

Chemical Analysis Report

NE-DIST-2018-01-12-01

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-2018-01-08-26**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
NE ROC
8800 Baymeadows Way W
Suite 100
Jacksonville, FL 32256-7577
Attn: Nicole Frederick

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 02-FEB-2018 09:46



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: 01/11/2018 10:40

Field ID: G2NE1133

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1959123	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P338188	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P338416	
		Sulfate	22		mg SO4/L	P338418	
	SM 2120 B	Color (true)	66	A	PCU	P338185	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P338673	
	SM 2540 C-97	TDS	109	A	mg/L	P338502	
	SM 2540 D-97	TSS	3	IA	mg/L	P338622	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P338677	
1959128	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P338537	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P338330	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P338335	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P338265	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P338324	
1959133	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338183	

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: 01/11/2018 12:45

Field ID: G2NE1132

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1959124	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P338188	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P338416	
		Sulfate	12		mg SO4/L	P338418	
	SM 2120 B	Color (true)	110		PCU	P338185	
	SM 2320 B-97	Total Alkalinity	1.5	I	mg CaCO3/L	P338673	
	SM 2540 C-97	TDS	80		mg/L	P338502	
	SM 2540 D-97	TSS	2	I	mg/L	P338622	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P338677	
1959129	EPA 350.1 Rev. 2.0	Ammonia-N	0.50		mg N/L	P338537	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P338330	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.043		mg N/L	P338335	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P338265	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P338324	
1959134	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338183	

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

Collection Date/Time: 01/11/2018 14:10

Field ID: 20030627

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1959125	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P338189	
	EPA 300.0 Rev. 2.1	Chloride	16	A	mg Cl/L	P338416	
		Sulfate	12	A	mg SO4/L	P338418	

Field ID: 20030627

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1959125	SM 2120 B	Color (true)	7.6		PCU	P338185	
	SM 2320 B-97	Total Alkalinity	0.79	I	mg CaCO3/L	P338673	
	SM 2540 C-97	TDS	56		mg/L	P338502	
	SM 2540 D-97	TSS	2	I	mg/L	P338622	
	SM 4500 F-C-97	Fluoride	0.035	I	mg F/L	P338677	
1959130	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P338537	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P338330	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P338335	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P338268	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P338324	
1959135	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338183	

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

Collection Date/Time: 01/11/2018 11:50

Field ID: G2NE1134

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1959126	EPA 180.1 Rev. 2.0	Turbidity	0.20		NTU	P338188	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P338416	
		Sulfate	20		mg SO4/L	P338418	
	SM 2120 B	Color (true)	2.5	U	PCU	P338185	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P338673	
	SM 2540 C-97	TDS	57		mg/L	P338502	
	SM 2540 D-97	TSS	2	I	mg/L	P338622	
	SM 4500 F-C-97	Fluoride	0.055	I	mg F/L	P338677	
1959131	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P338537	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20		mg N/L	P338330	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P338335	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P338268	
	SM 5310 B-00	Organic Carbon	1.5		mg C/L	P338324	
1959136	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338183	

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: Field Blank

Collection Date/Time: 01/11/2018 11:05

Field ID: 123456

Matrix: DI-WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1959127	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P338188	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P338416	
		Sulfate	0.20	U	mg SO4/L	P338418	
	SM 2120 B	Color (true)	2.5	U	PCU	P338185	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P338673	
	SM 2540 C-97	TDS	15	U	mg/L	P338502	
	SM 2540 D-97	TSS	2	U	mg/L	P338622	

Field ID: 123456

Matrix: DI-WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1959127	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P338677	
1959132	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P338539	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P338332	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P338335	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P338268	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P338466	
1959137	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338183	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: The result was confirmed on 1/19/2018.

