

Chemical Analysis Report

SO-DIST-2020-10-13-01

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

Event Description: **Highlands lakes**
Request ID: **RQ-2020-10-12-21**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 30-OCT-2020 10:08

A handwritten signature in black ink, appearing to read "Liang Lin", 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 Placid @ Center

Collection Date/Time: 10/12/2020 13:45

Field ID: G4SD0191

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2201344	EPA 180.1 Rev. 2.0	Turbidity	5.5		NTU	P388593	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P388999	
		Sulfate	16		mg SO4/L	P389001	
	SM 2120 B-2011	Color (true)	12		PCU	P388684	
	SM 2320 B-2011	Total Alkalinity	21		mg CaCO3/L	P388941	
	SM 2540 C-2011	TDS	71		mg/L	P389264	
	SM 2540 D-2011	TSS	4	I	mg/L	P389159	
	SM 4500 F-C-2011	Fluoride	0.045	I	mg F/L	P388955	
2201348	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P388835	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P388754	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P388799	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P388640	
	SM 5310 B-2011	Organic Carbon	5.0		mg C/L	P388879	
2201352	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P388602	

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: Lake June in Winter

Collection Date/Time: 10/12/2020 12:45

Field ID: G4SD0186

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2201345	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P388593	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P389331	
		Sulfate	24		mg SO4/L	P389334	
	SM 2120 B-2011	Color (true)	16	A	PCU	P388684	
	SM 2320 B-2011	Total Alkalinity	21		mg CaCO3/L	P388941	
	SM 2540 C-2011	TDS	91		mg/L	P389265	
	SM 2540 D-2011	TSS	4	I	mg/L	P389160	
	SM 4500 F-C-2011	Fluoride	0.056	I	mg F/L	P388955	
2201349	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P388835	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P388754	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P388801	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P388640	
	SM 5310 B-2011	Organic Carbon	6.0		mg C/L	P388879	
2201353	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P388602	

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: Lake Francis

Collection Date/Time: 10/12/2020 11:35

Field ID: G4SD0187

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2201346	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P388593	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P389331	
		Sulfate	21		mg SO4/L	P389334	
	SM 2120 B-2011	Color (true)	15		PCU	P388684	
	SM 2320 B-2011	Total Alkalinity	25		mg CaCO3/L	P388941	
	SM 2540 C-2011	TDS	99		mg/L	P389265	
	SM 2540 D-2011	TSS	5	I	mg/L	P389160	
	SM 4500 F-C-2011	Fluoride	0.048	I	mg F/L	P388955	
2201350	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P388840	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P388754	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P388801	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P388642	
	SM 5310 B-2011	Organic Carbon	6.3		mg C/L	P388879	
2201354	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P388602	

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: Little Bonnet Lake @ Middle

Collection Date/Time: 10/12/2020 10:30

Field ID: G4SD0169

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2201347	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P388593	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P389331	
		Sulfate	32		mg SO4/L	P389334	
	SM 2120 B-2011	Color (true)	26		PCU	P388684	
	SM 2320 B-2011	Total Alkalinity	33		mg CaCO3/L	P388941	
	SM 2540 C-2011	TDS	137	A	mg/L	P389265	
	SM 2540 D-2011	TSS	11		mg/L	P389160	
	SM 4500 F-C-2011	Fluoride	0.066	I	mg F/L	P388955	
2201351	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P388840	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P388754	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P388801	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P388642	
	SM 5310 B-2011	Organic Carbon	9.1		mg C/L	P388879	
2201355	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P388602	

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: P388593

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388999

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389001

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389331

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389334

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388835

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388840

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388754

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388799

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388801

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388640

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388642

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388602

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

Reference Method: SM 2120 B-2011
Batch ID: P388684

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P388941

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

Reference Method: SM 2540 C-2011
Batch ID: P389264

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P389265

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P389159

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P389160

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P388955

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P388879

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: P388999

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389001

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389331

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388835

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388840

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388754

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388799

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	100		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388801

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	101		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388640

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388642

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388602

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

Reference Method: SM 2120 B-2011
Batch ID: P388684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.6		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P388941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P388955

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P388879

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: P388999

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201191	Chloride	98.2		P	90 - 110
2201344	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389001

