

Chemical Analysis Report

SW-DIST-2020-01-29-01

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

Event Description: **SMP Lakes Run 9**

Request ID: **RQ-2020-01-20-23**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

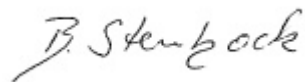
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Date Certified: 17-FEB-2020 15:57



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: Williams Lake

Collection Date/Time: 01/28/2020 09:45

Field ID: G1SW0071

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152288	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P377905	
	EPA 300.0 Rev. 2.1	Chloride	36		mg Cl/L	P378154	
	SM 2120 B-2011	Color (true)	25		PCU	P377942	
	SM 2320 B-2011	Total Alkalinity	16		mg CaCO3/L	P378278	
	SM 2540 C-2011	TDS	120	A	mg/L	P378372	
	SM 2540 D-2011	TSS	4	IA	mg/L	P378136	
	SM 4500 F-C-2011	Fluoride	0.073	I	mg F/L	P378287	
2152293	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P378413	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P378203	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P378003	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P378106	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P378349	
2152298	EPA 300.0 Rev. 2.1 dissolved	Sulfate	8.7		mg SO4/L	P378158	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P377900	

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 Dan @ Center

Collection Date/Time: 01/28/2020 11:15

Field ID: G5SW0161

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152289	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P377905	
	EPA 300.0 Rev. 2.1	Chloride	6.2		mg Cl/L	P378154	
	SM 2120 B-2011	Color (true)	94		PCU	P377942	
	SM 2320 B-2011	Total Alkalinity	33		mg CaCO3/L	P378278	
	SM 2540 C-2011	TDS	78		mg/L	P378372	
	SM 2540 D-2011	TSS	38		mg/L	P378136	
	SM 4500 F-C-2011	Fluoride	0.050	I	mg F/L	P378287	
2152294	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P378380	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P378203	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P378004	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P378106	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P378349	
2152299	EPA 300.0 Rev. 2.1 dissolved	Sulfate	1.1		mg SO4/L	P378158	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P377900	

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 Wastena Center

Collection Date/Time: 01/28/2020 11:50

Field ID: G1SW0020

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152290	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P377905	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P378154	
	SM 2120 B-2011	Color (true)	37		PCU	P377942	
	SM 2320 B-2011	Total Alkalinity	23		mg CaCO3/L	P378278	
	SM 2540 C-2011	TDS	114		mg/L	P378372	
	SM 2540 D-2011	TSS	4	I	mg/L	P378136	
	SM 4500 F-C-2011	Fluoride	0.060	I	mg F/L	P378287	
2152295	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P378380	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P378203	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P378003	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P378106	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P378349	
2152300	EPA 300.0 Rev. 2.1 dissolved	Sulfate	5.8		mg SO4/L	P378158	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P377901	

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 Wastena Center

Collection Date/Time: 01/28/2020 11:55

Field ID: G1SW0020_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152291	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P377905	
	EPA 300.0 Rev. 2.1	Chloride	26		mg Cl/L	P378154	
	SM 2120 B-2011	Color (true)	37		PCU	P377942	
	SM 2320 B-2011	Total Alkalinity	23		mg CaCO3/L	P378278	
	SM 2540 C-2011	TDS	106		mg/L	P378372	
	SM 2540 D-2011	TSS	5	I	mg/L	P378136	
	SM 4500 F-C-2011	Fluoride	0.060	I	mg F/L	P378287	
2152296	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P378380	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P378203	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P378003	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P378106	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P378349	
2152301	EPA 300.0 Rev. 2.1 dissolved	Sulfate	5.8		mg SO4/L	P378158	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P377901	

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: Field_Blank

Collection Date/Time: 01/28/2020 12:10

Field ID: FB 01282020

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152292	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P377906	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P378154	
	SM 2120 B-2011	Color (true)	2.5	U	PCU	P377943	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P378278	
	SM 2540 C-2011	TDS	15	U	mg/L	P378372	
	SM 2540 D-2011	TSS	2	U	mg/L	P378136	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P378287	
2152297	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P378380	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P378203	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P378004	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P378106	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P378349	
2152302	EPA 300.0 Rev. 2.1 dissolved	Sulfate	0.20	U	mg SO4/L	P378158	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P377901	

