantha Davila	2183527, 2183528
EPA 300.0 Rev. 2.1	07/16/2020			07/22/2020 03:40	Julia Storbeck	2183528
	07/16/2020			07/22/2020 06:04	Julia Storbeck	2183527
EPA 350.1 Rev. 2.0	07/16/2020			07/19/2020 11:44	Ping Hua	2183530
	07/16/2020			07/19/2020 14:16	Ping Hua	2183529
EPA 351.2 Rev. 2.0	07/16/2020	07/22/2020 10:10	Jhamieka S. Greenwood	07/23/2020 14:21	Jhamieka S. Greenwood	2183529
	07/16/2020	07/22/2020 10:10	Jhamieka S. Greenwood	07/23/2020 14:39	Jhamieka S. Greenwood	2183530
EPA 353.2 Rev. 2.0	07/16/2020			07/21/2020 09:17	Beverly Y. Sanders	2183529
	07/16/2020			07/21/2020 09:18	Beverly Y. Sanders	2183530
EPA 365.1 Rev. 2.0	07/16/2020	07/20/2020 13:21	Yen Ta	07/22/2020 08:40	Lipi Saha	2183529
	07/16/2020	07/23/2020 10:00	Lipi Saha	07/27/2020 08:03	Lipi Saha	2183530
EPA 365.1 Rev. 2.0 dissolved	07/16/2020			07/16/2020 16:16	Carlos Miranda	2183532
	07/16/2020			07/16/2020 17:46	Carlos Miranda	2183531
SM 2120 B-2011	07/16/2020			07/16/2020 16:28	Madeline Gruver	2183528
	07/16/2020			07/16/2020 17:04	Madeline Gruver	2183527
SM 2320 B-2011	07/16/2020			07/22/2020 00:15	Dale L. Simmons	2183527
	07/16/2020			07/22/2020 00:28	Dale L. Simmons	2183528
SM 2540 C-2011	07/16/2020			07/17/2020 18:41	Madeline Gruver	2183527, 2183528
SM 2540 D-2011	07/16/2020			07/17/2020 19:29	Madeline Gruver	2183527, 2183528
SM 4500 F-C-2011	07/16/2020			07/22/2020 00:15	Dale L. Simmons	2183527
	07/16/2020			07/22/2020 00:28	Dale L. Simmons	2183528
SM 5310 B-2011	07/16/2020			07/17/2020 18:22	David Boose	2183529
	07/16/2020			07/17/2020 23:47	David Boose	2183530