

Chemical Analysis Report

WQAP-2016-06-23-05

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

Event Description: **Sally Ward Spring, Eight Mile Pond, Godby Ditch, Black Creek and Soapstone Branc**

Request ID: **RQ-2016-06-06-56**

Customer: **WQAP**

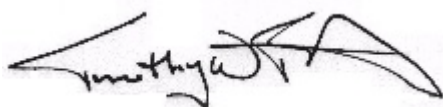
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
Tallahassee, FL 32399-2400
Attn: Benjamin Ralys

For additional information please contact
Timothy W. Fitzpatrick
Liang-Tsair Lin, Ph.D.
Colin Wright, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 18-JUL-2016 13:39

A handwritten signature in black ink, appearing to read "Timothy W. Fitzpatrick", with a stylized flourish at the end.

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 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: Godby Drainage Ditch @ Vega Dr.

Collection Date/Time: 06/23/2016 09:55

Field ID: G1WA0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1811077	EPA 180.1 Rev. 2.0	Turbidity	2.1	A	NTU	P306840	
	EPA 300.0 Rev. 2.1	Chloride	7.7		mg Cl/L	P307177	
	SM 2120 B	Color (true)	11		PCU	P306775	
	SM 2320 B-97	Total Alkalinity	79		mg CaCO3/L	P307349	
	SM 2540 C-97	TDS	88		mg/L	P307592	
	SM 2540 D-97	TSS	2	I	mg/L	P307453	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P307516	
1811081	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P307089	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P306957	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306921	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P306959	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P307215	
1811085	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.074		mg P/L	P306846	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: Eight Mile Pond Middle

Collection Date/Time: 06/23/2016 11:15

Field ID: G1WA0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1811078	EPA 180.1 Rev. 2.0	Turbidity	9.3		NTU	P306840	
	EPA 300.0 Rev. 2.1	Chloride	2.4	A	mg Cl/L	P307177	
	SM 2120 B	Color (true)	40	A	PCU	P306775	
	SM 2320 B-97	Total Alkalinity	34		mg CaCO3/L	P307349	
	SM 2540 C-97	TDS	48		mg/L	P307592	
	SM 2540 D-97	TSS	10	I	mg/L	P307453	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P307516	
1811082	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P307089	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P306957	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P306921	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P307002	
	SM 5310 B-00	Organic Carbon	7.4		mg C/L	P307215	
1811086	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.082		mg P/L	P306846	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: Sally Ward Spring @ Wakulla Park Dr.

Collection Date/Time: 06/23/2016 11:57

Field ID: G1WA0021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1811079	EPA 180.1 Rev. 2.0	Turbidity	0.20		NTU	P306840	
	EPA 300.0 Rev. 2.1	Chloride	8.7		mg Cl/L	P307177	
	SM 2120 B	Color (true)	2.5	U	PCU	P306775	
	SM 2320 B-97	Total Alkalinity	146	A	mg CaCO3/L	P307350	
	SM 2540 C-97	TDS	170		mg/L	P307592	

Field ID: G1WA0021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1811079	SM 2540 D-97	TSS	2	U	mg/L	P307453	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P307517	
1811083	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P307089	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.097	I	mg N/L	P306957	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.62		mg N/L	P306921	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P307002	
	SM 5310 B-00	Organic Carbon	0.52	I	mg C/L	P307215	
1811087	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.032		mg P/L	P306846	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: Black Creek 100m Upstream of Bloxham Cutoff Collection Date/Time: 06/23/2016 13:15

Field ID: G1WA0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1811080	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P306840	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P307177	
	SM 2120 B	Color (true)	650		PCU	P306775	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P307349	
	SM 2540 C-97	TDS	89		mg/L	P307592	
	SM 2540 D-97	TSS	4	I	mg/L	P307453	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P307516	
1811084	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P307089	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P306957	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306921	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P307002	
	SM 5310 B-00	Organic Carbon	55		mg C/L	P307215	
1811088	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P306846	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P306840

