

Chemical Analysis Report

NE-DIST-2018-09-19-02

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

Event Description: **LSJR Lake**
Request ID: **RQ-2018-09-17-11**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 15-OCT-2018 17:24



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: LAKE LILLIE CENTER

Collection Date/Time: 09/18/2018 10:45

Field ID: G2NE1133

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2026372	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P352021	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P352258	
		Sulfate	18		mg SO4/L	P352261	
	SM 2120 B	Color (true)	42	A	PCU	P351913	
	SM 2320 B-97	Total Alkalinity	26		mg CaCO3/L	P352057	
	SM 2540 C-97	TDS	91		mg/L	P352291	
	SM 2540 D-97	TSS	2	I	mg/L	P352452	
	SM 4500 F-C-97	Fluoride	0.075	I	mg F/L	P352233	
2026376	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P352274	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P352067	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P352209	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P351973	
	SM 5310 B-00	Organic Carbon	9.7		mg C/L	P352196	
2026380	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351917	

Ref. Method and Comment:

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

Sample Location: LAKE COMO, CENTER

Collection Date/Time: 09/18/2018 13:10

Field ID: 20030627

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2026373	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P352021	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P352258	
		Sulfate	9.5		mg SO4/L	P352261	
	SM 2120 B	Color (true)	20		PCU	P351913	
	SM 2320 B-97	Total Alkalinity	1.9	I	mg CaCO3/L	P352057	
	SM 2540 C-97	TDS	63		mg/L	P352291	
	SM 2540 D-97	TSS	2	I	mg/L	P352452	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P352233	
2026377	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P352274	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P352067	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P352209	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P351973	
	SM 5310 B-00	Organic Carbon	5.9		mg C/L	P352196	
2026381	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351917	

Ref. Method and Comment:

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

Sample Location: CLEAR LAKE CENTER

Collection Date/Time: 09/18/2018 11:35

Field ID: G2NE1134

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2026374	EPA 180.1 Rev. 2.0	Turbidity	0.35		NTU	P352022	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P352258	
		Sulfate	17		mg SO4/L	P352261	
	SM 2120 B	Color (true)	2.5	U	PCU	P351913	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P352057	
	SM 2540 C-97	TDS	57		mg/L	P352291	
	SM 2540 D-97	TSS	2	I	mg/L	P352452	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P352233	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P352274	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P352067	
2026378	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P352209	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P351973	
	SM 5310 B-00	Organic Carbon	1.1		mg C/L	P352197	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P351917	
	dissolved						

Ref. Method and Comment:

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

Sample Location: SILVER LAKE CENTER

Collection Date/Time: 09/18/2018 12:15

Field ID: G2NE1132

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2026375	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P352022	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P352258	
		Sulfate	6.8		mg SO4/L	P352261	
	SM 2120 B	Color (true)	420		PCU	P351913	
	SM 2320 B-97	Total Alkalinity	2.0	I	mg CaCO3/L	P352057	
	SM 2540 C-97	TDS	102		mg/L	P352291	
	SM 2540 D-97	TSS	2	I	mg/L	P352452	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P352233	
	EPA 350.1 Rev. 2.0	Ammonia-N	1.0		mg N/L	P352275	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P352067	
2026379	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P352209	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P351973	
	SM 5310 B-00	Organic Carbon	31		mg C/L	P352197	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.023		mg P/L	P351917	
	dissolved						

Ref. Method and Comment:

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

Sample Location: NW ROC DI

Collection Date/Time: 09/18/2018 13:30

Field ID: BLANK 09182018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2026384	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P352022	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P352352	
		Sulfate	0.20	U	mg SO4/L	P352355	
	SM 2120 B	Color (true)	2.5	U	PCU	P351913	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P352057	
	SM 2540 C-97	TDS	15	U	mg/L	P352286	
	SM 2540 D-97	TSS	2	U	mg/L	P352447	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P352233	
2026385	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P352275	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P352067	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P352209	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P351973	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P352197	
2026386	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351917	

