

Chemical Analysis Report

TLH-ROC-2019-08-28-03

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

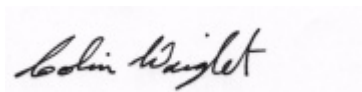
Event Description: **Run 5**
Request ID: **RQ-2019-08-12-34**
Customer: **TLH-ROC**
Project ID: **SMP**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 13-SEP-2019 11:22

A handwritten signature in black ink, appearing to read "Colin Wright", 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 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: CAMP BRANCH @ US90

Collection Date/Time: 08/28/2019 12:15

Field ID: G3TLHR0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115473	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P369966	
	EPA 300.0 Rev. 2.1	Chloride	9.2		mg Cl/L	P370214	
		Sulfate	3.0		mg SO4/L	P370217	
	SM 2120 B	Color (true)	36	A	PCU	P369946	
	SM 2320 B-97	Total Alkalinity	55		mg CaCO3/L	P370197	
	SM 2540 C-97	TDS	109		mg/L	P370383	
	SM 2540 D-97	TSS	6	I	mg/L	P370249	
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P370202	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.067		mg N/L	P370239	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P369910	
2115475	EPA 353.2 Rev. 2.0	NO2NO3-N	0.077		mg N/L	P370180	
	EPA 365.1 Rev. 2.0	Total-P	0.35		mg P/L	P370095	
	SM 5310 B-00	Organic Carbon	8.3		mg C/L	P370115	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.23		mg P/L	P369958	
	dissolved						

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: CAMP BRANCH @ US90_DUP

Collection Date/Time: 08/28/2019 12:20

Field ID: G3TLHR0005_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115474	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P369966	
	EPA 300.0 Rev. 2.1	Chloride	9.2		mg Cl/L	P370214	
		Sulfate	3.0		mg SO4/L	P370217	
	SM 2120 B	Color (true)	36		PCU	P369946	
	SM 2320 B-97	Total Alkalinity	55		mg CaCO3/L	P370197	
	SM 2540 C-97	TDS	115		mg/L	P370383	
	SM 2540 D-97	TSS	6	I	mg/L	P370249	
	SM 4500 F-C-97	Fluoride	0.055	I	mg F/L	P370202	
2115476	EPA 350.1 Rev. 2.0	Ammonia-N	0.068		mg N/L	P370239	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P369910	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.078		mg N/L	P370180	
	EPA 365.1 Rev. 2.0	Total-P	0.36		mg P/L	P370095	
	SM 5310 B-00	Organic Carbon	8.2		mg C/L	P370115	
2115478	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.22		mg P/L	P369958	

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: FB_08282019

Collection Date/Time: 08/28/2019 12:30

Field ID: FB_08282019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115479	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P369966	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P370214	
		Sulfate	0.20	U	mg SO4/L	P370217	
	SM 2120 B	Color (true)	2.5	U	PCU	P369943	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P370197	
	SM 2540 C-97	TDS	15	U	mg/L	P370381	
	SM 2540 D-97	TSS	2	U	mg/L	P370247	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370202	
2115480	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P370321	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P369910	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370181	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P370095	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P370115	
2115481	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P369958	

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: P369966

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370214

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370217

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370239

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370321

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369910

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370180

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: P370181

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: P370095

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: P369958

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

Reference Method: SM 2120 B
Batch ID: P369943

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P369946

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P370197

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

Reference Method: SM 2540 C-97
Batch ID: P370381

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P370383

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370247

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370249

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370202

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: P370115

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: P370214

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370217

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370239

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370321

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369910

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370180

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370181

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370095

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369958

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P369943

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

Reference Method: SM 2120 B
Batch ID: P369946

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P370197

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P370202

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370115

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P370214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115341	Chloride	101	104	P/P	90 - 110
2115493	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P370217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115341	Sulfate	101	104	P/P	90 - 110
2115493	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P370239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115452	Ammonia-N	98.0	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P370321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115191	Ammonia-N	91.9	91.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P369910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115537	Kjeldahl Nitrogen	102	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P370180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115345	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P370181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115546	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P370095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115537	Total-P	100	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P369958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115464	O-Phosphate-P	100	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P370202

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115450	Fluoride	94.7	94.7	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370115

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115476	Organic Carbon	102	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115502	Turbidity	4.45	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115341	Chloride	1.95	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115341	Sulfate	2.59	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115452	Ammonia-N	0.924	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115191	Ammonia-N	0.481	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115537	Kjeldahl Nitrogen	2.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115345	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115546	NO2NO3-N	0.445	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115537	Total-P	6.56	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115464	O-Phosphate-P	1.88	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P369943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115451	Color (true)	0.838	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P369946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115473	Color (true)	3.64	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P370197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115450	Total Alkalinity	0.287	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P370381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115024	TDS	2.71	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P370383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115451	TDS	3.28	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P370202

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115450	Fluoride	0.0	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P370115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115476	Organic Carbon	0.0	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: SM 2120 B

Run ID: A93891

Included Lab Sample IDs: 2115473, 2115474, 2115479

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93904

Included Lab Sample IDs: 2115477, 2115478, 2115481

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93907

Included Lab Sample IDs: 2115473, 2115474, 2115479

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93934

Included Lab Sample IDs: 2115475, 2115476, 2115480

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.4	105	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A93968

Included Lab Sample IDs: 2115475, 2115476, 2115480

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	105	P/P	90 - 110
Organic Carbon	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93995

Included Lab Sample IDs: 2115475, 2115476

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93999

Included Lab Sample IDs: 2115475, 2115476, 2115480

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110
NO2NO3-N	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94000