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: P338188

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P338189

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P338416

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P338418

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P338537

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P338539

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338330

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338332

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338335

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338265

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338268

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338183

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

Reference Method: SM 2120 B
Batch ID: P338185

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P338673

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

Reference Method: SM 2540 C-97
Batch ID: P338502

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P338622

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P338677

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P338324

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

Reference Method: SM 5310 B-00
Batch ID: P338466

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: P338416

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338418

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338537

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338539

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338330

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
-----------	---------	---------	-----------	----------------

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338330

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: P338332

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: P338335

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338265

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338268

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338183

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.5		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P338673

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.8		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P338677

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P338324

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.9		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P338466

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338416

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958884	Chloride	92.4		P	90 - 110
1959125	Chloride	95.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338418

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958884	Sulfate	91.4		P	90 - 110
1959125	Sulfate	92.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958885	Ammonia-N	98.1	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959164	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338330

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958848	Kjeldahl Nitrogen	104	92.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959128	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958885	Total-P	99.0	98.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338268

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959131	Total-P	94.0	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338183

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959133	O-Phosphate-P	97.2	96.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P338677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959526	Fluoride	95.7	95.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P338324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958648	Organic Carbon	94.2	94.1	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P338466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959164	Organic Carbon	108		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P338188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959148	Turbidity	6.09	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P338189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959161	Turbidity	10.2	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959125	Chloride	0.847	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959125	Sulfate	1.41	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958885	Ammonia-N	1.13	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959164	Ammonia-N	0.646	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958848	Kjeldahl Nitrogen	8.44	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959152	Kjeldahl Nitrogen	2.17	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959128	NO2NO3-N	0.412	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958885	Total-P	0.138	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959131	Total-P	8.21	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959133	O-Phosphate-P	0.930	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P338185

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959123	Color (true)	5.47	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P338673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959526	Total Alkalinity	0.728	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P338502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959123	TDS	9.17	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P338677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959526	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P338324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958648	Organic Carbon	0.101	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P338466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959164	Organic Carbon	0.411	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A81442

Included Lab Sample IDs: 1959133, 1959134, 1959135, 1959136, 1959137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.4	96.4	P/P	90 - 110
O-Phosphate-P	98.5	96.4	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A81443

Included Lab Sample IDs: 1959123, 1959124, 1959125, 1959126, 1959127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.5	102	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A81444

Included Lab Sample IDs: 1959123, 1959124, 1959125, 1959126, 1959127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.5	P/P	95 - 105
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A81480

Included Lab Sample IDs: 1959128, 1959129, 1959130, 1959131

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.6	94.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81486

Included Lab Sample IDs: 1959128, 1959129, 1959130, 1959131, 1959132

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A81524

Included Lab Sample IDs: 1959123, 1959124, 1959125, 1959126, 1959127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Chloride	102	105	P/P	90 - 110
Chloride	105	100	P/P	90 - 110
Sulfate	103	99.2	P/P	90 - 110
Sulfate	105	97.0	P/P	90 - 110
Sulfate	99.2	105	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A81540

Included Lab Sample IDs: 1959132

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	96.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81547

Included Lab Sample IDs: 1959130, 1959131, 1959132

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81550

Included Lab Sample IDs: 1959128, 1959129, 1959130, 1959131, 1959132

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	105	P/P	90 - 110
Kjeldahl Nitrogen	108	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81552

Included Lab Sample IDs: 1959128, 1959129

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81570

Included Lab Sample IDs: 1959128, 1959129, 1959130, 1959131, 1959132

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

Reference Method: SM 2320 B-97

Run ID: A81614

Included Lab Sample IDs: 1959123, 1959124, 1959125, 1959126, 1959127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.9	97.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A81614

Included Lab Sample IDs: 1959123, 1959124, 1959125, 1959126, 1959127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	99.5	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				6.09	
	Turbidity				10.2	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 300.0 Rev. 2.1	Chloride	96.7	95.0	92.4	0.847	
	Sulfate	94.0	92.7	91.4	1.41	
EPA 350.1 Rev. 2.0	Ammonia-N	101	98.1	99.5		1.13
	Ammonia-N	99.9	101	103		0.646
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	104	92.6		8.44
	Kjeldahl Nitrogen	109				2.17
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	104	104		0.412
EPA 365.1 Rev. 2.0	Total-P	98.1	99.0	98.8		0.138
	Total-P	98.7	94.0	102		8.21
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.5	97.2	96.3		0.930
SM 2120 B	Color (true)				5.47	
SM 2320 B-97	Total Alkalinity	98.8			0.728	
SM 2540 C-97	TDS				9.17	
SM 4500 F-C-97	Fluoride	94.6	95.7	95.7		0.0
SM 5310 B-00	Organic Carbon	94.9	94.2	94.1		0.101
	Organic Carbon	95.0	108			0.411

