

Chemical Analysis Report

CEN-DIST-2019-02-28-01

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

Event Description: **Bird Lk x2 / Faulk Canal**
Request ID: **RQ-2019-02-25-65**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 20-MAR-2019 14:35

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

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: Falk Canal @ 50m upstream of Fiske Blvd

Collection Date/Time: 02/27/2019 11:12

Field ID: G3CE0016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2065959	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P359713	
	EPA 300.0 Rev. 2.1	Chloride	300		mg Cl/L	P360204	
		Sulfate	76		mg SO4/L	P360209	
		Color (true)	74		PCU	P359709	
	SM 2320 B-97	Total Alkalinity	78		mg CaCO3/L	P360161	
	SM 2540 C-97	TDS	732		mg/L	P360003	
	SM 2540 D-97	TSS	3	I	mg/L	P359853	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P360164	
2065964	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P359837	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P359827	
	EPA 365.1 Rev. 2.0	Total-P	0.047		mg P/L	P359844	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P360190	
2065969	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P359719	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Bird Lake Ditch @ E side of S Fork Rd

Collection Date/Time: 02/27/2019 11:42

Field ID: G3CE0013

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2065960	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P359713	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P360204	
		Sulfate	48		mg SO4/L	P360209	
	SM 2120 B	Color (true)	27		PCU	P359709	
	SM 2320 B-97	Total Alkalinity	277		mg CaCO3/L	P360161	
	SM 2540 C-97	TDS	526	A	mg/L	P360003	
	SM 2540 D-97	TSS	2	UA	mg/L	P359853	
	SM 4500 F-C-97	Fluoride	0.063	I	mg F/L	P360164	
2065965	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P359837	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.058		mg N/L	P359827	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P359844	
	SM 5310 B-00	Organic Carbon	7.5		mg C/L	P360190	
2065970	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.053		mg P/L	P359719	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Bird Lake Ditches @ 75m East of FL 407

Collection Date/Time: 02/27/2019 12:08

Field ID: G3CE0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2065961	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P359713	
	EPA 300.0 Rev. 2.1	Chloride	91		mg Cl/L	P360204	
		Sulfate	48		mg SO4/L	P360209	
	SM 2120 B	Color (true)	20		PCU	P359709	
	SM 2320 B-97	Total Alkalinity	277		mg CaCO3/L	P360161	
	SM 2540 C-97	TDS	497		mg/L	P360003	
	SM 2540 D-97	TSS	2	I	mg/L	P359853	
	SM 4500 F-C-97	Fluoride	0.043	I	mg F/L	P360164	
2065966	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P359837	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.025		mg N/L	P359827	
	EPA 365.1 Rev. 2.0	Total-P	0.098		mg P/L	P359844	
	SM 5310 B-00	Organic Carbon	6.6		mg C/L	P360190	
2065971	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.050		mg P/L	P359719	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: SJR @ Power line crossing

Collection Date/Time: 02/27/2019 09:27

Field ID: G3CE0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2065962	EPA 180.1 Rev. 2.0	Turbidity	9.5	A	NTU	P359717	
	EPA 300.0 Rev. 2.1	Chloride	250		mg Cl/L	P360204	
		Sulfate	110		mg SO4/L	P360209	
	SM 2120 B	Color (true)	97		PCU	P359710	
	SM 2320 B-97	Total Alkalinity	81		mg CaCO3/L	P360161	
	SM 2540 C-97	TDS	692		mg/L	P360003	
	SM 2540 D-97	TSS	11		mg/L	P359853	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P360164	
2065967	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P359837	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.096		mg N/L	P359827	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P359844	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P360190	
2065972	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P359719	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Florence Lake @ Center

Collection Date/Time: 02/27/2019 10:37

Field ID: G3CE0012

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2065963	EPA 180.1 Rev. 2.0	Turbidity	15	A	NTU	P359718	
	EPA 300.0 Rev. 2.1	Chloride	380		mg Cl/L	P360204	
		Sulfate	320		mg SO4/L	P360209	
	SM 2120 B	Color (true)	73	A	PCU	P359710	
	SM 2320 B-97	Total Alkalinity	64		mg CaCO3/L	P360161	
	SM 2540 C-97	TDS	1.45E+03		mg/L	P360004	
	SM 2540 D-97	TSS	18		mg/L	P359854	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P360164	
2065968	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P359837	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P359827	
	EPA 365.1 Rev. 2.0	Total-P	0.089		mg P/L	P359844	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P360190	
2065973	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P359719	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P359713

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P359717

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P359718

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360204

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360209

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359837

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359827

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: P359844

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359719

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P359709

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P359710

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P360161

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

Reference Method: SM 2540 C-97
Batch ID: P360003

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P360004

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P359853

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P359854

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P360164

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P360190

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: P360204

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360209

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	105		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359837