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201191	Sulfate	97.2		P	90 - 110
2201344	Sulfate	94.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201329	Chloride	102		P	90 - 110
2201745	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201329	Sulfate	102		P	90 - 110
2201745	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201330	Ammonia-N	98.5	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388840

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202127	Ammonia-N	101	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201348	Kjeldahl Nitrogen	107	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201249	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201349	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388640

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201249	Total-P	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201350	Total-P	107	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388602

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201333	O-Phosphate-P	100	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P388955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201327	Fluoride	100	100	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P388879

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201468	Organic Carbon	93.4	96.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P388593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201276	Turbidity	3.73	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201191	Chloride	0.317	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389001

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201191	Sulfate	0.602	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201329	Chloride	0.0720	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201329	Sulfate	0.0163	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201330	Ammonia-N	0.812	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388840

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202127	Ammonia-N	1.38	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201348	Kjeldahl Nitrogen	1.50	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201249	NO2NO3-N	0.329	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201349	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388640

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201249	Total-P	0.793	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201350	Total-P	0.743	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388602

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201333	O-Phosphate-P	0.399	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P388684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201345	Color (true)	18.0	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P388941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201327	Total Alkalinity	1.60	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P389264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201248	TDS	5.93	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P389265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201347	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P388955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201327	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P388879

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201468	Organic Carbon	1.84	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: A101491

Included Lab Sample IDs: 2201344, 2201345, 2201346, 2201347

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A101494

Included Lab Sample IDs: 2201352, 2201353, 2201354, 2201355

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

Reference Method: SM 2120 B-2011

Run ID: A101521

Included Lab Sample IDs: 2201344, 2201345, 2201346, 2201347

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A101535

Included Lab Sample IDs: 2201348, 2201349, 2201350, 2201351

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A101572

Included Lab Sample IDs: 2201348, 2201349, 2201350, 2201351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.8	P/P	90 - 110
Ammonia-N	99.5	98.9	P/P	90 - 110
Ammonia-N	99.6	99.5	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A101587

Included Lab Sample IDs: 2201348, 2201349, 2201350, 2201351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.2	94.2	P/P	90 - 110
Organic Carbon	94.6	93.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101595

Included Lab Sample IDs: 2201348, 2201349, 2201350, 2201351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	91.8	92.0	P/P	90 - 110
Total-P	92.0	92.5	P/P	90 - 110
Total-P	93.0	91.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A101630

Included Lab Sample IDs: 2201344, 2201345, 2201346, 2201347

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A101630

Included Lab Sample IDs: 2201344, 2201345, 2201346, 2201347

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A101649

Included Lab Sample IDs: 2201344

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.6	P/P	90 - 110
Sulfate	99.9	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A101659

Included Lab Sample IDs: 2201348, 2201349, 2201350, 2201351

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A101798

Included Lab Sample IDs: 2201345, 2201346, 2201347

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	101	102	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					3.73	
EPA 300.0 Rev. 2.1	Chloride	100	98.2	99.3		0.317	
	Chloride	99.4	102	102		0.0720	
	Sulfate	97.9	97.2	94.3		0.602	
	Sulfate	99.9	102	102		0.0163	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	98.5	97.6			0.812
	Ammonia-N	99.3	101	99.4			1.38
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110	107	104			1.50
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	101	100			0.329
	NO ₂ NO ₃ -N	101	100	100			0.499
EPA 365.1 Rev. 2.0	Total-P	103	105	106			0.793
	Total-P	105	107	108			0.743
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	100	100			0.399
SM 2120 B-2011	Color (true)	98.6				18.0	
SM 2320 B-2011	Total Alkalinity	102				1.60	
SM 2540 C-2011	TDS					5.93	
	TDS					0.0	
SM 4500 F-C-2011	Fluoride	96.5	100	100			0.0
SM 5310 B-2011	Organic Carbon	95.2	93.4	96.4			1.84

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2201344, 2201345, 2201346, 2201347
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2201344, 2201345, 2201346, 2201347
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2201344, 2201345, 2201346, 2201347
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2201348, 2201349, 2201350, 2201351
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2201348, 2201349, 2201350, 2201351
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2201348, 2201349, 2201350, 2201351
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2201348, 2201349, 2201350, 2201351
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2201352, 2201353, 2201354, 2201355
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2201344, 2201345, 2201346, 2201347
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2201344, 2201345, 2201346, 2201347
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2201344, 2201345, 2201346, 2201347
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2201344, 2201345, 2201346, 2201347
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2201344, 2201345, 2201346, 2201347
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2201348, 2201349, 2201350, 2201351

