

Chemical Analysis Report

NE-DIST-2018-05-22-01

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

Event Description: **LSJR Lakes**
Request ID: **RQ-2018-05-07-28**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 08-JUN-2018 10:38

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 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: Silver Lake Center

Collection Date/Time: 05/21/2018 11:20

Field ID: G2NE1132

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1994351	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P345747	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P345929	
		Sulfate	12		mg SO4/L	P345932	
	SM 2120 B	Color (true)	170		PCU	P345757	
	SM 2320 B-97	Total Alkalinity	1.3	I	mg CaCO3/L	P345949	RPD
	SM 2540 C-97	TDS	89		mg/L	P346315	
	SM 2540 D-97	TSS	3	I	mg/L	P346361	
	SM 4500 F-C-97	Fluoride	0.043	I	mg F/L	P345952	
1994355	EPA 350.1 Rev. 2.0	Ammonia-N	0.59		mg N/L	P346250	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P345982	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P345896	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P345814	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P346150	
1994359	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P345742	

Ref. Method and Comment:

SM 2540 D-97: 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.

Sample Location: Clear Lake Center

Collection Date/Time: 05/21/2018 10:25

Field ID: G2NE1134

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1994352	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P345747	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P345929	
		Sulfate	21		mg SO4/L	P345932	
	SM 2120 B	Color (true)	2.5	U	PCU	P345757	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P345949	RPD
	SM 2540 C-97	TDS	60		mg/L	P346315	
	SM 2540 D-97	TSS	3	I	mg/L	P346361	
	SM 4500 F-C-97	Fluoride	0.062	I	mg F/L	P345952	
1994356	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P346250	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.090	I	mg N/L	P345982	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P345896	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P345814	
	SM 5310 B-00	Organic Carbon	1.0		mg C/L	P346150	
1994360	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P345742	

Ref. Method and Comment:

SM 2540 D-97: 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.

Sample Location: Lake Lillie Center

Collection Date/Time: 05/21/2018 09:50

Field ID: G2NE1133

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1994353	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P345748	

Field ID: G2NE1133

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1994353	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P345929	
		Sulfate	21		mg SO4/L	P345932	
	SM 2120 B	Color (true)	47		PCU	P345757	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P345949	RPD
	SM 2540 C-97	TDS	129	A	mg/L	P346315	
	SM 2540 D-97	TSS	3	IA	mg/L	P346361	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P345952	
1994357	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P346252	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P345982	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P345897	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P345814	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P346150	
1994361	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P345742	

Ref. Method and Comment:

SM 2540 D-97: 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.

Sample Location: Lake Lillie Center

Collection Date/Time: 05/21/2018 09:55

Field ID: G2NE1133DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1994354	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P345748	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P345929	
		Sulfate	22		mg SO4/L	P345932	
	SM 2120 B	Color (true)	47	A	PCU	P345758	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P345949	RPD
	SM 2540 C-97	TDS	120	A	mg/L	P346316	
	SM 2540 D-97	TSS	3	IA	mg/L	P346362	
1994358	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P345952	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P346252	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P345982	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P345897	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P345814	
1994362	SM 5310 B-00	Organic Carbon	10		mg C/L	P346151	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P345742	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P345747

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345748

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345929

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345932

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346250

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346252

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345982

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345896

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345897

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345814

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: P345742

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

Reference Method: SM 2120 B
Batch ID: P345757

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P345758

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P345949

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

Reference Method: SM 2540 C-97
Batch ID: P346315

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P346316

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P346361

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P346362

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P345952

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P346150

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P346151

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: P345929

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345932

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346250

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346252

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345982

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345896

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345897

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345897

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: P345814

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345742

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

Reference Method: SM 2320 B-97
Batch ID: P345949

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P345952

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346150

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.7		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P346151

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994190	Chloride	94.6		P	90 - 110
1994354	Chloride	99.6		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994190	Sulfate	93.1		P	90 - 110
1994354	Sulfate	99.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994196	Ammonia-N	98.3	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994357	Ammonia-N	98.3	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345896

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994200	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345897

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994515	NO2NO3-N	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345814

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994199	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994359	O-Phosphate-P	96.7	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P345952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1993994	Fluoride	96.3	94.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1993933	Organic Carbon	96.3	96.4	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P346151

