

Chemical Analysis Report

TLH-ROC-2019-04-29-01

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

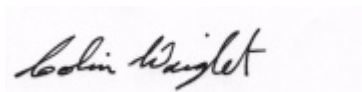
Event Description: **Run 10**
Request ID: **RQ-2019-04-29-73**
Customer: **TLH-ROC**
Project ID: **SMP**

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: 14-MAY-2019 10:33



NON-CONFORMANCE REPORT INCLUDED

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 Creek Upstream of Boat Ramp

Collection Date/Time: 04/29/2019 12:35

Field ID: G3TLHR0037

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081594	EPA 180.1 Rev. 2.0	Turbidity	6.0		NTU	P363110	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P363392	
		Sulfate	1.6		mg SO4/L	P363394	
	SM 2120 B	Color (true)	120		PCU	P363144	
	SM 2320 B-97	Total Alkalinity	2.6		mg CaCO3/L	P363361	
	SM 2540 C-97	TDS	50		mg/L	P363475	
	SM 2540 D-97	TSS	4	I	mg/L	P363418	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P363555	
2081597	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P363264	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P363616	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.063		mg N/L	P363306	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P363174	
	SM 5310 B-00	Organic Carbon	9.9		mg C/L	P363287	
2081600	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P363118	

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: MULE CREEK @ MOUTH

Collection Date/Time: 04/29/2019 12:45

Field ID: G3TLHR0038

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081595	EPA 180.1 Rev. 2.0	Turbidity	5.3		NTU	P363110	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P363392	
		Sulfate	1.6		mg SO4/L	P363394	
	SM 2120 B	Color (true)	92		PCU	P363144	
	SM 2320 B-97	Total Alkalinity	4.5		mg CaCO3/L	P363361	
	SM 2540 C-97	TDS	53		mg/L	P363475	
	SM 2540 D-97	TSS	3	IA	mg/L	P363418	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P363555	
2081598	EPA 350.1 Rev. 2.0	Ammonia-N	0.041	Y	mg N/L	P363264	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38	Y	mg N/L	P363616	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.062	Y	mg N/L	P363306	
	EPA 365.1 Rev. 2.0	Total-P	0.013	Y	mg P/L	P363174	
	SM 5310 B-00	Organic Carbon	8.1	Y	mg C/L	P363287	
2081601	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P363118	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 351.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 353.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 365.1 Rev. 2.0: Total-P: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

SM 5310 B-00: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Sample Location: LITTLE SANDY CREEK @ MOUTH

Collection Date/Time: 04/29/2019 13:05

Field ID: G3TLHR0039

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081596	EPA 180.1 Rev. 2.0	Turbidity	6.7		NTU	P363110	
	EPA 300.0 Rev. 2.1	Chloride	56		mg Cl/L	P363392	
		Sulfate	8.8		mg SO4/L	P363394	
	SM 2120 B	Color (true)	120		PCU	P363144	
	SM 2320 B-97	Total Alkalinity	1.9	I	mg CaCO3/L	P363361	
	SM 2540 C-97	TDS	142	A	mg/L	P363476	
	SM 2540 D-97	TSS	4	IA	mg/L	P363419	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P363555	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.061	Y	mg N/L	P363264	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58	Y	mg N/L	P363616	
2081599	EPA 353.2 Rev. 2.0	NO2NO3-N	0.33	Y	mg N/L	P363306	
	EPA 365.1 Rev. 2.0	Total-P	0.022	Y	mg P/L	P363175	
	SM 5310 B-00	Organic Carbon	11	Y	mg C/L	P363287	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P363118	
	dissolved						
2081602	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P363118	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 351.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 353.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 365.1 Rev. 2.0: Total-P: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

SM 5310 B-00: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Sample Location: EAGLE NEST BAYOU @ MOUTH

Collection Date/Time: 04/29/2019 13:30

Field ID: G3TLHR0041

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081603	EPA 180.1 Rev. 2.0	Turbidity	14	A	NTU	P363110	
	EPA 300.0	Bromide	2.1		mg Br/L	P363464	
	SM 2320 B-97	Total Alkalinity	27		mg CaCO3/L	P363361	
	SM 2540 D-97	TSS	12		mg/L	P363420	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P363555	
2081604	EPA 350.1 Rev. 2.0	Ammonia-N	0.045	Y	mg N/L	P363266	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59	Y	mg N/L	P363616	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12	Y	mg N/L	P363306	
	EPA 365.1 Rev. 2.0	Total-P	0.032	Y	mg P/L	P363175	
	SM 5310 B-00	Organic Carbon	8.7	Y	mg C/L	P363287	
2081605	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P363118	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 351.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 353.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 365.1 Rev. 2.0: Total-P: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

SM 5310 B-00: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Non-Conformance Report

NCR ID: 7648

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
TLH-ROC-2019-04-29-01	TLH-2019-04-29-01	2081598	
TLH-ROC-2019-04-29-01	TLH-2019-04-29-01	2081599	
TLH-ROC-2019-04-29-01	TLH-2019-04-29-01	2081604	

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Samples not preserved to pH < 2 with sulfuric acid.

