

Chemical Analysis Report

NE-DIST-2017-06-15-01

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-2017-06-12-17**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

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: Liang Lin, Environmental Administrator

Date Certified: 07-JUL-2017 11:39

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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 COMO CENTER

Collection Date/Time: 06/14/2017 09:40

Field ID: G2NE0634 06142016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906485	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P326895	
	EPA 300.0 Rev. 2.1	Chloride	21	A	mg Cl/L	P327214	
		Sulfate	15	A	mg SO4/L	P327216	
	SM 2120 B	Color (true)	5.5	I	PCU	P326904	
	SM 2320 B-97	Total Alkalinity	1.3	I	mg CaCO3/L	P327450	
	SM 2540 C-97	TDS	73		mg/L	P327518	
	SM 2540 D-97	TSS	2	U	mg/L	P327247	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P327454	
1906489	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P326986	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P327012	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327219	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P326981	
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P327021	
1906493	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326937	

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: 06/14/2017 10:25

Field ID: G2NE1132 06142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906486	EPA 180.1 Rev. 2.0	Turbidity	1.9	A	NTU	P326896	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P327214	
		Sulfate	9.6		mg SO4/L	P327216	
	SM 2120 B	Color (true)	31	A	PCU	P326904	
	SM 2320 B-97	Total Alkalinity	3.2		mg CaCO3/L	P327450	
	SM 2540 C-97	TDS	76		mg/L	P327518	
	SM 2540 D-97	TSS	3	I	mg/L	P327247	
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P327454	
1906490	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P326986	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P327012	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327219	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P326981	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P327446	
1906494	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326937	

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: 06/14/2017 11:05

Field ID: G2NE1134 06142016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906487	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P326896	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P327214	
		Sulfate	31		mg SO4/L	P327216	

Field ID: G2NE1134 06142016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906487	SM 2120 B	Color (true)	2.5	U	PCU	P326904	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P327450	
	SM 2540 C-97	TDS	112		mg/L	P327518	
	SM 2540 D-97	TSS	2	U	mg/L	P327247	
	SM 4500 F-C-97	Fluoride	0.071	I	mg F/L	P327454	
1906491	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P326986	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P327012	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327219	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P326981	
	SM 5310 B-00	Organic Carbon	1.1		mg C/L	P327446	
1906495	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P326937	

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 LILLIE CENTER

Collection Date/Time: 06/14/2017 11:35

Field ID: G2NE1133 06142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906488	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P326896	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P327214	
		Sulfate	32		mg SO4/L	P327216	
	SM 2120 B	Color (true)	17		PCU	P326904	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P327450	
	SM 2540 C-97	TDS	150		mg/L	P327518	
	SM 2540 D-97	TSS	2	U	mg/L	P327247	
	SM 4500 F-C-97	Fluoride	0.089	I	mg F/L	P327454	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P326986	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P327012	
1906492	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327220	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P326981	
	SM 5310 B-00	Organic Carbon	8.3		mg C/L	P327446	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326937	

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: P326895

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P326896

Component	Result	Code	Units
-----------	--------	------	-------

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P326896

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327214

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327216

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326986

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327012

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327219

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327220

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326981

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326937

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P326904

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P327450

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

Reference Method: SM 2540 C-97
Batch ID: P327518

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P327247

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P327454

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P327021

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

Reference Method: SM 5310 B-00
Batch ID: P327446

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: P327214

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327216

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327216

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326986

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327012

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327219

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327220

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326981

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: P326937

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.8		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P327450

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P327454

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P327021

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P327446

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906485	Chloride	100		P	90 - 110
1906580	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906485	Sulfate	97.5		P	90 - 110
1906580	Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906452	Ammonia-N	96.8	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327012

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906492	Kjeldahl Nitrogen	98.1	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327219

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906490	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327220

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906515	NO2NO3-N	103	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P326981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906491	Total-P	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P326937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906493	O-Phosphate-P	95.6	95.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P327454

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906739	Fluoride	97.0	95.9	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P327021

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906017	Organic Carbon	91.2	91.4	P/P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P327446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906491	Organic Carbon	95.5	96.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P326895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906401	Turbidity	1.27	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P326896

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906486	Turbidity	1.57	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P327214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906485	Chloride	1.78	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906485	Sulfate	1.77	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906452	Ammonia-N	0.391	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906492	Kjeldahl Nitrogen	0.477	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906490	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906515	NO2NO3-N	0.380	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906491	Total-P	0.0737	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906493	O-Phosphate-P	0.419	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P326904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906486	Color (true)	4.91	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P327450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906739	Total Alkalinity	0.0455	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P327518

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906446	TDS	0.449	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P327454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906739	Fluoride	1.04	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P327021

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906017	Organic Carbon	0.191	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P327446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906491	Organic Carbon	0.939	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 180.1 Rev. 2.0
Run ID: A77118
Included Lab Sample IDs: 1906485, 1906486, 1906487, 1906488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.0	P/P	95 - 105
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A77120
Included Lab Sample IDs: 1906485, 1906486, 1906487, 1906488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.8	98.1	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A77126

Included Lab Sample IDs: 1906493, 1906494, 1906495, 1906496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.3	P/P	90 - 110
O-Phosphate-P	99.3	96.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77147