Ref. Method and Comment:

SM 2540 D-97: 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: P352021

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352022

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352258

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352261

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352352

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352355

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352274

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352275

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352067

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352209

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351973

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351917

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

Reference Method: SM 2120 B
Batch ID: P351913

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P352057

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

Reference Method: SM 2540 C-97
Batch ID: P352286

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P352291

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P352447

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P352452

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P352233

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P352196

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

Reference Method: SM 5310 B-00
Batch ID: P352197

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: P352258

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352261

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352352

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352355

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352274

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352275

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352067

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352209

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351973

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351917

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

Reference Method: SM 2120 B
Batch ID: P351913

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	95.8		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P352057

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P352233

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352196

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P352197

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352258

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026142	Chloride	98.7		P	90 - 110
2026372	Chloride	98.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026142	Sulfate	97.8		P	90 - 110
2026372	Sulfate	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352352

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026404	Chloride	95.3		P	90 - 110
2026648	Chloride	97.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352355

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026404	Sulfate	95.6		P	90 - 110
2026648	Sulfate	96.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352274

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026289	Ammonia-N	96.4	99.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352275

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026411	Ammonia-N	98.5	96.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352067

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026378	Kjeldahl Nitrogen	102	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026376	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351973

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026378	Total-P	98.3	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351917

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026382	O-Phosphate-P	95.4	95.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P352233

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026507	Fluoride	93.9	95.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026233	Organic Carbon	107		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P352197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026378	Organic Carbon	97.0	97.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352021

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026303	Turbidity	1.34	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026445	Turbidity	5.84	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026142	Chloride	0.761	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026142	Sulfate	0.932	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026404	Chloride	0.192	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026404	Sulfate	0.288	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026289	Ammonia-N	2.69	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352275

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026411	Ammonia-N	1.87	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026378	Kjeldahl Nitrogen	4.12	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026376	NO2NO3-N	0.971	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026378	Total-P	2.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026382	O-Phosphate-P	0.209	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P351913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026372	Color (true)	3.56	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P352057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026507	Total Alkalinity	0.527	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P352286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025718	TDS	3.80	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P352291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026287	TDS	4.73	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P352233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026507	Fluoride	0.972	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P352196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026233	Organic Carbon	0.901	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P352197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026378	Organic Carbon	0.536	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: SM 2120 B

Run ID: A86589

Included Lab Sample IDs: 2026372, 2026373, 2026374, 2026375, 2026384

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.4	98.3	P/P	90 - 115
Color (true)	98.3	97.4	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A86590

Included Lab Sample IDs: 2026380, 2026381, 2026382, 2026383, 2026386

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	99.2	101	P/P	90 - 110
O-Phosphate-P	99.6	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A86621

Included Lab Sample IDs: 2026372, 2026373, 2026374, 2026375, 2026384

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	103	P/P	95 - 105
Turbidity	103	102	P/P	95 - 105

Reference Method: SM 2320 B-97

Run ID: A86635

Included Lab Sample IDs: 2026372, 2026373, 2026374, 2026375, 2026384

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.1	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86653

Included Lab Sample IDs: 2026376, 2026377, 2026378, 2026379, 2026385

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86677

Included Lab Sample IDs: 2026376, 2026377, 2026378, 2026379, 2026385

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	98.4	P/P	90 - 110
Kjeldahl Nitrogen	99.5	97.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A86702

Included Lab Sample IDs: 2026376, 2026377, 2026378, 2026379, 2026385

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	94.8	P/P	90 - 110
Organic Carbon	94.8	95.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86710

Included Lab Sample IDs: 2026376, 2026377, 2026378, 2026379, 2026385

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

Reference Method: SM 4500 F-C-97

Run ID: A86715

Included Lab Sample IDs: 2026372, 2026373, 2026374, 2026375, 2026384

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	98.0	P/P	90 - 110
Fluoride	98.0	97.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A86718