Included Lab Sample IDs: 2115480

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

Reference Method: SM 2320 B-97

Run ID: A94004

Included Lab Sample IDs: 2115473, 2115474, 2115479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A94004

Included Lab Sample IDs: 2115473, 2115474, 2115479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	98.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A94012

Included Lab Sample IDs: 2115473, 2115474, 2115479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Sulfate	102	104	P/P	90 - 110
Sulfate	103	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94019

Included Lab Sample IDs: 2115475, 2115476

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94059

Included Lab Sample IDs: 2115480

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	92.8	100	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					4.45	
EPA 300.0 Rev. 2.1	Chloride	101	101	104	102		1.95
	Sulfate	102	101	104	100		2.59
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	98.0	99.0			0.924
	Ammonia-N	99.9	91.9	91.3			0.481
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	102	98.1			2.54
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100	100			0.499
	NO2NO3-N	102	101	101			0.445
EPA 365.1 Rev. 2.0	Total-P	99.3	100	108			6.56
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	100	102			1.88
SM 2120 B	Color (true)	99.3				0.838	
	Color (true)	99.4				3.64	
SM 2320 B-97	Total Alkalinity	104				0.287	
SM 2540 C-97	TDS					2.71	
	TDS					3.28	
SM 4500 F-C-97	Fluoride	97.1	94.7	94.7			0.0
SM 5310 B-00	Organic Carbon	102	102	102			0.0

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2115473, 2115474, 2115479
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2115473, 2115474, 2115479
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2115473, 2115474, 2115479
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2115475, 2115476, 2115480
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2115475, 2115476, 2115480
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2115475, 2115476, 2115480
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2115475, 2115476, 2115480
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2115477, 2115478, 2115481
SM 2120 B / E31780	True Color measured at 450 nm	2115473, 2115474, 2115479
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2115473, 2115474, 2115479
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2115473, 2115474, 2115479
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2115473, 2115474, 2115479
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2115473, 2115474, 2115479
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2115475, 2115476, 2115480

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	08/28/2019			08/29/2019 17:38	Rosalyn Ballman	2115473, 2115474, 2115479
EPA 300.0 Rev. 2.1	08/28/2019			09/05/2019 00:26	Jhamieka S. Greenwood	2115473
	08/28/2019			09/05/2019 01:04	Jhamieka S. Greenwood	2115474
	08/28/2019			09/05/2019 01:16	Jhamieka S. Greenwood	2115479
EPA 350.1 Rev. 2.0	08/28/2019			09/05/2019 14:07	Ping Hua	2115475
	08/28/2019			09/05/2019 14:08	Ping Hua	2115476
	08/28/2019			09/06/2019 11:34	Ping Hua	2115480
EPA 351.2 Rev. 2.0	08/28/2019	08/29/2019 13:50	Sima Feizi	08/30/2019 15:21	Joseph Suarez	2115475
	08/28/2019	08/29/2019 13:50	Sima Feizi	08/30/2019 15:22	Joseph Suarez	2115476
	08/28/2019	08/29/2019 13:50	Sima Feizi	08/30/2019 15:24	Joseph Suarez	2115480
EPA 353.2 Rev. 2.0	08/28/2019			09/05/2019 09:31	Beverly Y. Sanders	2115475
	08/28/2019			09/05/2019 09:32	Beverly Y. Sanders	2115476
	08/28/2019			09/05/2019 09:45	Beverly Y. Sanders	2115480
EPA 365.1 Rev. 2.0	08/28/2019	09/04/2019 07:24	Joseph Suarez	09/05/2019 10:25	Lipi Saha	2115475
	08/28/2019	09/04/2019 07:24	Joseph Suarez	09/05/2019 10:26	Lipi Saha	2115476
	08/28/2019	09/04/2019 07:24	Joseph Suarez	09/05/2019 12:08	Lipi Saha	2115480
EPA 365.1 Rev. 2.0 dissolved	08/28/2019			08/29/2019 17:52	Jhamieka S. Greenwood	2115481
	08/28/2019			08/29/2019 17:53	Jhamieka S. Greenwood	2115477
	08/28/2019			08/29/2019 17:54	Jhamieka S. Greenwood	2115478
SM 2120 B	08/28/2019			08/29/2019 16:35	Madeline Funaro	2115479
	08/28/2019			08/29/2019 17:02	Madeline Funaro	2115473
	08/28/2019			08/29/2019 17:03	Madeline Funaro	2115474
SM 2320 B-97	08/28/2019			09/04/2019 01:33	Dale L. Simmons	2115473
	08/28/2019			09/04/2019 01:45	Dale L. Simmons	2115474
	08/28/2019			09/04/2019 02:00	Dale L. Simmons	2115479
SM 2540 C-97	08/28/2019			08/30/2019 15:41	Yijie Li	2115473, 2115474, 2115479
SM 2540 D-97	08/28/2019			08/30/2019 15:41	Yijie Li	2115473, 2115474, 2115479
SM 4500 F-C-97	08/28/2019			09/04/2019 01:33	Dale L. Simmons	2115473
	08/28/2019			09/04/2019 01:45	Dale L. Simmons	2115474
	08/28/2019			09/04/2019 02:00	Dale L. Simmons	2115479
SM 5310 B-00	08/28/2019			09/03/2019 15:25	Madeline Funaro	2115476
	08/28/2019			09/03/2019 16:14	Madeline Funaro	2115475
	08/28/2019			09/03/2019 18:44	Madeline Funaro	2115480