

Chemical Analysis Report

TLH-ROC-2018-06-27-01

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

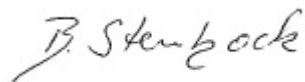
Event Description: **kit A w/ bacteria**
Request ID: **RQ-2018-05-14-54**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 18-JUL-2018 17:03



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: LEXINGTON CREEK @ TIMBERLA

Collection Date/Time: 06/27/2018 09:25

Field ID: G1TLHR0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003709	EPA 180.1 Rev. 2.0	Turbidity	6.0		NTU	P347628	
	EPA 300.0 Rev. 2.1	Chloride	7.4		mg Cl/L	P347950	
		Sulfate	1.5		mg SO4/L	P347956	
	SM 2120 B	Color (true)	40	A	PCU	P347629	
	SM 2320 B-97	Total Alkalinity	30		mg CaCO3/L	P348097	
	SM 2540 C-97	TDS	53		mg/L	P348154	
	SM 2540 D-97	TSS	3	I	mg/L	P348062	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P348101	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.061		mg N/L	P348264	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P348074	
2003712	EPA 353.2 Rev. 2.0	NO2NO3-N	0.094		mg N/L	P347768	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P347883	
	SM 5310 B-00	Organic Carbon	2.1		mg C/L	P348190	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.12		mg P/L	P347707	
	dissolved						

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: EIGHTMILE CREEK @ NW 798 S

Collection Date/Time: 06/27/2018 12:00

Field ID: G1TLHR0078

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003710	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P347628	
	EPA 300.0 Rev. 2.1	Chloride	5.2	A	mg Cl/L	P347951	
		Sulfate	0.30	IA	mg SO4/L	P347957	
	SM 2120 B	Color (true)	290		PCU	P347690	
	SM 2320 B-97	Total Alkalinity	78		mg CaCO3/L	P348097	
	SM 2540 C-97	TDS	148		mg/L	P348154	
	SM 2540 D-97	TSS	8	I	mg/L	P348062	
	SM 4500 F-C-97	Fluoride	0.050	I	mg F/L	P348101	
2003713	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P348265	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P348074	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P347768	
	EPA 365.1 Rev. 2.0	Total-P	0.068		mg P/L	P347883	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P348190	
2003716	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.031		mg P/L	P347707	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: STEINHATCHEE RIVER 40M N OF YEARLING RD.

Collection Date/Time: 06/27/2018 12:25

Field ID: GTLHR0065

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003711	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P347628	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P347951	
		Sulfate	1.1		mg SO4/L	P347957	
	SM 2120 B	Color (true)	450		PCU	P347690	
	SM 2320 B-97	Total Alkalinity	78		mg CaCO3/L	P348097	
	SM 2540 C-97	TDS	159		mg/L	P348154	
	SM 2540 D-97	TSS	5	I	mg/L	P348062	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P348101	
2003714	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P348265	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P348074	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.060		mg N/L	P347768	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P347883	
	SM 5310 B-00	Organic Carbon	38		mg C/L	P348190	
2003717	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P347707	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: 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: P347628

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347950

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347951

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347956

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347957

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348264

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348265

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348074

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347768

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347883

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347707

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

Reference Method: SM 2120 B
Batch ID: P347629

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P347690

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P348097

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

Reference Method: SM 2540 C-97
Batch ID: P348154

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P348062

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P348101

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P348190

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: P347950

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: P347951

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347956

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	93.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347957

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348264

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348265

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348074

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347768

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347883

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347707

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.1		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P347629

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.3		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P347690

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P348097

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P348101

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P348190

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: P347950

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003661	Chloride	96.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003710	Chloride	93.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003661	Sulfate	91.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347957

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003710	Sulfate	92.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003453	Ammonia-N	98.9	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003713	Ammonia-N	98.9	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003671	Kjeldahl Nitrogen	94.7	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003756	NO2NO3-N	95.5	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003673	Total-P	97.3	93.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P348101

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003664	Fluoride	98.1	97.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P348190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003669	Organic Carbon	96.5	98.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003665	Turbidity	3.33	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003661	Chloride	6.09	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003710	Chloride	3.67	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003661	Sulfate	6.47	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003453	Ammonia-N	1.64	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003713	Ammonia-N	1.53	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003671	Kjeldahl Nitrogen	0.300	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003756	NO2NO3-N	0.533	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003673	Total-P	2.48	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003715	O-Phosphate-P	0.785	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P347629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003709	Color (true)	2.98	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P347690

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003752	Color (true)	0.556	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P348097

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003664	Total Alkalinity	0.103	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P348154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003659	TDS	0.554	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P348101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003664	Fluoride	0.472	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P348190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003669	Organic Carbon	1.49	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 180.1 Rev. 2.0

Run ID: A84882

Included Lab Sample IDs: 2003709, 2003710, 2003711

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

Reference Method: SM 2120 B

Run ID: A84883

Included Lab Sample IDs: 2003709

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	106	P/P	90 - 115

Reference Method: SM 2120 B

Run ID: A84913

Included Lab Sample IDs: 2003710, 2003711

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A84918

Included Lab Sample IDs: 2003715, 2003716, 2003717

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	92.8	93.0	P/P	90 - 110
O-Phosphate-P	96.3	94.5	P/P	90 - 110
O-Phosphate-P	99.2	96.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84938

Included Lab Sample IDs: 2003712, 2003713, 2003714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	96.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A85001

Included Lab Sample IDs: 2003709, 2003710, 2003711

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.8	105	P/P	90 - 110
Sulfate	96.5	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85029

Included Lab Sample IDs: 2003712, 2003713, 2003714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.8	97.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A85091