Included Lab Sample IDs: 2026372, 2026373, 2026374, 2026375, 2026384

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Chloride	102	102	P/P	90 - 110
Chloride	99.4	98.2	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	101	102	P/P	90 - 110
Sulfate	99.2	98.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86725

Included Lab Sample IDs: 2026376, 2026377, 2026378, 2026379, 2026385

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	105	P/P	90 - 110
Ammonia-N	101	105	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				1.34	
	Turbidity				5.84	
EPA 300.0 Rev. 2.1	Chloride	100	98.7	98.7	0.761	
	Chloride	99.6	95.3	97.8	0.192	
	Sulfate	98.8	97.8	96.7	0.932	
	Sulfate	98.7	95.6	96.8	0.288	
EPA 350.1 Rev. 2.0	Ammonia-N	97.9	96.4	99.3		2.69
	Ammonia-N	97.6	98.5	96.1		1.87
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	102	97.7		4.12
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	102	104		0.971
EPA 365.1 Rev. 2.0	Total-P	99.8	98.3	100		2.19
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	95.4	95.6		0.209
SM 2120 B	Color (true)	95.8			3.56	
SM 2320 B-97	Total Alkalinity	103			0.527	
SM 2540 C-97	TDS				3.80	
	TDS				4.73	
SM 4500 F-C-97	Fluoride	95.6	93.9	95.7		0.972
SM 5310 B-00	Organic Carbon	98.4	107			0.901
	Organic Carbon	97.6	97.0	97.6		0.536

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2026372, 2026373, 2026374, 2026375, 2026384
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2026372, 2026373, 2026374, 2026375, 2026384
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2026372, 2026373, 2026374, 2026375, 2026384
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2026376, 2026377, 2026378, 2026379, 2026385
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2026376, 2026377, 2026378, 2026379, 2026385
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2026376, 2026377, 2026378, 2026379, 2026385
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2026376, 2026377, 2026378, 2026379, 2026385
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2026380, 2026381, 2026382, 2026383, 2026386
SM 2120 B / E31780	True Color measured at 450 nm	2026372, 2026373, 2026374, 2026375, 2026384
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2026372, 2026373, 2026374, 2026375, 2026384
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2026372, 2026373, 2026374, 2026375, 2026384
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2026372, 2026373, 2026374, 2026375, 2026384
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2026372, 2026373, 2026374, 2026375, 2026384
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2026376, 2026377, 2026378, 2026379, 2026385