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994358	Organic Carbon	96.1	97.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P345747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994190	Turbidity	7.82	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P345748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994463	Turbidity	2.44	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P345929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994190	Chloride	4.11	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P345932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994190	Sulfate	1.93	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P346250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994196	Ammonia-N	1.39	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P346252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994357	Ammonia-N	0.709	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994424	Kjeldahl Nitrogen	2.47	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345896

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994200	NO2NO3-N	0.593	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994515	NO2NO3-N	1.90	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994199	Total-P	1.51	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994359	O-Phosphate-P	0.619	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P345757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994190	Color (true)	0.470	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P345758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994354	Color (true)	0.920	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P345949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1993994	Total Alkalinity	4.47	Sample	F	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P346315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994353	TDS	3.10	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P346316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994354	TDS	0.830	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P345952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1993994	Fluoride	1.95	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P346150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1993933	Organic Carbon	0.0994	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P346151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994358	Organic Carbon	1.01	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A84061
Included Lab Sample IDs: 1994351, 1994352, 1994353, 1994354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Chloride	100	103	P/P	90 - 110
Sulfate	100	104	P/P	90 - 110
Sulfate	102	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A84081

Included Lab Sample IDs: 1994359, 1994360, 1994361, 1994362

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	99.1	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A84083

Included Lab Sample IDs: 1994351, 1994352, 1994353, 1994354

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

Reference Method: SM 2120 B

Run ID: A84087

Included Lab Sample IDs: 1994351, 1994352, 1994353, 1994354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.9	99.7	P/P	90 - 115
Color (true)	99.1	98.9	P/P	90 - 115
Color (true)	99.7	101	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84142

Included Lab Sample IDs: 1994355, 1994356, 1994357, 1994358

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

Reference Method: SM 2320 B-97

Run ID: A84156

Included Lab Sample IDs: 1994351, 1994352, 1994353, 1994354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.9	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A84156

Included Lab Sample IDs: 1994351, 1994352, 1994353, 1994354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84158

Included Lab Sample IDs: 1994355, 1994356, 1994357, 1994358

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A84243

Included Lab Sample IDs: 1994355, 1994356, 1994357, 1994358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.6	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84250

Included Lab Sample IDs: 1994355, 1994356, 1994357, 1994358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A84298

Included Lab Sample IDs: 1994355, 1994356, 1994357, 1994358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	101	99.9	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					7.82	
	Turbidity					2.44	
EPA 300.0 Rev. 2.1	Chloride	99.8	99.6	94.6		4.11	
	Sulfate	99.6	93.1	99.3		1.93	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.3	100			1.39
	Ammonia-N	105	98.3	99.0			0.709
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109					2.47
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	102	102			0.593
	NO2NO3-N	100	101	103			1.90
EPA 365.1 Rev. 2.0	Total-P	102	101	103			1.51
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.2	96.7	97.3			0.619
SM 2120 B	Color (true)					0.470	
	Color (true)					0.920	
SM 2320 B-97	Total Alkalinity	102				4.47	
SM 2540 C-97	TDS					3.10	
	TDS					0.830	
SM 4500 F-C-97	Fluoride	96.7	96.3	94.2			1.95
SM 5310 B-00	Organic Carbon	94.7	96.3	96.4			0.0994
	Organic Carbon	96.3	96.1	97.6			1.01

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1994351, 1994352, 1994353, 1994354
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1994351, 1994352, 1994353, 1994354
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1994351, 1994352, 1994353, 1994354
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1994355, 1994356, 1994357, 1994358
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1994355, 1994356, 1994357, 1994358
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1994355, 1994356, 1994357, 1994358
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1994355, 1994356, 1994357, 1994358
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1994359, 1994360, 1994361, 1994362
SM 2120 B / E31780	True Color measured at 450 nm	1994351, 1994352, 1994353, 1994354
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1994351, 1994352, 1994353, 1994354
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1994351, 1994352, 1994353, 1994354
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1994351, 1994352, 1994353, 1994354
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1994351, 1994352, 1994353, 1994354
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1994355, 1994356, 1994357, 1994358

