

Chemical Analysis Report

TLH-ROC-2018-04-12-01

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-2018-04-09-52**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 03-MAY-2018 13:53

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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: ROCKY CREEK

Collection Date/Time: 04/12/2018 10:30

Field ID: G1TLHR0004

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984234	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P343336	
	EPA 300.0 Rev. 2.1	Chloride	6.2		mg Cl/L	P343494	
		Sulfate	0.33	I	mg SO4/L	P343493	
	SM 2120 B	Color (true)	160		PCU	P343302	
	SM 2320 B-97	Total Alkalinity	106		mg CaCO3/L	P343952	
	SM 2540 C-97	TDS	166		mg/L	P343629	
	SM 2540 D-97	TSS	2	U	mg/L	P343521	
	SM 4500 F-C-97	Fluoride	0.060	I	mg F/L	P343956	
1984238	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P343689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P343459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343654	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P343596	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P343560	
1984242	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P343381	

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: BOGGY CREEK

Collection Date/Time: 04/12/2018 10:45

Field ID: G1TLHR0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984235	EPA 180.1 Rev. 2.0	Turbidity	2.1	A	NTU	P343336	
	EPA 300.0 Rev. 2.1	Chloride	6.6		mg Cl/L	P343494	
		Sulfate	0.32	I	mg SO4/L	P343493	
	SM 2120 B	Color (true)	190		PCU	P343302	
	SM 2320 B-97	Total Alkalinity	106		mg CaCO3/L	P343952	
	SM 2540 C-97	TDS	164		mg/L	P343629	
	SM 2540 D-97	TSS	2	U	mg/L	P343522	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P343956	
1984239	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P343689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P343459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343654	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P343596	
	SM 5310 B-00	Organic Carbon	25		mg C/L	P343560	
1984243	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P343381	

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: Sand Hill Creek @ SW Hwy 358

Collection Date/Time: 04/12/2018 11:05

Field ID: G1TLHR0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984236	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P343336	
	EPA 300.0 Rev. 2.1	Chloride	8.1		mg Cl/L	P343494	
		Sulfate	0.60		mg SO4/L	P343493	

Field ID: G1TLHR0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984236	SM 2120 B	Color (true)	100		PCU	P343302	
	SM 2320 B-97	Total Alkalinity	150	A	mg CaCO3/L	P343952	
	SM 2540 C-97	TDS	199		mg/L	P343629	
	SM 2540 D-97	TSS	2	U	mg/L	P343522	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P343956	
1984240	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P343690	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P343459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.019		mg N/L	P343654	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P343596	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P343560	
1984244	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P343381	

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: G1TLHR0010

Collection Date/Time: 04/12/2018 12:10

Field ID: G1TLHR0010

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984237	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P343336	
	EPA 300.0 Rev. 2.1	Chloride	9.4		mg Cl/L	P343494	
		Sulfate	0.79		mg SO4/L	P343493	
	SM 2120 B	Color (true)	290		PCU	P343302	
	SM 2320 B-97	Total Alkalinity	49		mg CaCO3/L	P343952	
	SM 2540 C-97	TDS	136		mg/L	P343629	
	SM 2540 D-97	TSS	4	I	mg/L	P343522	
	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P343956	
1984241	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P343690	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P343459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343654	
	EPA 365.1 Rev. 2.0	Total-P	0.082		mg P/L	P343596	
	SM 5310 B-00	Organic Carbon	33		mg C/L	P343560	
1984245	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.036		mg P/L	P343381	

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: P343336

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P343493

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343493

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343494

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343689

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343690

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343459

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343654

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343596

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343381

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

Reference Method: SM 2120 B
Batch ID: P343302

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P343952

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

Reference Method: SM 2540 C-97
Batch ID: P343629

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343521

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343522

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P343956

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343560

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: P343493

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343494

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343689

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343690

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343459

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343654

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: P343596

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343381

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

Reference Method: SM 2320 B-97
Batch ID: P343952

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P343956

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343560

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984046	Sulfate	94.3		P	90 - 110
1984328	Sulfate	97.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984046	Chloride	99.3		P	90 - 110
1984328	Chloride	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983923	Ammonia-N	97.2	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343690

