

Chemical Analysis Report

CEN-DIST-2018-08-14-03

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

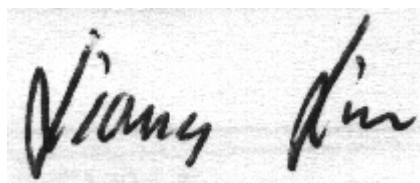
Event Description: **Starke + D&B**
Request ID: **RQ-2018-07-30-37**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 30-AUG-2018 17:19

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 PARK @ CENTER

Collection Date/Time: 08/13/2018 10:06

Field ID: G2CE0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016901	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P350099	
	EPA 300.0 Rev. 2.1	Chloride	11	A	mg Cl/L	P350417	
		Sulfate	10	A	mg SO4/L	P350419	
	SM 2120 B	Color (true)	16		PCU	P350089	
	SM 2320 B-97	Total Alkalinity	63		mg CaCO3/L	P350185	
	SM 2540 C-97	TDS	103		mg/L	P350516	
	SM 2540 D-97	TSS	4	I	mg/L	P350399	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P350188	
2016903	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P350443	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97		mg N/L	P350204	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P350363	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P350435	
	SM 5310 B-00	Organic Carbon	6.3		mg C/L	P350387	
2016905	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350090	

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 LOTTA AT CENTER OF SOUTHERN LOBE

Collection Date/Time: 08/13/2018 11:03

Field ID: G2CE0093

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016902	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P350099	
	EPA 300.0 Rev. 2.1	Chloride	8.0		mg Cl/L	P350417	
		Sulfate	6.1		mg SO4/L	P350419	
	SM 2120 B	Color (true)	90		PCU	P350089	
	SM 2320 B-97	Total Alkalinity	54		mg CaCO3/L	P350185	
	SM 2540 C-97	TDS	108		mg/L	P350516	
	SM 2540 D-97	TSS	5	I	mg/L	P350399	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P350188	
2016904	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P350444	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P350204	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P350363	
	EPA 365.1 Rev. 2.0	Total-P	0.077		mg P/L	P350435	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P350387	
2016906	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P350090	

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 LOTTA AT CENTER OF SOUTHERN LOBE

Collection Date/Time: 08/13/2018 11:09

Field ID: G2CE0093_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016907	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P350099	
	EPA 300.0 Rev. 2.1	Chloride	8.0		mg Cl/L	P350417	
		Sulfate	6.0		mg SO4/L	P350419	
	SM 2120 B	Color (true)	92		PCU	P350089	
	SM 2320 B-97	Total Alkalinity	54		mg CaCO3/L	P350185	
	SM 2540 C-97	TDS	105		mg/L	P350516	
	SM 2540 D-97	TSS	4	I	mg/L	P350399	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P350188	
2016908	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P350444	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P350204	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P350363	
	EPA 365.1 Rev. 2.0	Total-P	0.088		mg P/L	P350435	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P350387	
2016909	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P350090	

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: 08/13/2018 13:40

Field ID: BLANK_08132018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016910	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P350099	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P350417	
		Sulfate	0.20	U	mg SO4/L	P350419	
	SM 2120 B	Color (true)	2.5	U	PCU	P350089	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P350185	
	SM 2540 C-97	TDS	15	U	mg/L	P350512	
	SM 2540 D-97	TSS	2	U	mg/L	P350395	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P350188	
2016911	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P350444	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P350204	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P350364	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P350435	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P350387	
2016912	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350090	

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: P350099

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350417

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350419

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350443

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350444

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350204

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350363

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: P350364

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: P350435

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: P350090

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

Reference Method: SM 2120 B
Batch ID: P350089

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P350185

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

Reference Method: SM 2540 C-97
Batch ID: P350512

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P350516

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P350395

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P350399

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P350188

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P350387

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: P350417

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	92.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P350419

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	93.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P350443

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P350444

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P350204

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P350363

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: P350364

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: P350435

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P350090

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P350089

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.0		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P350185

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

Reference Method: SM 4500 F-C-97
Batch ID: P350188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P350387

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350417

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016901	Chloride	95.4		P	90 - 110
2017001	Chloride	96.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350419

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016901	Sulfate	93.9		P	90 - 110
2017001	Sulfate	94.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016828	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016940	Ammonia-N	97.9	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350204