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	10/13/2020			10/13/2020 15:29	Yen Ta	2201344, 2201345, 2201346, 2201347
EPA 300.0 Rev. 2.1	10/13/2020			10/20/2020 18:17	Lipi Saha	2201344
	10/13/2020			10/26/2020 20:41	Lipi Saha	2201345
	10/13/2020			10/26/2020 20:54	Lipi Saha	2201346
	10/13/2020			10/26/2020 21:07	Lipi Saha	2201347
EPA 350.1 Rev. 2.0	10/13/2020			10/17/2020 12:22	Ping Hua	2201348
	10/13/2020			10/17/2020 12:24	Ping Hua	2201349
	10/13/2020			10/17/2020 14:46	Ping Hua	2201350
	10/13/2020			10/17/2020 14:57	Ping Hua	2201351
EPA 351.2 Rev. 2.0	10/13/2020	10/15/2020 13:30	David Boose	10/20/2020 20:27	Julia Storbeck	2201348
	10/13/2020	10/15/2020 13:30	David Boose	10/20/2020 20:44	Julia Storbeck	2201349
	10/13/2020	10/15/2020 13:30	David Boose	10/20/2020 20:46	Julia Storbeck	2201350
	10/13/2020	10/15/2020 13:30	David Boose	10/20/2020 20:48	Julia Storbeck	2201351
EPA 353.2 Rev. 2.0	10/13/2020			10/15/2020 10:18	Beverly Y. Sanders	2201348
	10/13/2020			10/15/2020 10:25	Beverly Y. Sanders	2201349
	10/13/2020			10/15/2020 10:32	Beverly Y. Sanders	2201350
	10/13/2020			10/15/2020 10:34	Beverly Y. Sanders	2201351
EPA 365.1 Rev. 2.0	10/13/2020	10/14/2020 12:45	Yen Ta	10/19/2020 12:22	Shengyu Wang	2201348
	10/13/2020	10/14/2020 12:45	Yen Ta	10/19/2020 12:23	Shengyu Wang	2201349
	10/13/2020	10/14/2020 12:45	Yen Ta	10/19/2020 12:40	Shengyu Wang	2201350
	10/13/2020	10/14/2020 12:45	Yen Ta	10/19/2020 12:48	Shengyu Wang	2201351
EPA 365.1 Rev. 2.0 dissolved	10/13/2020			10/13/2020 15:55	Blanca Fach	2201352
	10/13/2020			10/13/2020 15:56	Blanca Fach	2201353, 2201354
	10/13/2020			10/13/2020 15:57	Blanca Fach	2201355
SM 2120 B-2011	10/13/2020			10/13/2020 17:06	Madeline Gruver	2201344
	10/13/2020			10/13/2020 17:08	Madeline Gruver	2201345
	10/13/2020			10/13/2020 17:09	Madeline Gruver	2201346, 2201347
SM 2320 B-2011	10/13/2020			10/19/2020 22:32	Samantha Davila	2201344
	10/13/2020			10/19/2020 22:45	Samantha Davila	2201345
	10/13/2020			10/19/2020 22:57	Samantha Davila	2201346
	10/13/2020			10/19/2020 23:09	Samantha Davila	2201347
SM 2540 C-2011	10/13/2020			10/15/2020 15:25	Yijie Li	2201344, 2201345, 2201346, 2201347
SM 2540 D-2011	10/13/2020			10/15/2020 15:25	Yijie Li	2201344, 2201345, 2201346, 2201347
SM 4500 F-C-2011	10/13/2020			10/19/2020 22:32	Samantha Davila	2201344
	10/13/2020			10/19/2020 22:45	Samantha Davila	2201345
	10/13/2020			10/19/2020 22:57	Samantha Davila	2201346
	10/13/2020			10/19/2020 23:09	Samantha Davila	2201347
SM 5310 B-2011	10/13/2020			10/17/2020 00:21	Lauren Lees	2201348
	10/13/2020			10/17/2020 00:35	Lauren Lees	2201349
	10/13/2020			10/17/2020 00:47	Lauren Lees	2201350

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	10/13/2020			10/17/2020 01:24	Lauren Lees	2201351