

Chemical Analysis Report

TLH-ROC-2019-04-24-01

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

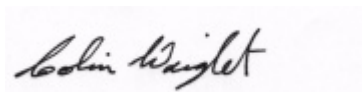
Event Description: **Run 12**
Request ID: **RQ-2019-04-22-33**
Customer: **TLH-ROC**
Project ID: **SMP**

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

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Certified by: Colin Wright, Program Administrator

Date Certified: 10-MAY-2019 15:48

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: CROOKED RIVER @ POST 46

Collection Date/Time: 04/24/2019 11:00

Field ID: G2TLHR0038

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080611	EPA 180.1 Rev. 2.0	Turbidity	4.2	A	NTU	P362875	
	EPA 300.0 Rev. 2.1	Chloride	110	A	mg Cl/L	P363140	
		Sulfate	12	A	mg SO4/L	P363141	
	SM 2120 B	Color (true)	250		PCU	P362889	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P363359	
	SM 2540 C-97	TDS	270	A	mg/L	P363471	
	SM 2540 D-97	TSS	3	IA	mg/L	P363414	
	SM 4500 F-C-97	Fluoride	0.063	I	mg F/L	P363554	
2080612	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P363040	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P363096	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P363078	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P362939	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P362984	
2080613	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P362868	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: ALLIGATOR HARBOR NEAR CLAM BEDS

Collection Date/Time: 04/24/2019 12:20

Field ID: G2TLHR0025

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080614	EPA 180.1 Rev. 2.0	Turbidity	7.4	A	NTU	P362876	
	EPA 300.0	Bromide	60		mg Br/L	P363302	
	SM 2320 B-97	Total Alkalinity	117		mg CaCO3/L	P363248	
	SM 2540 D-97	TSS	25		mg/L	P363415	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P363251	
2080617	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P363032	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P362998	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363156	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P362940	
	SM 5310 B-00	Organic Carbon	3.7		mg C/L	P362986	
2080620	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362871	

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: DICKERSON BAY SOUTH

Collection Date/Time: 04/24/2019 13:50

Field ID: G2TLHR0029

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080615	EPA 180.1 Rev. 2.0	Turbidity	3.4	A	NTU	P362877	
	EPA 300.0	Bromide	51		mg Br/L	P363302	
	SM 2320 B-97	Total Alkalinity	106		mg CaCO3/L	P363248	
	SM 2540 D-97	TSS	8	I	mg/L	P363415	
	SM 4500 F-C-97	Fluoride	0.96		mg F/L	P363251	
2080618	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P363041	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P362998	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363156	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P362940	
	SM 5310 B-00	Organic Carbon	4.7		mg C/L	P362986	
2080621	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362871	

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: DICKERSON BAY NORTH

Collection Date/Time: 04/24/2019 14:00

Field ID: G2TLHR0028

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080616	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P362877	
	EPA 300.0	Bromide	51		mg Br/L	P363302	
	SM 2320 B-97	Total Alkalinity	106		mg CaCO3/L	P363248	
	SM 2540 D-97	TSS	7	I	mg/L	P363415	
	SM 4500 F-C-97	Fluoride	0.97		mg F/L	P363251	
2080619	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P363041	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P362998	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363156	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P362940	
	SM 5310 B-00	Organic Carbon	4.4		mg C/L	P362986	
2080622	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362871	

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: P362875

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362876

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362877

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P363302

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363140

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363141

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363032

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363040

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363041

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362998

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363096

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363078

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363156

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362939

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362940

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362868

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362871

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

Reference Method: SM 2120 B
Batch ID: P362889

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P363248

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

Reference Method: SM 2320 B-97
Batch ID: P363359

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

Reference Method: SM 2540 C-97
Batch ID: P363471

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363414

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363415

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P363251

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P363554

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P362984

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

Reference Method: SM 5310 B-00
Batch ID: P362986

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: P363302

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363140

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363141

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363032

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363040

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363041

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362998

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363096

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363078

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P363156

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: P362939

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P362940

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P362868

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: P362871

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

Reference Method: SM 2120 B
 Batch ID: P362889

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	85 - 115

Reference Method: SM 2320 B-97
 Batch ID: P363248

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

Reference Method: SM 2320 B-97
 Batch ID: P363359

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 106

Reference Method: SM 4500 F-C-97
 Batch ID: P363251

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P363554

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

Reference Method: SM 5310 B-00
Batch ID: P362984

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P362986

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P363302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080614	Bromide	95.8	96.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080943	Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363141

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080611	Sulfate	98.2		P	90 - 110
2080943	Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363032

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080020	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363040

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080797	Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080618	Ammonia-N	104	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362998

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080415	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363096