Resolution: Samples preserved in the laboratory with sulfuric acid.
Lot:7163030 | Exp:06/12/2018
Data will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 5/2/2019

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363110

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P363464

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363392

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363394

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363264

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363266

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363616

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363306

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363174

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
Batch ID: P363175

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363118

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

Reference Method: SM 2120 B
Batch ID: P363144

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P363361

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

Reference Method: SM 2540 C-97
Batch ID: P363475

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P363476

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363418

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363419

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363420

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P363555

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P363287

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P363464

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	98.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363392

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363394

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363264

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363266

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363616

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363306

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363174

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363175

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363118

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.3		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P363144

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.6		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P363361

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P363555

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

Reference Method: SM 5310 B-00
Batch ID: P363287

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P363464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080801	Bromide	96.0	95.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081350	Chloride	100		P	90 - 110
2081699	Chloride	95.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363394

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081350	Sulfate	101		P	90 - 110
2081699	Sulfate	98.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081132	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081716	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363616

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081598	Kjeldahl Nitrogen	104	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363306

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080180	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363174

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081415	Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081716	Total-P	97.4	97.7	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363118

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081601	O-Phosphate-P	96.6	96.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P363555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081358	Fluoride	97.3	97.3	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P363287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081416	Organic Carbon	97.3	99.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081603	Turbidity	3.64	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P363464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080801	Bromide	0.557	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081699	Chloride	0.350	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081699	Sulfate	0.344	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081132	Ammonia-N	0.691	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081716	Ammonia-N	1.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081598	Kjeldahl Nitrogen	4.24	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080180	NO2NO3-N	0.562	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081415	Total-P	1.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081716	Total-P	0.232	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081601	O-Phosphate-P	0.103	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P363144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081698	Color (true)	1.17	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P363361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081358	Total Alkalinity	0.293	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P363475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081358	TDS	0.522	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P363476

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081596	TDS	6.36	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P363420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081827	TSS	7.69	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P363555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081358	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P363287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081416	Organic Carbon	1.57	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: A91101

Included Lab Sample IDs: 2081594, 2081595, 2081596, 2081603

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91104

Included Lab Sample IDs: 2081600, 2081601, 2081602, 2081605

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.8	P/P	90 - 110
O-Phosphate-P	98.8	99.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91105

Included Lab Sample IDs: 2081594, 2081595, 2081596

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

Reference Method: SM 2120 B

Run ID: A91118

Included Lab Sample IDs: 2081594, 2081595, 2081596

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.6	101	P/P	90 - 115

Reference Method: EPA 300.0

Run ID: A91122

Included Lab Sample IDs: 2081603

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91161

Included Lab Sample IDs: 2081597, 2081598, 2081599, 2081604

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91165

Included Lab Sample IDs: 2081597, 2081598, 2081599, 2081604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	105	P/P	90 - 110
Ammonia-N	103	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A91170

Included Lab Sample IDs: 2081597, 2081598, 2081599, 2081604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91184

Included Lab Sample IDs: 2081597, 2081598, 2081599, 2081604

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

Reference Method: SM 2320 B-97

Run ID: A91204

Included Lab Sample IDs: 2081594, 2081595, 2081596, 2081603

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	103	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91266

Included Lab Sample IDs: 2081594, 2081595, 2081596, 2081603

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91333

Included Lab Sample IDs: 2081597, 2081598, 2081599, 2081604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	98.3	P/P	90 - 110
Kjeldahl Nitrogen	98.3	102	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				3.64	
EPA 300.0	Bromide	98.7	96.0	95.0		0.557
EPA 300.0 Rev. 2.1	Chloride	99.5	95.6	100	0.350	
	Sulfate	101	98.6	101	0.344	
EPA 350.1 Rev. 2.0	Ammonia-N	100	101	100		0.691
	Ammonia-N	103	100	101		1.05
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	104	98.8		4.24
EPA 353.2 Rev. 2.0	NO2NO3-N	101	100	99.5		0.562
EPA 365.1 Rev. 2.0	Total-P	99.9	102	101		1.04
	Total-P	102	97.4	97.7		0.232
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	96.6	96.7		0.103
SM 2120 B	Color (true)	98.6			1.17	
SM 2320 B-97	Total Alkalinity	102			0.293	
SM 2540 C-97	TDS				0.522	
	TDS				6.36	
SM 2540 D-97	TSS				7.69	
SM 4500 F-C-97	Fluoride	96.5	97.3	97.3		0.0
SM 5310 B-00	Organic Carbon	100	97.3	99.4		1.57

