

Chemical Analysis Report

SW-DIST-2020-07-10-01

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-2020-06-15-02**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

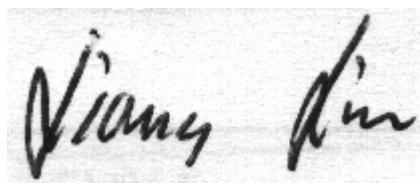
FL Dept. of Environmental Protection
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For additional information please contact

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 29-JUL-2020 14:44

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 Wastena Center

Collection Date/Time: 07/09/2020 10:30

Field ID: G1SW0020

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2182490	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P384415	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P384899	
	SM 2120 B-2011	Color (true)	30		PCU	P384513	
	SM 2320 B-2011	Total Alkalinity	17	A	mg CaCO3/L	P384613	
	SM 2540 C-2011	TDS	101		mg/L	P384944	
	SM 2540 D-2011	TSS	2	I	mg/L	P385021	
	SM 4500 F-C-2011	Fluoride	0.065	I	mg F/L	P384926	
2182494	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P384454	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P384627	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P384709	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P384556	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P384554	
2182498	EPA 300.0 Rev. 2.1 dissolved	Sulfate	6.1		mg SO4/L	P384903	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P384520	

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.

EPA 300.0 Rev. 2.1 dissolved: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

Sample Location: Field_Blank

Collection Date/Time: 07/09/2020 10:40

Field ID: FB 07092020

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2182491	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P384415	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P384899	
	SM 2120 B-2011	Color (true)	2.5	U	PCU	P384513	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P384613	
	SM 2540 C-2011	TDS	15	U	mg/L	P384943	
	SM 2540 D-2011	TSS	2	U	mg/L	P385020	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P384926	
2182495	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P384456	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P384627	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P384709	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P384562	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P384554	
2182499	EPA 300.0 Rev. 2.1 dissolved	Sulfate	0.20	U	mg SO4/L	P384903	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P384522	

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.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 300.0 Rev. 2.1 dissolved: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

Sample Location: Williams Lake

Collection Date/Time: 07/09/2020 10:10

Field ID: G1SW0071

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2182492	EPA 180.1 Rev. 2.0	Turbidity	2.0	A	NTU	P384416	
	EPA 300.0 Rev. 2.1	Chloride	40		mg Cl/L	P384899	
	SM 2120 B-2011	Color (true)	20		PCU	P384514	
	SM 2320 B-2011	Total Alkalinity	17		mg CaCO3/L	P384613	
	SM 2540 C-2011	TDS	119		mg/L	P384944	
	SM 2540 D-2011	TSS	2	U	mg/L	P385021	
	SM 4500 F-C-2011	Fluoride	0.079	I	mg F/L	P384926	
2182496	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P384454	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P384627	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P384709	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P384562	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P384554	
2182500	EPA 300.0 Rev. 2.1 dissolved	Sulfate	8.7		mg SO4/L	P384903	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P384522	

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.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 300.0 Rev. 2.1 dissolved: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Dan @ Center

Collection Date/Time: 07/09/2020 09:20

Field ID: G5SW0161

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2182493	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P384416	
	EPA 300.0 Rev. 2.1	Chloride	7.1		mg Cl/L	P384899	
	SM 2120 B-2011	Color (true)	45	A	PCU	P384514	
	SM 2320 B-2011	Total Alkalinity	66		mg CaCO3/L	P384613	
	SM 2540 C-2011	TDS	96		mg/L	P384944	
	SM 2540 D-2011	TSS	4	I	mg/L	P385021	
	SM 4500 F-C-2011	Fluoride	0.066	I	mg F/L	P384926	
2182497	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P384456	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P384696	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P384709	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P384562	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P384554	
2182501	EPA 300.0 Rev. 2.1 dissolved	Sulfate	1.3		mg SO4/L	P384903	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P384522	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 300.0 Rev. 2.1 dissolved: Sulfate: Batch matrix spike recoveries for one of two spiked samples 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: P384415

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P384416

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384899

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P384903

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384454

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384456

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384627

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384696

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384709

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: P384556

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P384562

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384520

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384522

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

Reference Method: SM 2120 B-2011
Batch ID: P384513

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P384514

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P384613

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

Reference Method: SM 2540 C-2011
Batch ID: P384943

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P384944

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P385020

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P385021

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P384926

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P384554

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: P384899

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: P384903

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384454

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: P384456

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384627

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384696

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384709

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: P384556

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P384562

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384520

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384522

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

Reference Method: SM 2120 B-2011
Batch ID: P384513

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

Reference Method: SM 2120 B-2011
Batch ID: P384514

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

Reference Method: SM 2320 B-2011
Batch ID: P384613

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.8		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P384926

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P384554

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384899

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2182625	Chloride	102		P	90 - 110
2182742	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P384903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2182625	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384454

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2182496	Ammonia-N	98.9	98.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384456

