

Chemical Analysis Report

TLH-ROC-2019-09-05-01

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

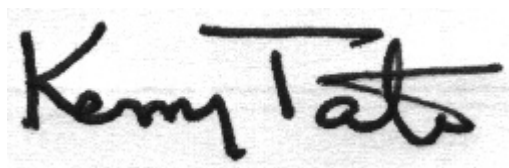
Event Description: **Run 9**
Request ID: **RQ-2019-08-19-22**
Customer: **TLH-ROC**
Project ID: **SMP**

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

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 19-SEP-2019 10:08

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: SANDY BRANCH @ SR22

Collection Date/Time: 09/05/2019 10:10

Field ID: G3TLHR0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116824	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P370232	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P370544	
		Sulfate	0.23	I	mg SO4/L	P370546	
	SM 2120 B	Color (true)	350		PCU	P370308	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P370399	
	SM 2540 C-97	TDS	62		mg/L	P370458	
	SM 2540 D-97	TSS	18		mg/L	P370357	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370403	
2116828	EPA 350.1 Rev. 2.0	Ammonia-N	0.43		mg N/L	P370670	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P370368	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370318	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P370488	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P370306	
2116832	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P370273	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample contains high density particulates with sandy appearance that settle out quickly.

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: SANDY BRANCH @ SR22

Collection Date/Time: 09/05/2019 10:15

Field ID: G3TLHR0027_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116825	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P370232	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P370544	
		Sulfate	0.24	I	mg SO4/L	P370546	
	SM 2120 B	Color (true)	340		PCU	P370308	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P370399	
	SM 2540 C-97	TDS	61		mg/L	P370458	
	SM 2540 D-97	TSS	16		mg/L	P370357	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370403	
2116829	EPA 350.1 Rev. 2.0	Ammonia-N	0.43		mg N/L	P370670	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P370368	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370318	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P370488	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P370306	
2116833	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P370273	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample contains high density particulates with sandy appearance that settle out quickly.

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: FB_09052019

Collection Date/Time: 09/05/2019 10:30

Field ID: FB_09052019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116836	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P370232	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P370544	
		Sulfate	0.20	U	mg SO4/L	P370546	
	SM 2120 B	Color (true)	2.5	U	PCU	P370308	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P370399	
	SM 2540 C-97	TDS	15	U	mg/L	P370458	
	SM 2540 D-97	TSS	2	U	mg/L	P370357	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370403	
2116837	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P370670	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P370367	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370318	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P370488	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P370306	
2116838	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P370273	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: PARKER CREEK @ PARK

Collection Date/Time: 09/05/2019 11:00

Field ID: G3TLHR0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116826	EPA 180.1 Rev. 2.0	Turbidity	6.0		NTU	P370232	
	EPA 300.0 Rev. 2.1	Chloride	9.2		mg Cl/L	P370544	
		Sulfate	16		mg SO4/L	P370546	
	SM 2120 B	Color (true)	57	A	PCU	P370308	
	SM 2320 B-97	Total Alkalinity	26		mg CaCO3/L	P370399	
	SM 2540 C-97	TDS	80	A	mg/L	P370459	
	SM 2540 D-97	TSS	3	IA	mg/L	P370358	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P370403	
2116830	EPA 350.1 Rev. 2.0	Ammonia-N	0.070		mg N/L	P370670	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P370368	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P370318	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P370488	
	SM 5310 B-00	Organic Carbon	6.7		mg C/L	P370306	
2116834	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P370273	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BAYOU GEORGE CREEK @ US231

Collection Date/Time: 09/05/2019 11:45

Field ID: G3TLHR0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116827	EPA 180.1 Rev. 2.0	Turbidity	6.8	A	NTU	P370233	
	EPA 300.0 Rev. 2.1	Chloride	5.2		mg Cl/L	P370544	
		Sulfate	1.5		mg SO4/L	P370546	
	SM 2120 B	Color (true)	440		PCU	P370308	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P370399	
	SM 2540 C-97	TDS	91		mg/L	P370459	
	SM 2540 D-97	TSS	6	I	mg/L	P370358	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370403	
2116831	EPA 350.1 Rev. 2.0	Ammonia-N	0.38		mg N/L	P370670	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P370368	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.058		mg N/L	P370318	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P370488	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P370306	
2116835	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P370271	

Ref. Method and Comment:

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

SM 4500 F-C-97: 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: P370232

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370233

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370544

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370546

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370670

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370367

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370368

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370318

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370488

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: P370271

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370273

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

Reference Method: SM 2120 B
Batch ID: P370308

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P370399

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

Reference Method: SM 2540 C-97
Batch ID: P370458

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P370459

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370357

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370358

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370403

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P370306

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: P370544

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370546

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370670

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370367

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370368

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370318

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: P370488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370271

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370273

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.5		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P370308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P370399

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P370403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370306

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370544

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116619	Chloride	99.9		P	90 - 110
2116853	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370546