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984240	Ammonia-N	97.1	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984308	Kjeldahl Nitrogen	101	96.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343654

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984238	NO2NO3-N	98.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343596

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984329	Total-P	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343381

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984242	O-Phosphate-P	97.5	96.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P343956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984236	Fluoride	95.2	95.7	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P343560

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984026	Organic Carbon	95.2	95.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P343336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984235	Turbidity	1.40	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P343493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984046	Sulfate	7.71	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P343494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984046	Chloride	6.54	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P343689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983923	Ammonia-N	0.0974	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P343690

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984240	Ammonia-N	0.0975	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P343459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984308	Kjeldahl Nitrogen	3.55	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343654

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984238	NO2NO3-N	0.509	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984329	Total-P	0.883	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984242	O-Phosphate-P	0.590	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P343302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984305	Color (true)	2.99	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P343952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984236	Total Alkalinity	0.123	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P343629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984069	TDS	0.749	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P343956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984236	Fluoride	0.514	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P343560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984026	Organic Carbon	0.253	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: SM 2120 B

Run ID: A83198

Included Lab Sample IDs: 1984234, 1984235, 1984236, 1984237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115
Color (true)	97.1	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A83212

Included Lab Sample IDs: 1984234, 1984235, 1984236, 1984237

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A83231

Included Lab Sample IDs: 1984242, 1984243, 1984244, 1984245

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	99.8	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A83267

Included Lab Sample IDs: 1984234, 1984235, 1984236, 1984237

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

Reference Method: SM 5310 B-00

Run ID: A83286

Included Lab Sample IDs: 1984238, 1984239, 1984240, 1984241

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	97.4	P/P	90 - 110
Organic Carbon	99.6	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83312

Included Lab Sample IDs: 1984238, 1984239, 1984240, 1984241

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.5	P/P	90 - 110
Kjeldahl Nitrogen	98.5	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83321

Included Lab Sample IDs: 1984238, 1984239, 1984240, 1984241

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83326

Included Lab Sample IDs: 1984238, 1984239, 1984240, 1984241

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83357

Included Lab Sample IDs: 1984238, 1984239, 1984240

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83365

Included Lab Sample IDs: 1984241

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	106	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A83420

Included Lab Sample IDs: 1984234, 1984235, 1984236, 1984237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.2	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83420

Included Lab Sample IDs: 1984234, 1984235, 1984236, 1984237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.1	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 SMP	MS
			LCS			
EPA 180.1 Rev. 2.0	Turbidity				1.40	
EPA 300.0 Rev. 2.1	Chloride	98.2	99.3	97.6	6.54	
	Sulfate	96.8	94.3	97.1	7.71	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 350.1 Rev. 2.0	Ammonia-N	96.2	97.2	97.0		0.0974
	Ammonia-N	96.1	97.1	97.2		0.0975
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	101	96.2		3.55
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	98.0	98.5		0.509
EPA 365.1 Rev. 2.0	Total-P	106	103	104		0.883
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	97.5	96.9		0.590
SM 2120 B	Color (true)				2.99	
SM 2320 B-97	Total Alkalinity	101			0.123	
SM 2540 C-97	TDS				0.749	
SM 4500 F-C-97	Fluoride	96.3	95.2	95.7		0.514
SM 5310 B-00	Organic Carbon	95.8	95.2	95.6		0.253

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1984234, 1984235, 1984236, 1984237
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1984234, 1984235, 1984236, 1984237
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1984234, 1984235, 1984236, 1984237
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1984238, 1984239, 1984240, 1984241
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1984238, 1984239, 1984240, 1984241
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1984238, 1984239, 1984240, 1984241
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1984238, 1984239, 1984240, 1984241
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1984242, 1984243, 1984244, 1984245
SM 2120 B / E31780	True Color measured at 450 nm	1984234, 1984235, 1984236, 1984237
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1984234, 1984235, 1984236, 1984237
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1984234, 1984235, 1984236, 1984237
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1984234, 1984235, 1984236, 1984237
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1984234, 1984235, 1984236, 1984237
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1984238, 1984239, 1984240, 1984241

