

Chemical Analysis Report

SO-DIST-2021-08-11-01

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

Event Description: **2021 SMP: Placid Lakes**
Request ID: **RQ-2021-07-26-63**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 02-SEP-2021 14:13

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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 Francis

Collection Date/Time: 08/10/2021 10:15

Field ID: G4SD0187

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2268626	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P402345	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P402551	
		Sulfate	22		mg SO4/L	P402553	
	SM 2120 B-2011	Color (true)	9.4		PCU	P402348	
	SM 2320 B-2011	Total Alkalinity	26		mg CaCO3/L	P402593	
	SM 2540 C-2011	TDS	104	A	mg/L	P402859	
	SM 2540 D-2011	TSS	4	IA	mg/L	P402750	
	SM 4500 F-C-2011	Fluoride	0.058	I	mg F/L	P402596	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P402460	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P402966	MS
2268629	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P402440	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P402464	MS
	SM 5310 B-2011	Organic Carbon	6.7		mg C/L	P402919	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P402313	

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: 08/10/2021 12:00

Field ID: G4SD0186

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2268627	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P402345	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P402551	
		Sulfate	25		mg SO4/L	P402553	
	SM 2120 B-2011	Color (true)	9.7		PCU	P402348	
	SM 2320 B-2011	Total Alkalinity	22		mg CaCO3/L	P402593	
	SM 2540 C-2011	TDS	105		mg/L	P402859	
	SM 2540 D-2011	TSS	3	I	mg/L	P402750	
	SM 4500 F-C-2011	Fluoride	0.062	I	mg F/L	P402596	
2268630	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P402460	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P402886	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P402440	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P402464	MS
	SM 5310 B-2011	Organic Carbon	6.3		mg C/L	P402919	
2268633	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P402313	

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: PlacidJuneCnl@LkeGrvsRd

Collection Date/Time: 08/10/2021 12:40

Field ID: G4SD0209

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2268623	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P402345	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P402551	
		Sulfate	12		mg SO4/L	P402553	
	SM 2120 B-2011	Color (true)	150		PCU	P402348	
	SM 2320 B-2011	Total Alkalinity	11		mg CaCO3/L	P402593	
	SM 2540 C-2011	TDS	109		mg/L	P402859	
	SM 2540 D-2011	TSS	2	U	mg/L	P402750	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P402596	
2268624	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P402460	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P402966	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.75		mg N/L	P402440	
	EPA 365.1 Rev. 2.0	Total-P	0.12	J	mg P/L	P402464	MS
	SM 5310 B-2011	Organic Carbon	20		mg C/L	P402919	
2268625	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.085		mg P/L	P402313	

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: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Lake Placid @ Center

Collection Date/Time: 08/10/2021 13:15

Field ID: G4SD0191

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2268628	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P402345	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P402551	
		Sulfate	17		mg SO4/L	P402553	
	SM 2120 B-2011	Color (true)	7.3		PCU	P402348	
	SM 2320 B-2011	Total Alkalinity	23		mg CaCO3/L	P402593	
	SM 2540 C-2011	TDS	96		mg/L	P402859	
	SM 2540 D-2011	TSS	3	I	mg/L	P402750	
	SM 4500 F-C-2011	Fluoride	0.050	I	mg F/L	P402596	
2268631	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P402460	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P402886	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P402441	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P402464	MS
	SM 5310 B-2011	Organic Carbon	5.6		mg C/L	P402919	
2268634	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P402340	

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: P402345

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402551

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402553

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402460

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402886

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402966

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402440

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402441

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402464

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402313

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402340

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

Reference Method: SM 2120 B-2011
Batch ID: P402348

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P402593

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

Reference Method: SM 2540 C-2011
Batch ID: P402859

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P402750

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P402596

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P402919

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: P402551

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402553

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402460

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402886

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	108		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402966

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402440

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402441

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: P402464

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402313

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402340

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

Reference Method: SM 2120 B-2011
Batch ID: P402348

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

Reference Method: SM 2320 B-2011
Batch ID: P402593

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P402596

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P402919

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: P402551

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268465	Chloride	101		P	90 - 110
2268944	Chloride	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402553

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268465	Sulfate	101		P	90 - 110
2268944	Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402460

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268523	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267962	Kjeldahl Nitrogen	89.0	95.8	F/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402966