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116619	Sulfate	99.9		P	90 - 110
2116853	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116888	Ammonia-N	96.9	97.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116622	Kjeldahl Nitrogen	106	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116830	Kjeldahl Nitrogen	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116830	NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116624	Total-P	96.4	94.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370271

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116552	O-Phosphate-P	96.1	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116834	O-Phosphate-P	94.9	95.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P370306

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116625	Organic Carbon	94.6	95.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116621	Turbidity	6.60	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116827	Turbidity	3.10	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116619	Chloride	0.517	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370546

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116619	Sulfate	0.166	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116888	Ammonia-N	0.271	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116622	Kjeldahl Nitrogen	2.91	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116830	Kjeldahl Nitrogen	0.500	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116830	NO2NO3-N	0.830	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116624	Total-P	1.17	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116552	O-Phosphate-P	0.519	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116834	O-Phosphate-P	0.918	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P370308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116826	Color (true)	2.09	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P370399

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116620	Total Alkalinity	1.21	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P370458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116621	TDS	0.432	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P370459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116826	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P370403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116620	Fluoride	0.471	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P370306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116625	Organic Carbon	0.582	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: A94017

Included Lab Sample IDs: 2116824, 2116825, 2116826, 2116827, 2116836

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A94035

Included Lab Sample IDs: 2116832, 2116833, 2116834, 2116835, 2116838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.4	P/P	90 - 110
O-Phosphate-P	99.4	98.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A94054

Included Lab Sample IDs: 2116828, 2116829, 2116830, 2116831, 2116837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	105	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A94055

Included Lab Sample IDs: 2116824, 2116825, 2116826, 2116827, 2116836

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	102	P/P	90 - 115
Color (true)	99.4	102	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94057

Included Lab Sample IDs: 2116828, 2116829, 2116830, 2116831, 2116837

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

Reference Method: SM 2320 B-97

Run ID: A94093

Included Lab Sample IDs: 2116824, 2116825, 2116826, 2116827, 2116836

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: A94093

Included Lab Sample IDs: 2116824, 2116825, 2116826, 2116827, 2116836

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94122

Included Lab Sample IDs: 2116828, 2116829, 2116830, 2116831, 2116837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	99.9	P/P	90 - 110
Kjeldahl Nitrogen	99.9	99.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A94159

Included Lab Sample IDs: 2116824, 2116825, 2116826, 2116827, 2116836

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Sulfate	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94199

Included Lab Sample IDs: 2116828, 2116829, 2116830, 2116831, 2116837

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94214

Included Lab Sample IDs: 2116828, 2116829, 2116830, 2116831, 2116837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.3	97.4	P/P	90 - 110
Ammonia-N	98.0	97.3	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				6.60	
	Turbidity				3.10	
EPA 300.0 Rev. 2.1	Chloride	98.8	99.9	101	0.517	
	Sulfate	99.5	99.9	101	0.166	
EPA 350.1 Rev. 2.0	Ammonia-N	97.9	96.9	97.1		0.271
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.8	106	101		2.91
	Kjeldahl Nitrogen	99.9	100	101		0.500
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.0	100		0.830
EPA 365.1 Rev. 2.0	Total-P	99.4	96.4	94.1		1.17
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	96.1	96.6		0.519
	O-Phosphate-P	99.5	94.9	95.9		0.918
SM 2120 B	Color (true)	100			2.09	
SM 2320 B-97	Total Alkalinity	105			1.21	
SM 2540 C-97	TDS				0.432	
	TDS				0.0	
SM 4500 F-C-97	Fluoride	96.5				0.471
SM 5310 B-00	Organic Carbon	108	94.6	95.6		0.582

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2116824, 2116825, 2116826, 2116827, 2116836
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2116824, 2116825, 2116826, 2116827, 2116836
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2116824, 2116825, 2116826, 2116827, 2116836
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2116828, 2116829, 2116830, 2116831, 2116837
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2116828, 2116829, 2116830, 2116831, 2116837
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2116828, 2116829, 2116830, 2116831, 2116837
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2116828, 2116829, 2116830, 2116831, 2116837
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2116832, 2116833, 2116834, 2116835, 2116838
SM 2120 B / E31780	True Color measured at 450 nm	2116824, 2116825, 2116826, 2116827, 2116836
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2116824, 2116825, 2116826, 2116827, 2116836
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2116824, 2116825, 2116826, 2116827, 2116836
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2116824, 2116825, 2116826, 2116827, 2116836
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2116824, 2116825, 2116826, 2116827, 2116836
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2116828, 2116829, 2116830, 2116831, 2116837