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: P377905

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377906

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378154

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P378158

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378380

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378413

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378203

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378003

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378004

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: P378106

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377900

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377901

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

Reference Method: SM 2120 B-2011
Batch ID: P377942

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P377943

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P378278

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011
Batch ID: P378372

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P378136

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P378287

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: P378349

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: P378154

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

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P378158

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378380

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378413

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: P378203

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378003

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: P378004

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378106

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377900

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377901

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

Reference Method: SM 2120 B-2011
Batch ID: P377942

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2120 B-2011
Batch ID: P377943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.7		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P378278

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.1		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P378287

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P378349

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152229	Chloride	104		P	90 - 110
2152291	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P378158

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152229	Sulfate	104		P	90 - 110
2152291	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152294	Ammonia-N	98.8	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152248	Ammonia-N	97.6	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378203

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152253	Kjeldahl Nitrogen	106	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152230	NO2NO3-N	99.2	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378004

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152294	NO2NO3-N	98.7	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378106

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152254	Total-P	106	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152233	O-Phosphate-P	99.3	99.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152419	O-Phosphate-P	99.7	99.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P378287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152364	Fluoride	98.6	99.2	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P378349

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152293	Organic Carbon	107	107	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377905

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152228	Turbidity	3.23	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152364	Turbidity	11.8	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152229	Chloride	0.224	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P378158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152229	Sulfate	0.0829	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152294	Ammonia-N	2.74	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152248	Ammonia-N	0.619	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152253	Kjeldahl Nitrogen	2.78	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152230	NO2NO3-N	0.447	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152294	NO2NO3-N	0.952	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152254	Total-P	1.50	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152233	O-Phosphate-P	0.201	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152419	O-Phosphate-P	0.402	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P377942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152229	Color (true)	2.98	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P377943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152364	Color (true)	2.20	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P378278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152364	Total Alkalinity	0.335	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P378372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152288	TDS	3.33	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P378287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152364	Fluoride	0.470	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P378349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152293	Organic Carbon	0.216	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A97170

Included Lab Sample IDs: 2152288, 2152289, 2152290, 2152291, 2152292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	98.6	P/P	90 - 110
Chloride	98.6	99.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1 dissolved

Run ID: A97170

Included Lab Sample IDs: 2152298, 2152299, 2152300, 2152301, 2152302

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	100	100	P/P	90 - 110
Sulfate	99.2	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A97174

Included Lab Sample IDs: 2152298, 2152299, 2152300, 2152301, 2152302

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	99.6	P/P	90 - 110
O-Phosphate-P	99.6	98.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A97175

Included Lab Sample IDs: 2152288, 2152289, 2152290, 2152291, 2152292

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

Reference Method: SM 2120 B-2011

Run ID: A97193

Included Lab Sample IDs: 2152288, 2152289, 2152290, 2152291, 2152292

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97211

Included Lab Sample IDs: 2152293, 2152294, 2152295, 2152296, 2152297

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97292

Included Lab Sample IDs: 2152294

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97303

Included Lab Sample IDs: 2152293, 2152295, 2152296, 2152297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	97.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A97320

Included Lab Sample IDs: 2152288, 2152289, 2152290, 2152291, 2152292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.9	98.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A97320

Included Lab Sample IDs: 2152288, 2152289, 2152290, 2152291, 2152292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97331

Included Lab Sample IDs: 2152293, 2152294, 2152295, 2152296, 2152297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	105	P/P	90 - 110
Kjeldahl Nitrogen	98.4	103	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A97337

Included Lab Sample IDs: 2152293, 2152294, 2152295, 2152296, 2152297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	103	P/P	90 - 110
Organic Carbon	103	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97346

Included Lab Sample IDs: 2152294, 2152295, 2152296, 2152297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.9	P/P	90 - 110
Ammonia-N	99.9	98.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97355