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2182561	Ammonia-N	97.2	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384696

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2182694	Kjeldahl Nitrogen	101	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384709

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2182494	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P384556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2182091	Total-P	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384520

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2182498	O-Phosphate-P	95.9	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384522

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2182500	O-Phosphate-P	94.5	95.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P384926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2182490	Fluoride	100	99.6	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P384554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2182496	Organic Carbon	95.4	96.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P384415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182322	Turbidity	5.41	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P384416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182492	Turbidity	1.96	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182742	Chloride	0.735	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P384903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182742	Sulfate	0.921	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182496	Ammonia-N	0.216	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182561	Ammonia-N	1.03	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182332	Kjeldahl Nitrogen	4.02	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182694	Kjeldahl Nitrogen	1.64	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182494	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P384556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182091	Total-P	0.709	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P384562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182324	Total-P	0.738	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182498	O-Phosphate-P	0.418	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384522

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182500	O-Phosphate-P	0.633	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P384513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182322	Color (true)	0.342	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P384514

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182493	Color (true)	0.226	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P384613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182490	Total Alkalinity	0.339	Sample	P	0 - 8.1

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P384943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182323	TDS	7.84	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P384944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182475	TDS	4.37	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P384926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182490	Fluoride	0.472	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P384554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182496	Organic Carbon	0.443	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: A99804

Included Lab Sample IDs: 2182490, 2182491, 2182492, 2182493

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105
Turbidity	102	102	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A99811

Included Lab Sample IDs: 2182494, 2182495, 2182496, 2182497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.5	98.5	P/P	90 - 110
Ammonia-N	99.5	99.5	P/P	90 - 110
Ammonia-N	99.8	99.5	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A99832

Included Lab Sample IDs: 2182490, 2182491, 2182492, 2182493

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 365.1 Rev. 2.0 dissolved

Run ID: A99834

Included Lab Sample IDs: 2182498, 2182499, 2182500, 2182501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.3	99.1	P/P	90 - 110
O-Phosphate-P	99.4	99.2	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A99853

Included Lab Sample IDs: 2182494, 2182495, 2182496, 2182497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.3	94.8	P/P	90 - 110
Organic Carbon	94.8	93.4	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A99877

Included Lab Sample IDs: 2182490, 2182491, 2182492, 2182493

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	102	P/P	90 - 110
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A99903

Included Lab Sample IDs: 2182494, 2182495, 2182496, 2182497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	96.5	P/P	90 - 110
Total-P	97.5	97.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A99910

Included Lab Sample IDs: 2182494, 2182495, 2182496, 2182497

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A99913

Included Lab Sample IDs: 2182494, 2182495, 2182496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A99952

Included Lab Sample IDs: 2182497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.6	97.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A99978

Included Lab Sample IDs: 2182490, 2182491, 2182492, 2182493

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

Reference Method: EPA 300.0 Rev. 2.1 dissolved

Run ID: A99978

Included Lab Sample IDs: 2182498, 2182499, 2182500, 2182501

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

Reference Method: SM 4500 F-C-2011

Run ID: A99986

Included Lab Sample IDs: 2182490, 2182491, 2182492, 2182493

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110
Fluoride	100	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					5.41	
	Turbidity					1.96	
EPA 300.0 Rev. 2.1	Chloride	103	101	102		0.735	
EPA 300.0 Rev. 2.1 dissolved	Sulfate	100	101			0.921	
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	98.9	98.7			0.216
	Ammonia-N	98.9	97.2	98.5			1.03
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.2					4.02
	Kjeldahl Nitrogen	100	101	104			1.64
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	100			0.499
EPA 365.1 Rev. 2.0	Total-P	101	103	104			0.709
	Total-P	100					0.738
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	95.9	95.5			0.418
	O-Phosphate-P	102	94.5	95.1			0.633
SM 2120 B-2011	Color (true)	101				0.342	
	Color (true)	101				0.226	
SM 2320 B-2011	Total Alkalinity	99.8				0.339	
SM 2540 C-2011	TDS					7.84	
	TDS					4.37	
SM 4500 F-C-2011	Fluoride	97.4	100	99.6			0.472
SM 5310 B-2011	Organic Carbon	95.5	95.4	96.0			0.443

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2182490, 2182491, 2182492, 2182493
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2182490, 2182491, 2182492, 2182493
EPA 300.0 Rev. 2.1 dissolved	Sulfate, dissolved, in filtered, aqueous matrices	2182498, 2182499, 2182500, 2182501
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2182494, 2182495, 2182496, 2182497
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2182494, 2182495, 2182496, 2182497
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2182494, 2182495, 2182496, 2182497
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2182494, 2182495, 2182496, 2182497
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2182498, 2182499, 2182500, 2182501
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2182490, 2182491, 2182492, 2182493
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2182490, 2182491, 2182492, 2182493
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2182490, 2182491, 2182492, 2182493
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2182490, 2182491, 2182492, 2182493
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2182490, 2182491, 2182492, 2182493
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2182494, 2182495, 2182496, 2182497