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080612	Kjeldahl Nitrogen	105	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080612	NO2NO3-N	98.6	99.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080409	NO2NO3-N	98.2	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362939

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080502	Total-P	99.3	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362940

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080412	Total-P	96.5	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362868

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080800	O-Phosphate-P	96.4	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362871

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080621	O-Phosphate-P	94.7	96.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P363251

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081066	Fluoride	97.2	97.2	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P363554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080442	Fluoride	97.0	97.7	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P362984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080362	Organic Carbon	99.9	99.5	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P362986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080617	Organic Carbon	96.6	96.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080611	Turbidity	1.43	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080614	Turbidity	2.58	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080615	Turbidity	1.17	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P363302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080614	Bromide	0.179	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080611	Chloride	0.977	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080611	Sulfate	0.805	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080020	Ammonia-N	1.26	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080797	Ammonia-N	0.238	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080618	Ammonia-N	2.59	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080415	Kjeldahl Nitrogen	1.48	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363096

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080612	Kjeldahl Nitrogen	2.02	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080612	NO2NO3-N	0.428	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080409	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080502	Total-P	2.32	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080412	Total-P	0.307	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080800	O-Phosphate-P	0.918	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080621	O-Phosphate-P	2.19	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P362889

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080792	Color (true)	4.00	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P363248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081066	Total Alkalinity	0.908	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P363359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080442	Total Alkalinity	2.11	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P363471

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080611	TDS	1.11	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P363251

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081066	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P363554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080442	Fluoride	0.513	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P362984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080362	Organic Carbon	0.336	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P362986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080617	Organic Carbon	0.379	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 365.1 Rev. 2.0 dissolved

Run ID: A91004

Included Lab Sample IDs: 2080613, 2080620, 2080621, 2080622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	97.1	P/P	90 - 110
O-Phosphate-P	97.5	96.6	P/P	90 - 110
O-Phosphate-P	97.8	97.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91005

Included Lab Sample IDs: 2080611, 2080614, 2080615, 2080616

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105
Turbidity	99.0	99.0	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A91012

Included Lab Sample IDs: 2080611

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

Reference Method: SM 5310 B-00

Run ID: A91057

Included Lab Sample IDs: 2080612, 2080617, 2080618, 2080619

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91070

Included Lab Sample IDs: 2080617

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91072

Included Lab Sample IDs: 2080612, 2080618, 2080619

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	104	P/P	90 - 110
Ammonia-N	103	102	P/P	90 - 110
Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91076

Included Lab Sample IDs: 2080612, 2080617, 2080618, 2080619

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91088

Included Lab Sample IDs: 2080612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91105

Included Lab Sample IDs: 2080611

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

Reference Method: EPA 300.0

Run ID: A91122

Included Lab Sample IDs: 2080614, 2080615, 2080616

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	96.4	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91123

Included Lab Sample IDs: 2080617, 2080618, 2080619

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91153

Included Lab Sample IDs: 2080617, 2080618, 2080619

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.0	97.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91158

Included Lab Sample IDs: 2080614, 2080615, 2080616

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.9	P/P	90 - 110
Total Alkalinity	99.9	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91158

Included Lab Sample IDs: 2080614, 2080615, 2080616

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

Reference Method: SM 2320 B-97

Run ID: A91204

Included Lab Sample IDs: 2080611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A91204
Included Lab Sample IDs: 2080611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A91214
Included Lab Sample IDs: 2080612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.9	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A91266
Included Lab Sample IDs: 2080611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	101	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					1.43	
	Turbidity					2.58	
	Turbidity					1.17	
EPA 300.0	Bromide	98.6	95.8	96.1			0.179
EPA 300.0 Rev. 2.1	Chloride	99.9	99.2			0.977	
	Sulfate	100	98.2	99.7		0.805	
EPA 350.1 Rev. 2.0	Ammonia-N	101	104	103			1.26
	Ammonia-N	104	103	102			0.238
	Ammonia-N	104	104	106			2.59
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	107	105			1.48
	Kjeldahl Nitrogen	101	105	102			2.02
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	98.6	99.0			0.428
	NO ₂ NO ₃ -N	101	98.2	98.2			0.0
EPA 365.1 Rev. 2.0	Total-P	99.8	99.3	102			2.32
	Total-P	101	96.5	96.9			0.307
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	96.4	97.7			0.918
	O-Phosphate-P	100	94.7	96.8			2.19
SM 2120 B	Color (true)	99.2				4.00	
SM 2320 B-97	Total Alkalinity	102				0.908	
	Total Alkalinity	101				2.11	
SM 2540 C-97	TDS					1.11	
SM 4500 F-C-97	Fluoride	98.2	97.2	97.2			0.0
	Fluoride	96.5	97.0	97.7			0.513
SM 5310 B-00	Organic Carbon	98.4	99.9	99.5			0.336
	Organic Carbon	97.6	96.6	96.2			0.379