Included Lab Sample IDs: 2152293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	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		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				3.23	
	Turbidity				11.8	
EPA 300.0 Rev. 2.1	Chloride	103	104	105	0.224	
EPA 300.0 Rev. 2.1 dissolved	Sulfate	103	104	103	0.0829	
EPA 350.1 Rev. 2.0	Ammonia-N	97.3	98.8	102		2.74
	Ammonia-N	99.3	97.6	98.5		0.619
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.6	106	109		2.78
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.2	98.6		0.447
	NO2NO3-N	102	99.7	98.7		0.952
EPA 365.1 Rev. 2.0	Total-P	103	108	106		1.50
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	99.3	99.5		0.201
	O-Phosphate-P	102	99.7	99.3		0.402
SM 2120 B-2011	Color (true)	100			2.98	
	Color (true)	98.7			2.20	
SM 2320 B-2011	Total Alkalinity	99.1			0.335	
SM 2540 C-2011	TDS				3.33	
SM 4500 F-C-2011	Fluoride	96.5	98.6	99.2		0.470
SM 5310 B-2011	Organic Carbon	105	107	107		0.216

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2152288, 2152289, 2152290, 2152291, 2152292
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2152288, 2152289, 2152290, 2152291, 2152292
EPA 300.0 Rev. 2.1 dissolved	Sulfate, dissolved, in filtered, aqueous matrices	2152298, 2152299, 2152300, 2152301, 2152302
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2152293, 2152294, 2152295, 2152296, 2152297
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2152293, 2152294, 2152295, 2152296, 2152297
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2152293, 2152294, 2152295, 2152296, 2152297
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2152293, 2152294, 2152295, 2152296, 2152297
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2152298, 2152299, 2152300, 2152301, 2152302
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2152288, 2152289, 2152290, 2152291, 2152292
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2152288, 2152289, 2152290, 2152291, 2152292
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2152288, 2152289, 2152290, 2152291, 2152292
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2152288, 2152289, 2152290, 2152291, 2152292
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2152288, 2152289, 2152290, 2152291, 2152292
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2152293, 2152294, 2152295, 2152296, 2152297