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016943	Kjeldahl Nitrogen	95.4	95.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016830	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350364

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016920	NO2NO3-N	96.0	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016903	Total-P	98.3	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350090

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016905	O-Phosphate-P	97.5	97.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P350188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016825	Fluoride	104	103	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P350387

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017059	Organic Carbon	101	96.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016945	Turbidity	3.24	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016901	Chloride	2.92	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016901	Sulfate	3.16	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016828	Ammonia-N	0.718	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016940	Ammonia-N	0.489	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016943	Kjeldahl Nitrogen	0.213	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016830	NO2NO3-N	0.496	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016920	NO2NO3-N	0.299	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016903	Total-P	1.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016905	O-Phosphate-P	0.103	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P350089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016893	Color (true)	0.106	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P350185

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016825	Total Alkalinity	0.331	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P350512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016130	TDS	3.46	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P350516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016862	TDS	3.15	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P350188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016825	Fluoride	0.479	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P350387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017059	Organic Carbon	2.58	Spike	P	0 - 20

Quality Assurance Report

Precision

* 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: A85845

Included Lab Sample IDs: 2016901, 2016902, 2016907, 2016910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.4	99.8	P/P	90 - 110
Chloride	99.8	101	P/P	90 - 110
Sulfate	96.8	98.8	P/P	90 - 110
Sulfate	98.8	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A85864

Included Lab Sample IDs: 2016905, 2016906, 2016909, 2016912

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.6	P/P	90 - 110
O-Phosphate-P	99.7	100	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A85865

Included Lab Sample IDs: 2016901, 2016902, 2016907, 2016910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.5	98.4	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A85866

Included Lab Sample IDs: 2016901, 2016902, 2016907, 2016910

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

Reference Method: SM 2320 B-97

Run ID: A85905

Included Lab Sample IDs: 2016901, 2016902, 2016907, 2016910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A85905

Included Lab Sample IDs: 2016901, 2016902, 2016907, 2016910

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A85973

Included Lab Sample IDs: 2016903, 2016904, 2016908, 2016911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110
NO2NO3-N	99.5	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A85977

Included Lab Sample IDs: 2016903, 2016904, 2016908, 2016911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	97.0	P/P	90 - 110
Organic Carbon	95.8	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85982

Included Lab Sample IDs: 2016903, 2016904, 2016908, 2016911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.6	97.6	P/P	90 - 110
Kjeldahl Nitrogen	97.6	94.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86004

Included Lab Sample IDs: 2016903, 2016904, 2016908, 2016911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.5	P/P	90 - 110
Ammonia-N	99.5	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86021

Included Lab Sample IDs: 2016904, 2016908

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86028

Included Lab Sample IDs: 2016903, 2016911

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

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

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	
						SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					3.24	
EPA 300.0 Rev. 2.1	Chloride	92.9	95.4	96.0		2.92	
	Sulfate	93.0	93.9	94.9		3.16	
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	100	101			0.718
	Ammonia-N	99.0	97.9	97.2			0.489
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	95.4	95.7			0.213
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	101	100			0.496
	NO2NO3-N	100	96.0	95.5			0.299
EPA 365.1 Rev. 2.0	Total-P	97.2	98.3	97.1			1.10
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	97.5	97.4			0.103
SM 2120 B	Color (true)	98.0				0.106	
SM 2320 B-97	Total Alkalinity	103				0.331	
SM 2540 C-97	TDS					3.46	
	TDS					3.15	
SM 4500 F-C-97	Fluoride	98.5	104	103			0.479
SM 5310 B-00	Organic Carbon	96.2	101	96.9			2.58

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2016901, 2016902, 2016907, 2016910
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2016901, 2016902, 2016907, 2016910
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2016901, 2016902, 2016907, 2016910
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2016903, 2016904, 2016908, 2016911
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2016903, 2016904, 2016908, 2016911
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2016903, 2016904, 2016908, 2016911
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2016903, 2016904, 2016908, 2016911
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2016905, 2016906, 2016909, 2016912
SM 2120 B / E31780	True Color measured at 450 nm	2016901, 2016902, 2016907, 2016910
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2016901, 2016902, 2016907, 2016910
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2016901, 2016902, 2016907, 2016910
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2016901, 2016902, 2016907, 2016910
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2016901, 2016902, 2016907, 2016910
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2016903, 2016904, 2016908, 2016911