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	04/12/2018			04/12/2018 17:21	William L. Brown IV	1984234, 1984235, 1984236, 1984237
EPA 300.0 Rev. 2.1	04/12/2018			04/16/2018 19:13	Lipi Saha	1984234
	04/12/2018			04/16/2018 19:25	Lipi Saha	1984235
	04/12/2018			04/16/2018 19:37	Lipi Saha	1984236
	04/12/2018			04/16/2018 19:49	Lipi Saha	1984237
EPA 350.1 Rev. 2.0	04/12/2018			04/17/2018 12:09	Ping Hua	1984238
	04/12/2018			04/17/2018 12:10	Ping Hua	1984239
	04/12/2018			04/17/2018 12:16	Ping Hua	1984240
	04/12/2018			04/17/2018 12:27	Ping Hua	1984241
EPA 351.2 Rev. 2.0	04/12/2018	04/16/2018 15:30	Adrian Shelby	04/18/2018 10:26	Joseph Suarez	1984238
	04/12/2018	04/16/2018 15:30	Adrian Shelby	04/18/2018 10:31	Joseph Suarez	1984239
	04/12/2018	04/16/2018 15:30	Adrian Shelby	04/18/2018 10:33	Joseph Suarez	1984240
	04/12/2018	04/16/2018 15:30	Adrian Shelby	04/18/2018 10:34	Joseph Suarez	1984241
EPA 353.2 Rev. 2.0	04/12/2018			04/18/2018 12:29	Lauren Bottorf	1984238
	04/12/2018			04/18/2018 12:38	Lauren Bottorf	1984239
	04/12/2018			04/18/2018 12:39	Lauren Bottorf	1984240
	04/12/2018			04/18/2018 12:40	Lauren Bottorf	1984241
EPA 365.1 Rev. 2.0	04/12/2018	04/17/2018 13:49	Sima Feizi	04/19/2018 10:11	Beverly Y. Sanders	1984241
	04/12/2018	04/17/2018 13:49	Sima Feizi	04/19/2018 14:36	Beverly Y. Sanders	1984238
	04/12/2018	04/17/2018 13:49	Sima Feizi	04/19/2018 14:37	Beverly Y. Sanders	1984239
	04/12/2018	04/17/2018 13:49	Sima Feizi	04/19/2018 14:38	Beverly Y. Sanders	1984240
EPA 365.1 Rev. 2.0 dissolved	04/12/2018			04/13/2018 14:08	Megan Treadwell	1984242
	04/12/2018			04/13/2018 14:24	Megan Treadwell	1984243
	04/12/2018			04/13/2018 14:25	Megan Treadwell	1984244, 1984245
SM 2120 B	04/12/2018			04/12/2018 15:55	Tanya Welborn	1984236
	04/12/2018			04/12/2018 16:06	Tanya Welborn	1984234
	04/12/2018			04/12/2018 16:07	Tanya Welborn	1984235
	04/12/2018			04/12/2018 16:08	Tanya Welborn	1984237
SM 2320 B-97	04/12/2018			04/24/2018 05:34	Dale L. Simmons	1984236
	04/12/2018			04/24/2018 06:12	Dale L. Simmons	1984234
	04/12/2018			04/24/2018 06:22	Dale L. Simmons	1984235
	04/12/2018			04/24/2018 06:32	Dale L. Simmons	1984237
SM 2540 C-97	04/12/2018			04/13/2018 13:20	DeAsia Armster	1984234, 1984235, 1984236, 1984237
SM 2540 D-97	04/12/2018			04/13/2018 13:20	DeAsia Armster	1984234, 1984235, 1984236, 1984237
SM 4500 F-C-97	04/12/2018			04/24/2018 05:27	Dale L. Simmons	1984236
	04/12/2018			04/24/2018 06:12	Dale L. Simmons	1984234
	04/12/2018			04/24/2018 06:22	Dale L. Simmons	1984235
	04/12/2018			04/24/2018 06:32	Dale L. Simmons	1984237
SM 5310 B-00	04/12/2018			04/16/2018 16:58	Megan Treadwell	1984238
	04/12/2018			04/16/2018 17:42	Megan Treadwell	1984239

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	04/12/2018			04/16/2018 17:57	Megan Treadwell	1984240
	04/12/2018			04/16/2018 18:12	Megan Treadwell	1984241