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268511	Kjeldahl Nitrogen	112	102	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402440

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268495	NO2NO3-N	98.8	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402441

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268631	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268624	Total-P	113	106	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268525	O-Phosphate-P	102	102	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268885	O-Phosphate-P	103	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P402596

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268419	Fluoride	103	103	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P402919

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268467	Organic Carbon	98.6	96.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P402345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268510	Turbidity	4.78	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268944	Chloride	1.97	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268944	Sulfate	1.98	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268523	Ammonia-N	0.787	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267962	Kjeldahl Nitrogen	4.94	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268511	Kjeldahl Nitrogen	6.39	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268495	NO2NO3-N	0.935	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268631	NO2NO3-N	0.491	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P402464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268624	Total-P	5.15	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P402313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268525	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P402340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268885	O-Phosphate-P	0.806	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P402348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268510	Color (true)	0.841	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P402593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268419	Total Alkalinity	0.923	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011

Batch ID: P402859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268626	TDS	2.87	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011

Batch ID: P402596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268419	Fluoride	0.457	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011

Batch ID: P402919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268467	Organic Carbon	1.46	Spike	P	0 - 20

Quality Assurance Report Precision

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A107178

Included Lab Sample IDs: 2268625, 2268632, 2268633

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A107186

Included Lab Sample IDs: 2268634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	97.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A107187

Included Lab Sample IDs: 2268623, 2268626, 2268627, 2268628

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

Reference Method: SM 2120 B-2011

Run ID: A107189

Included Lab Sample IDs: 2268623, 2268626, 2268627, 2268628

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	100	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107236

Included Lab Sample IDs: 2268624, 2268629, 2268630, 2268631

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107243

Included Lab Sample IDs: 2268624, 2268629, 2268630, 2268631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107271

Included Lab Sample IDs: 2268624

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A107288

Included Lab Sample IDs: 2268623, 2268626, 2268627, 2268628

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A107288

Included Lab Sample IDs: 2268623, 2268626, 2268627, 2268628

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

Reference Method: SM 2320 B-2011

Run ID: A107300

Included Lab Sample IDs: 2268623, 2268626, 2268627, 2268628

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.8	P/P	90 - 110
Total Alkalinity	99.5	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A107300

Included Lab Sample IDs: 2268623, 2268626, 2268627, 2268628

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107317

Included Lab Sample IDs: 2268629, 2268630, 2268631

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

Reference Method: SM 5310 B-2011

Run ID: A107443

Included Lab Sample IDs: 2268624, 2268629, 2268630, 2268631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107458

Included Lab Sample IDs: 2268630, 2268631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107494

Included Lab Sample IDs: 2268624, 2268629

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	97.2	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				4.78	
EPA 300.0 Rev. 2.1	Chloride	99.1	99.8	101	1.97	
	Sulfate	101	98.9	101	1.98	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	101	102		0.787
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	89.0	95.8		4.94
	Kjeldahl Nitrogen	105	112	102		6.39
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	98.8	99.8		0.935
	NO2NO3-N	102	102	102		0.491
EPA 365.1 Rev. 2.0	Total-P	109	113	106		5.15
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	102	102		0.0
	O-Phosphate-P	102	103	102		0.806
SM 2120 B-2011	Color (true)	101			0.841	
SM 2320 B-2011	Total Alkalinity	102			0.923	
SM 2540 C-2011	TDS				2.87	
SM 4500 F-C-2011	Fluoride	99.0	103	103		0.457
SM 5310 B-2011	Organic Carbon	95.5	98.6	96.6		1.46

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2268623, 2268626, 2268627, 2268628
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2268623, 2268626, 2268627, 2268628
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2268623, 2268626, 2268627, 2268628
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2268624, 2268629, 2268630, 2268631
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2268624, 2268629, 2268630, 2268631
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2268624, 2268629, 2268630, 2268631
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2268624, 2268629, 2268630, 2268631
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2268625, 2268632, 2268633, 2268634
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2268623, 2268626, 2268627, 2268628
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2268623, 2268626, 2268627, 2268628
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2268623, 2268626, 2268627, 2268628
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2268623, 2268626, 2268627, 2268628
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2268623, 2268626, 2268627, 2268628
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2268624, 2268629, 2268630, 2268631