Included Lab Sample IDs: 1906489, 1906490, 1906491, 1906492

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.5	P/P	90 - 110
Ammonia-N	100	98.4	P/P	90 - 110
Ammonia-N	99.7	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77157

Included Lab Sample IDs: 1906489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.5	90.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77182

Included Lab Sample IDs: 1906489, 1906490, 1906491, 1906492

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	98.5	P/P	90 - 110
Total-P	99.8	99.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A77183

Included Lab Sample IDs: 1906485, 1906486, 1906487, 1906488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	100	P/P	90 - 110
Chloride	99.6	103	P/P	90 - 110
Sulfate	103	106	P/P	90 - 110
Sulfate	98.1	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77212

Included Lab Sample IDs: 1906489, 1906490, 1906491, 1906492

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	95.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77227

Included Lab Sample IDs: 1906489, 1906490, 1906491, 1906492

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A77329

Included Lab Sample IDs: 1906485, 1906486, 1906487, 1906488

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

Reference Method: SM 4500 F-C-97

Run ID: A77329

Included Lab Sample IDs: 1906485, 1906486, 1906487, 1906488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	97.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77330

Included Lab Sample IDs: 1906490, 1906491, 1906492

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	95.9	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				1.27	
	Turbidity				1.57	
EPA 300.0 Rev. 2.1	Chloride	101	100 99.3		1.78	
	Sulfate	100	97.5 97.6		1.77	
EPA 350.1 Rev. 2.0	Ammonia-N	104	96.8 97.2			0.391
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	98.1 98.8			0.477
EPA 353.2 Rev. 2.0	NO2NO3-N	102	104 104			0.482
	NO2NO3-N	103	103 103			0.380
EPA 365.1 Rev. 2.0	Total-P	102	100 100			0.0737
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	95.6 95.2			0.419
SM 2120 B	Color (true)				4.91	
SM 2320 B-97	Total Alkalinity	103			0.0455	
SM 2540 C-97	TDS				0.449	
SM 4500 F-C-97	Fluoride	96.1	97.0 95.9			1.04
SM 5310 B-00	Organic Carbon	92.4	91.2 91.4			0.191
	Organic Carbon	97.0	95.5 96.4			0.939

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1906485, 1906486, 1906487, 1906488
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1906485, 1906486, 1906487, 1906488

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1906485, 1906486, 1906487, 1906488
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1906489, 1906490, 1906491, 1906492
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1906489, 1906490, 1906491, 1906492
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1906489, 1906490, 1906491, 1906492
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1906489, 1906490, 1906491, 1906492
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1906493, 1906494, 1906495, 1906496
SM 2120 B / E31780	True Color measured at 450 nm	1906485, 1906486, 1906487, 1906488
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1906485, 1906486, 1906487, 1906488
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1906485, 1906486, 1906487, 1906488
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1906485, 1906486, 1906487, 1906488
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1906485, 1906486, 1906487, 1906488
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1906489, 1906490, 1906491, 1906492

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	06/15/2017			06/15/2017 15:04	Sima Feizi	1906485, 1906486, 1906487, 1906488
EPA 300.0 Rev. 2.1	06/15/2017			06/20/2017	Julia Storbeck	1906485, 1906486, 1906487, 1906488
EPA 350.1 Rev. 2.0	06/15/2017			06/16/2017	Sofia Elnemr	1906489, 1906490, 1906491, 1906492
EPA 351.2 Rev. 2.0	06/15/2017	06/19/2017	Adrian Shelby	06/20/2017	Tanya Welborn	1906489, 1906490, 1906491, 1906492
EPA 353.2 Rev. 2.0	06/15/2017			06/21/2017	Beverly Y. Sanders	1906489, 1906490, 1906491, 1906492
EPA 365.1 Rev. 2.0	06/15/2017	06/16/2017	Vijayalakshmi Reddy	06/19/2017	Lipi Saha	1906489, 1906490, 1906491, 1906492
EPA 365.1 Rev. 2.0 dissolved	06/15/2017			06/15/2017 15:38	Anthony C. Onicha	1906493
	06/15/2017			06/15/2017 15:53	Anthony C. Onicha	1906494
	06/15/2017			06/15/2017 15:54	Anthony C. Onicha	1906495
	06/15/2017			06/15/2017 15:55	Anthony C. Onicha	1906496
SM 2120 B	06/15/2017			06/15/2017 15:31	Tanya Welborn	1906485
	06/15/2017			06/15/2017 15:33	Tanya Welborn	1906486
	06/15/2017			06/15/2017 15:34	Tanya Welborn	1906487, 1906488
SM 2320 B-97	06/15/2017			06/24/2017	Dale L. Simmons	1906485, 1906486, 1906487, 1906488
SM 2540 C-97	06/15/2017			06/19/2017	Sima Feizi	1906485, 1906486, 1906487, 1906488
SM 2540 D-97	06/15/2017			06/19/2017	Sima Feizi	1906485, 1906486, 1906487, 1906488
SM 4500 F-C-97	06/15/2017			06/24/2017	Dale L. Simmons	1906485, 1906486, 1906487, 1906488
SM 5310 B-00	06/15/2017			06/16/2017	Ping Hua	1906489
	06/15/2017			06/23/2017	Sofia Elnemr	1906490, 1906491, 1906492