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359827

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359844

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: P359719

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

Reference Method: SM 2120 B
Batch ID: P359709

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

Reference Method: SM 2120 B
Batch ID: P359710

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P360161

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P360164

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

Reference Method: SM 5310 B-00
Batch ID: P360190

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360204

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065922	Chloride	105		P	90 - 110
2066095	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065922	Sulfate	103		P	90 - 110
2066095	Sulfate	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065949	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359844

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065966	Total-P	103	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359719

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065885	O-Phosphate-P	97.0	97.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P360164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065784	Fluoride	97.1	95.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P360190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065884	Organic Carbon	95.2	95.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P359713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065875	Turbidity	3.80	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P359717

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065962	Turbidity	4.01	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P359718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065963	Turbidity	2.72	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065922	Chloride	0.719	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065922	Sulfate	0.683	Sample	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065923	Kjeldahl Nitrogen	1.51	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065949	NO2NO3-N	0.384	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359844

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065966	Total-P	2.43	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065885	O-Phosphate-P	0.412	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P359709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065881	Color (true)	1.43	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P359710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065963	Color (true)	2.53	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P360161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065784	Total Alkalinity	0.176	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P360003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065960	TDS	0.380	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P360004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2066092	TDS	1.76	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P360164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065784	Fluoride	1.45	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P360190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065884	Organic Carbon	0.267	Spike	P	0 - 20

Quality Assurance Report

Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A89729

Included Lab Sample IDs: 2065959, 2065960, 2065961, 2065962, 2065963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.2	P/P	90 - 115
Color (true)	97.4	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A89730

Included Lab Sample IDs: 2065959, 2065960, 2065961, 2065962, 2065963

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A89731

Included Lab Sample IDs: 2065969, 2065970, 2065971, 2065972, 2065973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.5	96.4	P/P	90 - 110
O-Phosphate-P	97.9	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89771

Included Lab Sample IDs: 2065964, 2065965, 2065966, 2065967, 2065968

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: A89812

Included Lab Sample IDs: 2065964, 2065965, 2065966, 2065967, 2065968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A89885

Included Lab Sample IDs: 2065959, 2065960, 2065961, 2065962, 2065963

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

Reference Method: SM 2320 B-97

Run ID: A89907

Included Lab Sample IDs: 2065959, 2065960, 2065961, 2065962, 2065963

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A89907

Included Lab Sample IDs: 2065959, 2065960, 2065961, 2065962, 2065963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A89919

Included Lab Sample IDs: 2065964, 2065965, 2065966, 2065967, 2065968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.5	93.2	P/P	90 - 110
Organic Carbon	94.4	93.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89939

Included Lab Sample IDs: 2065965, 2065966, 2065967, 2065968

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89942

Included Lab Sample IDs: 2065964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	103	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				3.80	
	Turbidity				4.01	
	Turbidity				2.72	
EPA 300.0 Rev. 2.1	Chloride	105	105	104	0.719	
	Sulfate	105	103	104	0.683	
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105				1.51
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	101	101		0.384
EPA 365.1 Rev. 2.0	Total-P	101	103	100		2.43
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	97.0	97.4		0.412
SM 2120 B	Color (true)	99.3			1.43	
	Color (true)	99.9			2.53	
SM 2320 B-97	Total Alkalinity	102			0.176	
SM 2540 C-97	TDS				0.380	
	TDS				1.76	
SM 4500 F-C-97	Fluoride	95.2	97.1	95.6		1.45
SM 5310 B-00	Organic Carbon	96.6	95.2	95.5		0.267

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2065959, 2065960, 2065961, 2065962, 2065963
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2065959, 2065960, 2065961, 2065962, 2065963
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2065959, 2065960, 2065961, 2065962, 2065963
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2065964, 2065965, 2065966, 2065967, 2065968
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2065964, 2065965, 2065966, 2065967, 2065968
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2065964, 2065965, 2065966, 2065967, 2065968
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2065969, 2065970, 2065971, 2065972, 2065973
SM 2120 B / E31780	True Color measured at 450 nm	2065959, 2065960, 2065961, 2065962, 2065963
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2065959, 2065960, 2065961, 2065962, 2065963
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2065959, 2065960, 2065961, 2065962, 2065963
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2065959, 2065960, 2065961, 2065962, 2065963
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2065959, 2065960, 2065961, 2065962, 2065963
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2065964, 2065965, 2065966, 2065967, 2065968