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	08/11/2021			08/11/2021 15:39	Sarah A Nixon	2268623, 2268626, 2268627, 2268628
EPA 300.0 Rev. 2.1	08/11/2021			08/17/2021 08:24	Lipi Saha	2268623
	08/11/2021			08/17/2021 08:36	Lipi Saha	2268626
	08/11/2021			08/17/2021 08:48	Lipi Saha	2268627
	08/11/2021			08/17/2021 09:24	Lipi Saha	2268628
EPA 350.1 Rev. 2.0	08/11/2021			08/13/2021 13:44	Ping Hua	2268624
	08/11/2021			08/13/2021 13:46	Ping Hua	2268629
	08/11/2021			08/13/2021 13:47	Ping Hua	2268630
	08/11/2021			08/13/2021 13:48	Ping Hua	2268631
EPA 351.2 Rev. 2.0	08/11/2021	08/24/2021 13:34	Benjamin T. Nordmann	08/25/2021 10:01	Virginia P. Brown	2268630
	08/11/2021	08/24/2021 13:34	Benjamin T. Nordmann	08/25/2021 10:02	Virginia P. Brown	2268631
	08/11/2021	08/25/2021 13:54	Benjamin T. Nordmann	08/26/2021 12:25	Virginia P. Brown	2268624
	08/11/2021	08/25/2021 13:54	Benjamin T. Nordmann	08/26/2021 12:27	Virginia P. Brown	2268629
EPA 353.2 Rev. 2.0	08/11/2021			08/13/2021 10:37	Beverly Y. Sanders	2268624
	08/11/2021			08/13/2021 10:38	Beverly Y. Sanders	2268629
	08/11/2021			08/13/2021 10:40	Beverly Y. Sanders	2268630
	08/11/2021			08/13/2021 10:47	Beverly Y. Sanders	2268631
EPA 365.1 Rev. 2.0	08/11/2021	08/13/2021 15:00	Simonne.V. Calhoun	08/16/2021 11:49	Shengyu Ding	2268629
	08/11/2021	08/13/2021 15:00	Simonne.V. Calhoun	08/16/2021 11:50	Shengyu Ding	2268630
	08/11/2021	08/13/2021 15:00	Simonne.V. Calhoun	08/16/2021 11:51	Shengyu Ding	2268631
	08/11/2021	08/13/2021 15:00	Simonne.V. Calhoun	08/16/2021 14:30	Shengyu Ding	2268624
EPA 365.1 Rev. 2.0 dissolved	08/11/2021			08/11/2021 11:23	Patrick M. Roche	2268625
	08/11/2021			08/11/2021 11:24	Patrick M. Roche	2268632
	08/11/2021			08/11/2021 11:25	Patrick M. Roche	2268633
	08/11/2021			08/11/2021 15:45	Patrick M. Roche	2268634
SM 2120 B-2011	08/11/2021			08/11/2021 16:28	Sarah A Nixon	2268623
	08/11/2021			08/11/2021 16:29	Sarah A Nixon	2268626, 2268627
	08/11/2021			08/11/2021 16:30	Sarah A Nixon	2268628
SM 2320 B-2011	08/11/2021			08/12/2021 19:46	Dale L. Simmons	2268623
	08/11/2021			08/12/2021 20:00	Dale L. Simmons	2268626
	08/11/2021			08/12/2021 20:13	Dale L. Simmons	2268627
	08/11/2021			08/12/2021 21:00	Dale L. Simmons	2268628
SM 2540 C-2011	08/11/2021			08/16/2021 15:36	Yijie Li	2268623, 2268626, 2268627, 2268628
SM 2540 D-2011	08/11/2021			08/16/2021 15:36	Yijie Li	2268623, 2268626, 2268627, 2268628
SM 4500 F-C-2011	08/11/2021			08/12/2021 19:46	Dale L. Simmons	2268623
	08/11/2021			08/12/2021 20:00	Dale L. Simmons	2268626
	08/11/2021			08/12/2021 20:13	Dale L. Simmons	2268627
	08/11/2021			08/12/2021 21:00	Dale L. Simmons	2268628
SM 5310 B-2011	08/11/2021			08/23/2021 19:21	Madeline Gruver	2268624
	08/11/2021			08/23/2021 19:34	Madeline Gruver	2268629

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	08/11/2021			08/23/2021 19:47	Madeline Gruver	2268630
	08/11/2021			08/23/2021 20:00	Madeline Gruver	2268631