Included Lab Sample IDs: 2003709, 2003710, 2003711

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A85091

Included Lab Sample IDs: 2003709, 2003710, 2003711

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85121

Included Lab Sample IDs: 2003712, 2003713, 2003714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.8	95.3	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A85128

Included Lab Sample IDs: 2003712, 2003713, 2003714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	94.4	P/P	90 - 110
Organic Carbon	95.8	95.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A85152

Included Lab Sample IDs: 2003712, 2003713, 2003714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	100	99.9	P/P	90 - 110

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

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				3.33	
EPA 300.0 Rev. 2.1	Chloride	96.7	96.2		6.09	
	Chloride	100	93.7		3.67	
	Sulfate	93.9	91.3		6.47	
	Sulfate	96.5	92.5			
EPA 350.1 Rev. 2.0	Ammonia-N	104	98.9	97.0		1.64
	Ammonia-N	102	98.9	101		1.53
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.6	94.7	95.0		0.300
EPA 353.2 Rev. 2.0	NO2NO3-N	96.0	95.5	96.5		0.533
EPA 365.1 Rev. 2.0	Total-P	97.1	97.3	93.6		2.48
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.1				0.785
SM 2120 B	Color (true)	99.3			2.98	
	Color (true)	101			0.556	
SM 2320 B-97	Total Alkalinity	104			0.103	
SM 2540 C-97	TDS				0.554	
SM 4500 F-C-97	Fluoride	99.3	98.1	97.6		0.472
SM 5310 B-00	Organic Carbon	96.2	96.5	98.0		1.49

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2003709, 2003710, 2003711
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2003709, 2003710, 2003711
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2003709, 2003710, 2003711
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2003712, 2003713, 2003714
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2003712, 2003713, 2003714
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2003712, 2003713, 2003714
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2003712, 2003713, 2003714
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2003715, 2003716, 2003717
SM 2120 B / E31780	True Color measured at 450 nm	2003709, 2003710, 2003711
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2003709, 2003710, 2003711
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2003709, 2003710, 2003711
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2003709, 2003710, 2003711
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2003709, 2003710, 2003711
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2003712, 2003713, 2003714

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	06/27/2018			06/27/2018 17:02	William L. Brown IV	2003709, 2003710, 2003711
EPA 300.0 Rev. 2.1	06/27/2018			07/03/2018 21:10	Lipi Saha	2003709
	06/27/2018			07/03/2018 21:58	Lipi Saha	2003710
	06/27/2018			07/03/2018 22:22	Lipi Saha	2003711
EPA 350.1 Rev. 2.0	06/27/2018			07/11/2018 14:37	Ping Hua	2003712
	06/27/2018			07/11/2018 14:50	Ping Hua	2003713
	06/27/2018			07/11/2018 14:54	Ping Hua	2003714
EPA 351.2 Rev. 2.0	06/27/2018	07/09/2018 18:30	Tanya Welborn	07/10/2018 15:53	Joseph Suarez	2003712
	06/27/2018	07/09/2018 18:30	Tanya Welborn	07/10/2018 15:54	Joseph Suarez	2003713
	06/27/2018	07/09/2018 18:30	Tanya Welborn	07/10/2018 15:56	Joseph Suarez	2003714
EPA 353.2 Rev. 2.0	06/27/2018			06/29/2018 11:15	Lauren Bottorf	2003712
	06/27/2018			06/29/2018 11:16	Lauren Bottorf	2003713
	06/27/2018			06/29/2018 11:17	Lauren Bottorf	2003714
EPA 365.1 Rev. 2.0	06/27/2018	07/03/2018 10:50	Sima Feizi	07/05/2018 12:09	Beverly Y. Sanders	2003712
	06/27/2018	07/03/2018 10:50	Sima Feizi	07/05/2018 12:10	Beverly Y. Sanders	2003713
	06/27/2018	07/03/2018 10:50	Sima Feizi	07/05/2018 12:11	Beverly Y. Sanders	2003714
EPA 365.1 Rev. 2.0 dissolved	06/27/2018			06/28/2018 14:16	Megan Treadwell	2003715
	06/27/2018			06/28/2018 14:32	Megan Treadwell	2003716
	06/27/2018			06/28/2018 14:54	Megan Treadwell	2003717
SM 2120 B	06/27/2018			06/27/2018 16:56	Tanya Welborn	2003709
	06/27/2018			06/28/2018 15:54	Tanya Welborn	2003710
	06/27/2018			06/28/2018 15:55	Tanya Welborn	2003711
SM 2320 B-97	06/27/2018			07/07/2018 05:53	Dale L. Simmons	2003709
	06/27/2018			07/07/2018 06:04	Dale L. Simmons	2003710
	06/27/2018			07/07/2018 06:15	Dale L. Simmons	2003711
SM 2540 C-97	06/27/2018			07/03/2018 14:08	Yijie Li	2003709, 2003710, 2003711
SM 2540 D-97	06/27/2018			07/03/2018 14:08	Yijie Li	2003709, 2003710, 2003711
SM 4500 F-C-97	06/27/2018			07/07/2018 05:53	Dale L. Simmons	2003709
	06/27/2018			07/07/2018 06:04	Dale L. Simmons	2003710
	06/27/2018			07/07/2018 06:15	Dale L. Simmons	2003711
SM 5310 B-00	06/27/2018			07/10/2018 04:18	Megan Treadwell	2003712
	06/27/2018			07/10/2018 05:11	Megan Treadwell	2003713
	06/27/2018			07/10/2018 05:26	Megan Treadwell	2003714