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	05/22/2018			05/22/2018 17:24	William L. Brown IV	1994351, 1994352, 1994353, 1994354
EPA 300.0 Rev. 2.1	05/22/2018			05/23/2018 15:07	Lipi Saha	1994354
	05/22/2018			05/23/2018 17:07	Lipi Saha	1994351
	05/22/2018			05/23/2018 17:19	Lipi Saha	1994352
	05/22/2018			05/23/2018 17:30	Lipi Saha	1994353
EPA 350.1 Rev. 2.0	05/22/2018			05/31/2018 13:05	Ping Hua	1994355
	05/22/2018			05/31/2018 13:07	Ping Hua	1994356
	05/22/2018			05/31/2018 13:46	Ping Hua	1994357
	05/22/2018			05/31/2018 13:50	Ping Hua	1994358
EPA 351.2 Rev. 2.0	05/22/2018	05/25/2018 11:00	Adrian Shelby	05/29/2018 17:26	Joseph Suarez	1994355
	05/22/2018	05/25/2018 11:00	Adrian Shelby	05/29/2018 17:27	Joseph Suarez	1994356
	05/22/2018	05/25/2018 11:00	Adrian Shelby	05/29/2018 17:29	Joseph Suarez	1994357
	05/22/2018	05/25/2018 11:00	Adrian Shelby	05/29/2018 17:31	Joseph Suarez	1994358
EPA 353.2 Rev. 2.0	05/22/2018			05/24/2018 11:24	Lauren Bottorf	1994355
	05/22/2018			05/24/2018 11:26	Lauren Bottorf	1994356
	05/22/2018			05/24/2018 11:41	Lauren Bottorf	1994357
	05/22/2018			05/24/2018 11:42	Lauren Bottorf	1994358
EPA 365.1 Rev. 2.0	05/22/2018	05/23/2018 13:05	Sima Feizi	05/25/2018 10:02	Beverly Y. Sanders	1994355
	05/22/2018	05/23/2018 13:05	Sima Feizi	05/25/2018 10:03	Beverly Y. Sanders	1994356
	05/22/2018	05/23/2018 13:05	Sima Feizi	05/25/2018 10:04	Beverly Y. Sanders	1994357
	05/22/2018	05/23/2018 13:05	Sima Feizi	05/25/2018 10:05	Beverly Y. Sanders	1994358
EPA 365.1 Rev. 2.0 dissolved	05/22/2018			05/22/2018 14:53	Megan Treadwell	1994359
	05/22/2018			05/22/2018 15:04	Megan Treadwell	1994360
	05/22/2018			05/22/2018 15:05	Megan Treadwell	1994361
	05/22/2018			05/22/2018 15:06	Megan Treadwell	1994362
SM 2120 B	05/22/2018			05/22/2018 15:05	Tanya Welborn	1994352
	05/22/2018			05/22/2018 15:06	Tanya Welborn	1994353
	05/22/2018			05/22/2018 15:09	Tanya Welborn	1994354
	05/22/2018			05/22/2018 15:24	Tanya Welborn	1994351
SM 2320 B-97	05/22/2018			05/25/2018 07:56	Dale L. Simmons	1994351
	05/22/2018			05/25/2018 08:05	Dale L. Simmons	1994352
	05/22/2018			05/25/2018 08:15	Dale L. Simmons	1994353
	05/22/2018			05/25/2018 08:25	Dale L. Simmons	1994354
SM 2540 C-97	05/22/2018			05/25/2018 16:24	Yijie Li	1994351, 1994352, 1994353, 1994354
SM 2540 D-97	05/22/2018			05/25/2018 16:24	Yijie Li	1994351, 1994352, 1994353, 1994354
SM 4500 F-C-97	05/22/2018			05/25/2018 07:56	Dale L. Simmons	1994351
	05/22/2018			05/25/2018 08:05	Dale L. Simmons	1994352
	05/22/2018			05/25/2018 08:15	Dale L. Simmons	1994353
	05/22/2018			05/25/2018 08:25	Dale L. Simmons	1994354
SM 5310 B-00	05/22/2018			05/29/2018 22:10	Megan Treadwell	1994355

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	05/22/2018			05/29/2018 22:25	Megan Treadwell	1994356
	05/22/2018			05/29/2018 22:39	Megan Treadwell	1994357
	05/22/2018			05/29/2018 23:23	Megan Treadwell	1994358