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2080611, 2080614, 2080615, 2080616
EPA 300.0 / E31780	Bromide in aqueous matrices	2080614, 2080615, 2080616
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2080611
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2080611
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2080612, 2080617, 2080618, 2080619
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2080612, 2080617, 2080618, 2080619
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2080612, 2080617, 2080618, 2080619
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2080612, 2080617, 2080618, 2080619
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2080613, 2080620, 2080621, 2080622
SM 2120 B / E31780	True Color measured at 450 nm	2080611
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2080611, 2080614, 2080615, 2080616
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2080611
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2080611, 2080614, 2080615, 2080616
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2080611, 2080614, 2080615, 2080616
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2080612, 2080617, 2080618, 2080619

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	04/24/2019			04/25/2019 18:32	Julia Storbeck	2080611, 2080614, 2080615, 2080616
EPA 300.0	04/24/2019			05/01/2019 13:29	Lipi Saha	2080614
	04/24/2019			05/01/2019 14:20	Lipi Saha	2080615
	04/24/2019			05/01/2019 14:37	Lipi Saha	2080616
EPA 300.0 Rev. 2.1	04/24/2019			04/30/2019 16:29	Lipi Saha	2080611
EPA 350.1 Rev. 2.0	04/24/2019			04/26/2019 12:48	Ping Hua	2080617
	04/24/2019			04/29/2019 12:05	Ping Hua	2080612
	04/24/2019			04/29/2019 12:23	Ping Hua	2080618
	04/24/2019			04/29/2019 12:34	Ping Hua	2080619
EPA 351.2 Rev. 2.0	04/24/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 09:06	Joseph Suarez	2080617
	04/24/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 09:08	Joseph Suarez	2080618
	04/24/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 09:09	Joseph Suarez	2080619
	04/24/2019	04/30/2019 12:15	Adrian Shelby	05/06/2019 09:29	Joseph Suarez	2080612
EPA 353.2 Rev. 2.0	04/24/2019			04/30/2019 10:29	Beverly Y. Sanders	2080612
	04/24/2019			05/01/2019 10:09	Beverly Y. Sanders	2080617
	04/24/2019			05/01/2019 10:10	Beverly Y. Sanders	2080618
	04/24/2019			05/01/2019 10:11	Beverly Y. Sanders	2080619
EPA 365.1 Rev. 2.0	04/24/2019	04/26/2019 14:10	Sima Feizi	04/29/2019 16:04	Rosalyn Ballman	2080612
	04/24/2019	04/26/2019 14:10	Sima Feizi	04/29/2019 16:08	Rosalyn Ballman	2080617
	04/24/2019	04/26/2019 14:10	Sima Feizi	04/29/2019 16:09	Rosalyn Ballman	2080618, 2080619
EPA 365.1 Rev. 2.0 dissolved	04/24/2019			04/25/2019 15:06	Jhamieka S. Greenwood	2080621
	04/24/2019			04/25/2019 15:34	Jhamieka S. Greenwood	2080613
	04/24/2019			04/25/2019 15:54	Jhamieka S. Greenwood	2080620
	04/24/2019			04/25/2019 15:55	Jhamieka S. Greenwood	2080622
SM 2120 B	04/24/2019			04/25/2019 15:28	Blanca Fach	2080611
SM 2320 B-97	04/24/2019			05/02/2019 09:40	Dale L. Simmons	2080614
	04/24/2019			05/02/2019 10:50	Dale L. Simmons	2080615
	04/24/2019			05/02/2019 11:02	Dale L. Simmons	2080616
	04/24/2019			05/04/2019 04:09	Samantha Davila	2080611
SM 2540 C-97	04/24/2019			04/26/2019 14:16	Yijie Li	2080611
SM 2540 D-97	04/24/2019			04/26/2019 14:16	Yijie Li	2080611, 2080614, 2080615, 2080616
SM 4500 F-C-97	04/24/2019			05/02/2019 06:18	Dale L. Simmons	2080614
	04/24/2019			05/02/2019 06:22	Dale L. Simmons	2080615
	04/24/2019			05/02/2019 06:25	Dale L. Simmons	2080616
	04/24/2019			05/07/2019 16:35	Dale L. Simmons	2080611
SM 5310 B-00	04/24/2019			04/27/2019 00:37	Julia Storbeck	2080612
	04/24/2019			04/27/2019 08:09	Julia Storbeck	2080617
	04/24/2019			04/27/2019 08:46	Julia Storbeck	2080618
	04/24/2019			04/27/2019 09:00	Julia Storbeck	2080619