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	08/14/2018			08/14/2018 15:06	William L. Brown IV	2016901, 2016902, 2016907, 2016910
EPA 300.0 Rev. 2.1	08/14/2018			08/16/2018 15:32	Lipi Saha	2016901
	08/14/2018			08/16/2018 16:44	Lipi Saha	2016902
	08/14/2018			08/16/2018 16:56	Lipi Saha	2016907
	08/14/2018			08/16/2018 17:32	Lipi Saha	2016910
EPA 350.1 Rev. 2.0	08/14/2018			08/17/2018 12:21	Ping Hua	2016903
	08/14/2018			08/17/2018 13:41	Ping Hua	2016904
	08/14/2018			08/17/2018 13:43	Ping Hua	2016908
	08/14/2018			08/17/2018 13:49	Ping Hua	2016911
EPA 351.2 Rev. 2.0	08/14/2018	08/16/2018 15:30	Adrian Shelby	08/17/2018 13:22	Joseph Suarez	2016903
	08/14/2018	08/16/2018 15:30	Adrian Shelby	08/17/2018 13:26	Joseph Suarez	2016904
	08/14/2018	08/16/2018 15:30	Adrian Shelby	08/17/2018 13:28	Joseph Suarez	2016908
	08/14/2018	08/16/2018 15:30	Adrian Shelby	08/17/2018 13:30	Joseph Suarez	2016911
EPA 353.2 Rev. 2.0	08/14/2018			08/17/2018 13:12	Lauren Bottorf	2016904
	08/14/2018			08/17/2018 13:13	Lauren Bottorf	2016908
	08/14/2018			08/17/2018 13:20	Lauren Bottorf	2016903
	08/14/2018			08/17/2018 13:33	Lauren Bottorf	2016911
EPA 365.1 Rev. 2.0	08/14/2018	08/20/2018 12:57	Sima Feizi	08/21/2018 09:00	Beverly Y. Sanders	2016904
	08/14/2018	08/20/2018 12:57	Sima Feizi	08/21/2018 09:01	Beverly Y. Sanders	2016908
	08/14/2018	08/20/2018 12:57	Sima Feizi	08/21/2018 12:09	Beverly Y. Sanders	2016911
	08/14/2018	08/20/2018 12:57	Sima Feizi	08/21/2018 12:12	Beverly Y. Sanders	2016903
EPA 365.1 Rev. 2.0 dissolved	08/14/2018			08/14/2018 15:41	Julia Storbeck	2016905
	08/14/2018			08/14/2018 15:52	Julia Storbeck	2016912
	08/14/2018			08/14/2018 15:53	Julia Storbeck	2016906
	08/14/2018			08/14/2018 15:54	Julia Storbeck	2016909
SM 2120 B	08/14/2018			08/14/2018 16:06	Tanya Welborn	2016901, 2016902
	08/14/2018			08/14/2018 16:07	Tanya Welborn	2016907
	08/14/2018			08/14/2018 16:08	Tanya Welborn	2016910
SM 2320 B-97	08/14/2018			08/16/2018 00:21	Dale L. Simmons	2016901
	08/14/2018			08/16/2018 00:31	Dale L. Simmons	2016902
	08/14/2018			08/16/2018 00:41	Dale L. Simmons	2016907
	08/14/2018			08/16/2018 00:55	Dale L. Simmons	2016910
SM 2540 C-97	08/14/2018			08/15/2018 15:06	Yijie Li	2016901, 2016902, 2016907, 2016910
SM 2540 D-97	08/14/2018			08/15/2018 15:06	Yijie Li	2016901, 2016902, 2016907, 2016910
SM 4500 F-C-97	08/14/2018			08/16/2018 00:21	Dale L. Simmons	2016901
	08/14/2018			08/16/2018 00:31	Dale L. Simmons	2016902
	08/14/2018			08/16/2018 00:41	Dale L. Simmons	2016907
	08/14/2018			08/16/2018 00:55	Dale L. Simmons	2016910
SM 5310 B-00	08/14/2018			08/17/2018 13:38	Megan Treadwell	2016903
	08/14/2018			08/17/2018 13:54	Megan Treadwell	2016904

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	08/14/2018			08/17/2018 14:37	Megan Treadwell	2016908
	08/14/2018			08/17/2018 14:50	Megan Treadwell	2016911