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	09/05/2019			09/05/2019 17:19	Rosalyn Ballman	2116824, 2116825, 2116826, 2116827, 2116836
EPA 300.0 Rev. 2.1	09/05/2019			09/11/2019 18:11	Jhamieka S. Greenwood	2116824
	09/05/2019			09/11/2019 18:23	Jhamieka S. Greenwood	2116825
	09/05/2019			09/11/2019 18:35	Jhamieka S. Greenwood	2116826
	09/05/2019			09/11/2019 18:47	Jhamieka S. Greenwood	2116827
	09/05/2019			09/11/2019 19:00	Jhamieka S. Greenwood	2116836
EPA 350.1 Rev. 2.0	09/05/2019			09/13/2019 11:28	Ping Hua	2116828
	09/05/2019			09/13/2019 11:30	Ping Hua	2116829
	09/05/2019			09/13/2019 11:31	Ping Hua	2116830
	09/05/2019			09/13/2019 11:33	Ping Hua	2116831
	09/05/2019			09/13/2019 11:46	Ping Hua	2116837
EPA 351.2 Rev. 2.0	09/05/2019	09/09/2019 13:25	Sima Feizi	09/10/2019 15:58	Julia Storbeck	2116837
	09/05/2019	09/09/2019 13:25	Sima Feizi	09/10/2019 16:02	Julia Storbeck	2116830
	09/05/2019	09/09/2019 13:25	Sima Feizi	09/10/2019 16:07	Julia Storbeck	2116828
	09/05/2019	09/09/2019 13:25	Sima Feizi	09/10/2019 16:12	Julia Storbeck	2116829
	09/05/2019	09/09/2019 13:25	Sima Feizi	09/10/2019 16:13	Julia Storbeck	2116831
EPA 353.2 Rev. 2.0	09/05/2019			09/09/2019 08:45	Beverly Y. Sanders	2116830
	09/05/2019			09/09/2019 08:51	Beverly Y. Sanders	2116828
	09/05/2019			09/09/2019 08:52	Beverly Y. Sanders	2116829
	09/05/2019			09/09/2019 08:54	Beverly Y. Sanders	2116831
	09/05/2019			09/09/2019 08:55	Beverly Y. Sanders	2116837
EPA 365.1 Rev. 2.0	09/05/2019	09/11/2019 10:25	Lipi Saha	09/13/2019 13:05	Rosalyn Ballman	2116828
	09/05/2019	09/11/2019 10:25	Lipi Saha	09/13/2019 13:06	Rosalyn Ballman	2116829
	09/05/2019	09/11/2019 10:25	Lipi Saha	09/13/2019 13:07	Rosalyn Ballman	2116830
	09/05/2019	09/11/2019 10:25	Lipi Saha	09/13/2019 13:08	Rosalyn Ballman	2116831
	09/05/2019	09/11/2019 10:25	Lipi Saha	09/13/2019 13:09	Rosalyn Ballman	2116837
EPA 365.1 Rev. 2.0 dissolved	09/05/2019			09/05/2019 16:08	Jhamieka S. Greenwood	2116834
	09/05/2019			09/05/2019 16:23	Jhamieka S. Greenwood	2116832
	09/05/2019			09/05/2019 16:24	Jhamieka S. Greenwood	2116833
	09/05/2019			09/05/2019 16:25	Jhamieka S. Greenwood	2116835
	09/05/2019			09/05/2019 16:26	Jhamieka S. Greenwood	2116838
SM 2120 B	09/05/2019			09/06/2019 16:59	Madeline Funaro	2116826
	09/05/2019			09/06/2019 17:00	Madeline Funaro	2116836
	09/05/2019			09/06/2019 17:25	Madeline Funaro	2116824, 2116825
	09/05/2019			09/06/2019 17:26	Madeline Funaro	2116827
SM 2320 B-97	09/05/2019			09/09/2019 19:46	Dale L. Simmons	2116824
	09/05/2019			09/09/2019 19:54	Dale L. Simmons	2116825
	09/05/2019			09/09/2019 20:06	Dale L. Simmons	2116826
	09/05/2019			09/09/2019 20:18	Dale L. Simmons	2116827

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	09/05/2019			09/09/2019 20:32	Dale L. Simmons	2116836
SM 2540 C-97	09/05/2019			09/06/2019 17:30	Rosalyn Ballman	2116824, 2116825, 2116826, 2116827, 2116836
SM 2540 D-97	09/05/2019			09/06/2019 17:30	Rosalyn Ballman	2116824, 2116825, 2116826, 2116827, 2116836
SM 4500 F-C-97	09/05/2019			09/09/2019 19:46	Dale L. Simmons	2116824
	09/05/2019			09/09/2019 19:54	Dale L. Simmons	2116825
	09/05/2019			09/09/2019 20:06	Dale L. Simmons	2116826
	09/05/2019			09/09/2019 20:18	Dale L. Simmons	2116827
	09/05/2019			09/09/2019 20:32	Dale L. Simmons	2116836
SM 5310 B-00	09/05/2019			09/07/2019 01:19	Madeline Funaro	2116828
	09/05/2019			09/07/2019 01:31	Madeline Funaro	2116829
	09/05/2019			09/07/2019 01:45	Madeline Funaro	2116830
	09/05/2019			09/07/2019 01:57	Madeline Funaro	2116831
	09/05/2019			09/07/2019 02:10	Madeline Funaro	2116837