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2081594, 2081595, 2081596, 2081603
EPA 300.0 / E31780	Bromide in aqueous matrices	2081603
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2081594, 2081595, 2081596
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2081594, 2081595, 2081596
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2081597, 2081598, 2081599, 2081604
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2081597, 2081598, 2081599, 2081604
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2081597, 2081598, 2081599, 2081604
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2081597, 2081598, 2081599, 2081604
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2081600, 2081601, 2081602, 2081605
SM 2120 B / E31780	True Color measured at 450 nm	2081594, 2081595, 2081596
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2081594, 2081595, 2081596, 2081603
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2081594, 2081595, 2081596
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2081594, 2081595, 2081596, 2081603
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2081594, 2081595, 2081596, 2081603
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2081597, 2081598, 2081599, 2081604

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	04/29/2019			04/30/2019 15:46	Adrian Shelby	2081594, 2081595, 2081596, 2081603
EPA 300.0	04/29/2019			05/02/2019 19:56	Lipi Saha	2081603
EPA 300.0 Rev. 2.1	04/29/2019			05/02/2019 17:23	Lipi Saha	2081594
	04/29/2019			05/02/2019 17:35	Lipi Saha	2081595
	04/29/2019			05/02/2019 17:47	Lipi Saha	2081596
EPA 350.1 Rev. 2.0	04/29/2019			05/02/2019 11:38	Ping Hua	2081597
	04/29/2019			05/02/2019 11:40	Ping Hua	2081598
	04/29/2019			05/02/2019 11:41	Ping Hua	2081599
	04/29/2019			05/02/2019 12:31	Ping Hua	2081604
EPA 351.2 Rev. 2.0	04/29/2019	05/08/2019 12:15	Adrian Shelby	05/09/2019 11:36	Joseph Suarez	2081597
	04/29/2019	05/08/2019 12:15	Adrian Shelby	05/09/2019 11:38	Joseph Suarez	2081598
	04/29/2019	05/08/2019 12:15	Adrian Shelby	05/09/2019 11:42	Joseph Suarez	2081599
	04/29/2019	05/08/2019 12:15	Adrian Shelby	05/09/2019 11:47	Joseph Suarez	2081604
EPA 353.2 Rev. 2.0	04/29/2019			05/03/2019 09:05	Beverly Y. Sanders	2081597
	04/29/2019			05/03/2019 09:06	Beverly Y. Sanders	2081598
	04/29/2019			05/03/2019 09:07	Beverly Y. Sanders	2081599
	04/29/2019			05/03/2019 09:08	Beverly Y. Sanders	2081604
EPA 365.1 Rev. 2.0	04/29/2019	05/01/2019 14:25	Sima Feizi	05/02/2019 13:39	Rosalyn Ballman	2081597
	04/29/2019	05/01/2019 14:25	Sima Feizi	05/02/2019 13:40	Rosalyn Ballman	2081598
	04/29/2019	05/01/2019 14:25	Sima Feizi	05/02/2019 13:42	Rosalyn Ballman	2081599
	04/29/2019	05/01/2019 14:25	Sima Feizi	05/02/2019 13:43	Rosalyn Ballman	2081604
EPA 365.1 Rev. 2.0 dissolved	04/29/2019			04/30/2019 15:32	Jhamieka S. Greenwood	2081601
	04/29/2019			04/30/2019 15:49	Jhamieka S. Greenwood	2081600, 2081602
	04/29/2019			04/30/2019 15:50	Jhamieka S. Greenwood	2081605
SM 2120 B	04/29/2019			04/30/2019 15:26	Blanca Fach	2081594
	04/29/2019			04/30/2019 15:27	Blanca Fach	2081595, 2081596
SM 2320 B-97	04/29/2019			05/04/2019 16:28	Samantha Davila	2081594
	04/29/2019			05/04/2019 16:42	Samantha Davila	2081595
	04/29/2019			05/04/2019 16:53	Samantha Davila	2081596
	04/29/2019			05/04/2019 20:28	Samantha Davila	2081603
SM 2540 C-97	04/29/2019			05/01/2019 14:56	Yijie Li	2081594, 2081595, 2081596
SM 2540 D-97	04/29/2019			05/01/2019 14:56	Yijie Li	2081594, 2081595, 2081596, 2081603
SM 4500 F-C-97	04/29/2019			05/07/2019 18:56	Dale L. Simmons	2081594
	04/29/2019			05/07/2019 19:00	Dale L. Simmons	2081595
	04/29/2019			05/07/2019 19:06	Dale L. Simmons	2081596
	04/29/2019			05/07/2019 19:55	Dale L. Simmons	2081603
SM 5310 B-00	04/29/2019			05/02/2019 17:25	Lauren Lees	2081597
	04/29/2019			05/02/2019 17:49	Lauren Lees	2081598
	04/29/2019			05/02/2019 18:01	Lauren Lees	2081599
	04/29/2019			05/02/2019 18:13	Lauren Lees	2081604