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	02/28/2019			02/28/2019 17:07	Adrian Shelby	2065959, 2065960, 2065961, 2065962, 2065963
EPA 300.0 Rev. 2.1	02/28/2019			03/09/2019 16:31	Lipi Saha	2065959
	02/28/2019			03/09/2019 16:46	Lipi Saha	2065960
	02/28/2019			03/09/2019 17:01	Lipi Saha	2065961
	02/28/2019			03/09/2019 18:00	Lipi Saha	2065962
	02/28/2019			03/09/2019 18:15	Lipi Saha	2065963
EPA 351.2 Rev. 2.0	02/28/2019	03/04/2019 16:00	Adrian Shelby	03/05/2019 13:11	Joseph Suarez	2065964
	02/28/2019	03/04/2019 16:00	Adrian Shelby	03/05/2019 13:12	Joseph Suarez	2065965
	02/28/2019	03/04/2019 16:00	Adrian Shelby	03/05/2019 13:14	Joseph Suarez	2065966
	02/28/2019	03/04/2019 16:00	Adrian Shelby	03/05/2019 13:15	Joseph Suarez	2065967
	02/28/2019	03/04/2019 16:00	Adrian Shelby	03/05/2019 13:17	Joseph Suarez	2065968
EPA 353.2 Rev. 2.0	02/28/2019			03/04/2019 11:29	Beverly Y. Sanders	2065964
	02/28/2019			03/04/2019 11:30	Beverly Y. Sanders	2065965
	02/28/2019			03/04/2019 11:31	Beverly Y. Sanders	2065966
	02/28/2019			03/04/2019 11:32	Beverly Y. Sanders	2065967
	02/28/2019			03/04/2019 11:33	Beverly Y. Sanders	2065968
EPA 365.1 Rev. 2.0	02/28/2019	03/04/2019 13:30	Sima Feizi	03/08/2019 22:39	Rosalyn Ballman	2065966
	02/28/2019	03/04/2019 13:30	Sima Feizi	03/08/2019 22:43	Rosalyn Ballman	2065965
	02/28/2019	03/04/2019 13:30	Sima Feizi	03/08/2019 22:45	Rosalyn Ballman	2065967
	02/28/2019	03/04/2019 13:30	Sima Feizi	03/08/2019 22:46	Rosalyn Ballman	2065968
	02/28/2019	03/04/2019 13:30	Sima Feizi	03/11/2019 16:00	Rosalyn Ballman	2065964
EPA 365.1 Rev. 2.0 dissolved	02/28/2019			02/28/2019 16:06	Jhamieka S. Greenwood	2065970
	02/28/2019			02/28/2019 16:08	Jhamieka S. Greenwood	2065971
	02/28/2019			02/28/2019 16:09	Jhamieka S. Greenwood	2065969
	02/28/2019			02/28/2019 16:10	Jhamieka S. Greenwood	2065972
	02/28/2019			02/28/2019 16:16	Jhamieka S. Greenwood	2065973
SM 2120 B	02/28/2019			02/28/2019 16:15	Chelsea Hernandez	2065959
	02/28/2019			02/28/2019 16:16	Chelsea Hernandez	2065960, 2065961
	02/28/2019			02/28/2019 16:20	Chelsea Hernandez	2065962
	02/28/2019			02/28/2019 16:22	Chelsea Hernandez	2065963
SM 2320 B-97	02/28/2019			03/08/2019 06:57	Dale L. Simmons	2065960
	02/28/2019			03/08/2019 07:12	Dale L. Simmons	2065961
	02/28/2019			03/08/2019 07:25	Dale L. Simmons	2065962
	02/28/2019			03/08/2019 07:39	Dale L. Simmons	2065959
	02/28/2019			03/08/2019 07:51	Dale L. Simmons	2065963
SM 2540 C-97	02/28/2019			03/01/2019 15:45	Mariam Hanna	2065959, 2065960, 2065961, 2065962, 2065963
SM 2540 D-97	02/28/2019			03/01/2019 15:45	Mariam Hanna	2065959, 2065960, 2065961, 2065962, 2065963
SM 4500 F-C-97	02/28/2019			03/08/2019 06:57	Dale L. Simmons	2065960

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-97	02/28/2019			03/08/2019 07:12	Dale L. Simmons	2065961
	02/28/2019			03/08/2019 07:25	Dale L. Simmons	2065962
	02/28/2019			03/08/2019 07:39	Dale L. Simmons	2065959
	02/28/2019			03/08/2019 07:51	Dale L. Simmons	2065963
SM 5310 B-00	02/28/2019			03/08/2019 04:58	Julia Storbeck	2065965
	02/28/2019			03/08/2019 07:37	Julia Storbeck	2065964
	02/28/2019			03/08/2019 07:51	Julia Storbeck	2065966
	02/28/2019			03/08/2019 08:10	Julia Storbeck	2065967
	02/28/2019			03/08/2019 08:24	Julia Storbeck	2065968