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	09/19/2018			09/19/2018 14:56	Megan Treadwell	2026372, 2026373, 2026374, 2026375, 2026384
EPA 300.0 Rev. 2.1	09/19/2018			09/26/2018 05:26	Lipi Saha	2026372
	09/19/2018			09/26/2018 09:03	Lipi Saha	2026373
	09/19/2018			09/26/2018 09:39	Lipi Saha	2026374
	09/19/2018			09/26/2018 09:51	Lipi Saha	2026375
EPA 350.1 Rev. 2.0	09/19/2018			09/26/2018 16:17	Lipi Saha	2026384
	09/19/2018			09/24/2018 11:41	Ping Hua	2026376
	09/19/2018			09/24/2018 11:43	Ping Hua	2026377
	09/19/2018			09/24/2018 11:44	Ping Hua	2026378
EPA 351.2 Rev. 2.0	09/19/2018			09/24/2018 13:52	Ping Hua	2026379
	09/19/2018			09/24/2018 13:57	Ping Hua	2026385
	09/19/2018	09/21/2018 09:50	Adrian Shelby	09/24/2018 12:47	Joseph Suarez	2026376
	09/19/2018	09/21/2018 09:50	Adrian Shelby	09/24/2018 12:48	Joseph Suarez	2026377
EPA 353.2 Rev. 2.0	09/19/2018	09/21/2018 09:50	Adrian Shelby	09/24/2018 12:50	Joseph Suarez	2026378
	09/19/2018	09/21/2018 09:50	Adrian Shelby	09/24/2018 12:58	Joseph Suarez	2026379
	09/19/2018	09/21/2018 09:50	Adrian Shelby	09/24/2018 12:59	Joseph Suarez	2026385
	09/19/2018			09/25/2018 13:05	Lauren Bottorf	2026376
EPA 365.1 Rev. 2.0	09/19/2018			09/25/2018 13:11	Lauren Bottorf	2026385
	09/19/2018			09/25/2018 13:13	Lauren Bottorf	2026377
	09/19/2018			09/25/2018 13:14	Lauren Bottorf	2026378
	09/19/2018			09/25/2018 13:15	Lauren Bottorf	2026379
EPA 365.1 Rev. 2.0 dissolved	09/19/2018	09/20/2018 13:10	Sima Feizi	09/21/2018 15:23	Beverly Y. Sanders	2026385
	09/19/2018	09/20/2018 13:10	Sima Feizi	09/21/2018 15:24	Beverly Y. Sanders	2026376
	09/19/2018	09/20/2018 13:10	Sima Feizi	09/21/2018 15:25	Beverly Y. Sanders	2026377
	09/19/2018	09/20/2018 13:10	Sima Feizi	09/21/2018 15:26	Beverly Y. Sanders	2026378
SM 2120 B	09/19/2018	09/20/2018 13:10	Sima Feizi	09/21/2018 15:27	Beverly Y. Sanders	2026379
	09/19/2018			09/19/2018 14:36	Julia Storbeck	2026382
	09/19/2018			09/19/2018 14:48	Julia Storbeck	2026383
	09/19/2018			09/19/2018 14:56	Julia Storbeck	2026386
SM 2320 B-97	09/19/2018			09/19/2018 15:03	Julia Storbeck	2026380
	09/19/2018			09/19/2018 15:11	Julia Storbeck	2026381
	09/19/2018			09/19/2018 15:16	DeAsia Armster	2026372, 2026373
	09/19/2018			09/19/2018 15:17	DeAsia Armster	2026374
	09/19/2018			09/19/2018 15:19	DeAsia Armster	2026384
	09/19/2018			09/19/2018 15:33	DeAsia Armster	2026375
	09/19/2018			09/20/2018 23:32	Dale L. Simmons	2026372
	09/19/2018			09/20/2018 23:43	Dale L. Simmons	2026373
	09/19/2018			09/20/2018 23:51	Dale L. Simmons	2026374
	09/19/2018			09/21/2018 00:01	Dale L. Simmons	2026375

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	09/19/2018			09/21/2018 00:13	Dale L. Simmons	2026384
SM 2540 C-97	09/19/2018			09/21/2018 16:15	Yijie Li	2026372, 2026373, 2026374, 2026375, 2026384
SM 2540 D-97	09/19/2018			09/21/2018 16:15	Yijie Li	2026372, 2026373, 2026374, 2026375, 2026384
SM 4500 F-C-97	09/19/2018			09/25/2018 22:45	Dale L. Simmons	2026372
	09/19/2018			09/25/2018 22:59	Dale L. Simmons	2026373
	09/19/2018			09/25/2018 23:05	Dale L. Simmons	2026374
	09/19/2018			09/25/2018 23:10	Dale L. Simmons	2026375
	09/19/2018			09/25/2018 23:15	Dale L. Simmons	2026384
SM 5310 B-00	09/19/2018			09/24/2018 20:02	Megan Treadwell	2026376
	09/19/2018			09/24/2018 20:15	Megan Treadwell	2026377
	09/19/2018			09/24/2018 20:56	Megan Treadwell	2026378
	09/19/2018			09/24/2018 22:31	Megan Treadwell	2026379
	09/19/2018			09/24/2018 22:44	Megan Treadwell	2026385