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1959123, 1959124, 1959125, 1959126, 1959127
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1959123, 1959124, 1959125, 1959126, 1959127
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1959123, 1959124, 1959125, 1959126, 1959127
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1959128, 1959129, 1959130, 1959131, 1959132
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1959128, 1959129, 1959130, 1959131, 1959132
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1959128, 1959129, 1959130, 1959131, 1959132
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1959128, 1959129, 1959130, 1959131, 1959132
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1959133, 1959134, 1959135, 1959136, 1959137
SM 2120 B / E31780	True Color measured at 450 nm	1959123, 1959124, 1959125, 1959126, 1959127
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1959123, 1959124, 1959125, 1959126, 1959127
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1959123, 1959124, 1959125, 1959126, 1959127
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1959123, 1959124, 1959125, 1959126, 1959127
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1959123, 1959124, 1959125, 1959126, 1959127
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1959128, 1959129, 1959130, 1959131, 1959132

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	01/12/2018			01/12/2018 16:49	Tanya Welborn	1959123, 1959124, 1959125, 1959126, 1959127
EPA 300.0 Rev. 2.1	01/12/2018			01/17/2018	Julia Storbeck	1959123, 1959124, 1959125, 1959126, 1959127
EPA 350.1 Rev. 2.0	01/12/2018			01/19/2018	Sofia Elnemr	1959128, 1959129, 1959130, 1959131, 1959132
EPA 351.2 Rev. 2.0	01/12/2018	01/17/2018	Adrian Shelby	01/19/2018	Joseph Suarez	1959128, 1959129, 1959130, 1959131, 1959132
EPA 353.2 Rev. 2.0	01/12/2018			01/17/2018	Beverly Y. Sanders	1959128, 1959129, 1959130, 1959131, 1959132
EPA 365.1 Rev. 2.0	01/12/2018	01/16/2018	Sima Feizi	01/18/2018	Lipi Saha	1959130, 1959131, 1959132
	01/12/2018	01/16/2018	Sima Feizi	01/19/2018	Lipi Saha	1959128, 1959129
EPA 365.1 Rev. 2.0 dissolved	01/12/2018			01/12/2018 14:36	Megan Treadwell	1959133
	01/12/2018			01/12/2018 14:47	Megan Treadwell	1959134
	01/12/2018			01/12/2018 14:48	Megan Treadwell	1959135
	01/12/2018			01/12/2018 14:49	Megan Treadwell	1959136
	01/12/2018			01/12/2018 14:50	Megan Treadwell	1959137
SM 2120 B	01/12/2018			01/12/2018 15:36	Tanya Welborn	1959123, 1959124
	01/12/2018			01/12/2018 15:37	Tanya Welborn	1959125
	01/12/2018			01/12/2018 15:38	Tanya Welborn	1959126
	01/12/2018			01/12/2018 15:39	Tanya Welborn	1959127
SM 2320 B-97	01/12/2018			01/23/2018	Dale L. Simmons	1959123, 1959124, 1959125, 1959126, 1959127
SM 2540 C-97	01/12/2018			01/17/2018	Yijie Li	1959123, 1959124, 1959125, 1959126, 1959127
SM 2540 D-97	01/12/2018			01/17/2018	Yijie Li	1959123, 1959124, 1959125, 1959126, 1959127
SM 4500 F-C-97	01/12/2018			01/23/2018	Dale L. Simmons	1959123, 1959124, 1959125, 1959126, 1959127
SM 5310 B-00	01/12/2018			01/17/2018	Megan Treadwell	1959128, 1959129, 1959130, 1959131
	01/12/2018			01/18/2018	Megan Treadwell	1959132