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	07/10/2020			07/10/2020 15:21	Yen Ta	2182490, 2182491, 2182492, 2182493
EPA 300.0 Rev. 2.1	07/10/2020			07/17/2020 16:21	Julia Storbeck	2182490
	07/10/2020			07/17/2020 16:33	Julia Storbeck	2182491
	07/10/2020			07/17/2020 16:45	Julia Storbeck	2182492
	07/10/2020			07/17/2020 16:57	Julia Storbeck	2182493
EPA 300.0 Rev. 2.1 dissolved	07/10/2020			07/17/2020 19:34	Julia Storbeck	2182498
	07/10/2020			07/17/2020 20:10	Julia Storbeck	2182499
	07/10/2020			07/17/2020 20:22	Julia Storbeck	2182500
	07/10/2020			07/17/2020 20:34	Julia Storbeck	2182501
EPA 350.1 Rev. 2.0	07/10/2020			07/12/2020 17:36	Ping Hua	2182496
	07/10/2020			07/12/2020 17:54	Ping Hua	2182494
	07/10/2020			07/12/2020 18:22	Ping Hua	2182497
	07/10/2020			07/12/2020 18:25	Ping Hua	2182495
EPA 351.2 Rev. 2.0	07/10/2020	07/15/2020 10:50	Jhamieka S. Greenwood	07/16/2020 12:47	Jhamieka S. Greenwood	2182494
	07/10/2020	07/15/2020 10:50	Jhamieka S. Greenwood	07/16/2020 12:48	Jhamieka S. Greenwood	2182495
	07/10/2020	07/15/2020 10:50	Jhamieka S. Greenwood	07/16/2020 12:50	Jhamieka S. Greenwood	2182496
	07/10/2020	07/16/2020 09:35	Sima Feizi	07/17/2020 17:15	Jhamieka S. Greenwood	2182497
EPA 353.2 Rev. 2.0	07/10/2020			07/16/2020 09:36	Beverly Y. Sanders	2182494
	07/10/2020			07/16/2020 09:43	Beverly Y. Sanders	2182495
	07/10/2020			07/16/2020 09:44	Beverly Y. Sanders	2182496
	07/10/2020			07/16/2020 09:45	Beverly Y. Sanders	2182497
EPA 365.1 Rev. 2.0	07/10/2020	07/14/2020 12:19	Yen Ta	07/16/2020 07:59	Lipi Saha	2182494
	07/10/2020	07/14/2020 12:19	Yen Ta	07/16/2020 08:13	Lipi Saha	2182495
	07/10/2020	07/14/2020 12:19	Yen Ta	07/16/2020 08:14	Lipi Saha	2182496
	07/10/2020	07/14/2020 12:19	Yen Ta	07/16/2020 08:15	Lipi Saha	2182497
EPA 365.1 Rev. 2.0 dissolved	07/10/2020			07/10/2020 22:50	Jhamieka S. Greenwood	2182498
	07/10/2020			07/10/2020 23:28	Jhamieka S. Greenwood	2182500
	07/10/2020			07/10/2020 23:31	Jhamieka S. Greenwood	2182501
	07/10/2020			07/10/2020 23:32	Jhamieka S. Greenwood	2182499
SM 2120 B-2011	07/10/2020			07/10/2020 16:22	Blanca Fach	2182490
	07/10/2020			07/10/2020 16:23	Blanca Fach	2182491
	07/10/2020			07/10/2020 16:26	Blanca Fach	2182492
	07/10/2020			07/10/2020 16:28	Blanca Fach	2182493
SM 2320 B-2011	07/10/2020			07/14/2020 07:42	Dale L. Simmons	2182490
	07/10/2020			07/14/2020 11:02	Dale L. Simmons	2182491
	07/10/2020			07/14/2020 11:15	Dale L. Simmons	2182492
	07/10/2020			07/14/2020 11:27	Dale L. Simmons	2182493
SM 2540 C-2011	07/10/2020			07/15/2020 15:29	Yijie Li	2182490, 2182491, 2182492, 2182493
SM 2540 D-2011	07/10/2020			07/15/2020 15:29	Yijie Li	2182490, 2182491, 2182492, 2182493
SM 4500 F-C-2011	07/10/2020			07/21/2020 00:30	Samantha Davila	2182490

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-2011	07/10/2020			07/21/2020 01:35	Samantha Davila	2182491
	07/10/2020			07/21/2020 01:50	Samantha Davila	2182492
	07/10/2020			07/21/2020 01:55	Samantha Davila	2182493
SM 5310 B-2011	07/10/2020			07/13/2020 13:49	David Boose	2182496
	07/10/2020			07/13/2020 17:34	David Boose	2182494
	07/10/2020			07/13/2020 17:48	David Boose	2182495
	07/10/2020			07/13/2020 18:01	David Boose	2182497