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	01/29/2020			01/29/2020 16:18	Samantha Davila	2152288, 2152289, 2152290, 2152291, 2152292
EPA 300.0 Rev. 2.1	01/29/2020			01/31/2020 11:28	Lipi Saha	2152291
	01/29/2020			01/31/2020 12:41	Lipi Saha	2152288
	01/29/2020			01/31/2020 13:17	Lipi Saha	2152289
	01/29/2020			01/31/2020 13:29	Lipi Saha	2152290
	01/29/2020			01/31/2020 13:41	Lipi Saha	2152292
EPA 300.0 Rev. 2.1 dissolved	01/29/2020			01/31/2020 14:54	Lipi Saha	2152298
	01/29/2020			01/31/2020 15:06	Lipi Saha	2152299
	01/29/2020			01/31/2020 15:42	Lipi Saha	2152300
	01/29/2020			01/31/2020 15:54	Lipi Saha	2152301
	01/29/2020			01/31/2020 16:06	Lipi Saha	2152302
EPA 350.1 Rev. 2.0	01/29/2020			02/03/2020 12:41	Ping Hua	2152294
	01/29/2020			02/03/2020 12:45	Ping Hua	2152297
	01/29/2020			02/03/2020 12:53	Ping Hua	2152295
	01/29/2020			02/03/2020 12:54	Ping Hua	2152296
	01/29/2020			02/05/2020 12:39	Ping Hua	2152293
EPA 351.2 Rev. 2.0	01/29/2020	02/04/2020 12:30	Jhamieka S. Greenwood	02/05/2020 12:26	Jhamieka S. Greenwood	2152293
	01/29/2020	02/04/2020 12:30	Jhamieka S. Greenwood	02/05/2020 12:28	Jhamieka S. Greenwood	2152294
	01/29/2020	02/04/2020 12:30	Jhamieka S. Greenwood	02/05/2020 12:33	Jhamieka S. Greenwood	2152295
	01/29/2020	02/04/2020 12:30	Jhamieka S. Greenwood	02/05/2020 12:34	Jhamieka S. Greenwood	2152296
	01/29/2020	02/04/2020 12:30	Jhamieka S. Greenwood	02/05/2020 12:36	Jhamieka S. Greenwood	2152297
EPA 353.2 Rev. 2.0	01/29/2020			01/30/2020 11:17	Beverly Y. Sanders	2152293
	01/29/2020			01/30/2020 11:18	Beverly Y. Sanders	2152295
	01/29/2020			01/30/2020 11:19	Beverly Y. Sanders	2152296
	01/29/2020			01/30/2020 11:26	Beverly Y. Sanders	2152294
	01/29/2020			01/30/2020 11:32	Beverly Y. Sanders	2152297
EPA 365.1 Rev. 2.0	01/29/2020	01/31/2020 14:34	Yen Ta	02/03/2020 16:30	Benjamin T. Nordmann	2152294
	01/29/2020	01/31/2020 14:34	Yen Ta	02/04/2020 12:26	Benjamin T. Nordmann	2152297
	01/29/2020	01/31/2020 14:34	Yen Ta	02/04/2020 12:30	Benjamin T. Nordmann	2152293
	01/29/2020	01/31/2020 14:34	Yen Ta	02/04/2020 12:31	Benjamin T. Nordmann	2152295
	01/29/2020	01/31/2020 14:34	Yen Ta	02/04/2020 12:32	Benjamin T. Nordmann	2152296
EPA 365.1 Rev. 2.0 dissolved	01/29/2020			01/29/2020 15:03	Julia Storbeck	2152302
	01/29/2020			01/29/2020 15:04	Julia Storbeck	2152300
	01/29/2020			01/29/2020 15:05	Julia Storbeck	2152301
	01/29/2020			01/29/2020 15:17	Julia Storbeck	2152298
	01/29/2020			01/29/2020 15:18	Julia Storbeck	2152299
SM 2120 B-2011	01/29/2020			01/29/2020 18:09	Madeline Funaro	2152288
	01/29/2020			01/29/2020 18:10	Madeline Funaro	2152289
	01/29/2020			01/29/2020 18:11	Madeline Funaro	2152290, 2152291

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B-2011	01/29/2020			01/29/2020 18:15	Madeline Funaro	2152292
SM 2320 B-2011	01/29/2020			02/03/2020 19:27	Dale L. Simmons	2152288
	01/29/2020			02/03/2020 19:39	Dale L. Simmons	2152289
	01/29/2020			02/03/2020 19:51	Dale L. Simmons	2152290
	01/29/2020			02/03/2020 20:02	Dale L. Simmons	2152291
	01/29/2020			02/03/2020 20:16	Dale L. Simmons	2152292
SM 2540 C-2011	01/29/2020			01/30/2020 14:40	Sima Feizi	2152288, 2152289, 2152290, 2152291, 2152292
SM 2540 D-2011	01/29/2020			01/30/2020 14:40	Sima Feizi	2152288, 2152289, 2152290, 2152291, 2152292
SM 4500 F-C-2011	01/29/2020			02/03/2020 19:27	Dale L. Simmons	2152288
	01/29/2020			02/03/2020 19:39	Dale L. Simmons	2152289
	01/29/2020			02/03/2020 19:51	Dale L. Simmons	2152290
	01/29/2020			02/03/2020 20:02	Dale L. Simmons	2152291
	01/29/2020			02/03/2020 20:16	Dale L. Simmons	2152292
SM 5310 B-2011	01/29/2020			02/03/2020 18:38	Madeline Funaro	2152293
	01/29/2020			02/03/2020 23:14	Madeline Funaro	2152294
	01/29/2020			02/03/2020 23:26	Madeline Funaro	2152295
	01/29/2020			02/03/2020 23:43	Madeline Funaro	2152296
	01/29/2020			02/03/2020 23:57	Madeline Funaro	2152297