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P307177

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307089

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306957

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306921

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306959

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307002

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306846

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

Reference Method: SM 2120 B
Batch ID: P306775

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P307349

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2320 B-97
Batch ID: P307350

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P307592

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307453

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307516

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P307517

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307215

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: P307177

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307089

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306957

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306921

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306959

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307002

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P307349

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P307350

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P307516

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P307517

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P307215

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811077	Chloride	99.0		P	90 - 110
1811078	Chloride	98.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307089

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810941	Ammonia-N	91.2	90.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306957

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811081	Kjeldahl Nitrogen	98.1	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811082	NO2NO3-N	98.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306959

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810941	Total-P	98.6	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307002

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811082	Total-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811085	O-Phosphate-P	100	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P307516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811123	Fluoride	98.6	98.6	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P307517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811079	Fluoride	99.5	101	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P307215

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810895	Organic Carbon	107		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P306840

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811077	Turbidity	1.46	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P307177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811078	Chloride	0.175	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P307089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810941	Ammonia-N	0.653	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P306957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811081	Kjeldahl Nitrogen	3.67	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P306921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811082	NO2NO3-N	1.54	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P306959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810941	Total-P	1.08	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811082	Total-P	0.384	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811085	O-Phosphate-P	0.917	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P306775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811078	Color (true)	3.99	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P307349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811123	Total Alkalinity	0.670	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P307350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811079	Total Alkalinity	0.475	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P307592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811100	TDS	1.34	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P307516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811123	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P307517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811079	Fluoride	0.979	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P307215

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810895	Organic Carbon	0.884	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A70198
Included Lab Sample IDs: 1811077, 1811078, 1811079, 1811080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	100	P/P	90 - 115
Color (true)	100	98.8	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70221
Included Lab Sample IDs: 1811077, 1811078, 1811079, 1811080

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A70223
Included Lab Sample IDs: 1811085, 1811086, 1811087, 1811088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	99.1	P/P	90 - 110
O-Phosphate-P	99.1	99.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70248
Included Lab Sample IDs: 1811081, 1811082, 1811083, 1811084

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A70292
Included Lab Sample IDs: 1811081, 1811082, 1811083, 1811084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	100	P/P	90 - 110
Kjeldahl Nitrogen	99.4	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70294

Included Lab Sample IDs: 1811081, 1811082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	103	P/P	90 - 110
Total-P	102	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70306

Included Lab Sample IDs: 1811081, 1811082, 1811083, 1811084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	92.9	91.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70313

Included Lab Sample IDs: 1811077, 1811078, 1811079, 1811080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.4	P/P	90 - 110
Chloride	99.2	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70345

Included Lab Sample IDs: 1811083, 1811084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	100	P/P	90 - 110
Total-P	99.8	101	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70358

Included Lab Sample IDs: 1811081, 1811082, 1811083, 1811084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	106	P/P	90 - 110
Organic Carbon	106	107	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A70404

Included Lab Sample IDs: 1811077, 1811078, 1811079, 1811080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A70440

Included Lab Sample IDs: 1811077, 1811078, 1811079, 1811080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.5	P/P	90 - 110
Fluoride	99.0	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

* 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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.46	
EPA 300.0 Rev. 2.1	Chloride	99.1	98.4	99.0		0.175	
EPA 350.1 Rev. 2.0	Ammonia-N	93.0	91.2	90.5			0.653
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	98.1	102			3.67
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	98.0	100			1.54
EPA 365.1 Rev. 2.0	Total-P	103	98.6	97.5			1.08
	Total-P	99.2	100	101			0.384
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	100	102			0.917
SM 2120 B	Color (true)					3.99	
SM 2320 B-97	Total Alkalinity	103				0.670	
	Total Alkalinity	103				0.475	
SM 2540 C-97	TDS					1.34	
SM 4500 F-C-97	Fluoride	97.2	98.6	98.6			0.0
	Fluoride	97.2	99.5	101			0.979
SM 5310 B-00	Organic Carbon	101	107				0.884

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1811077, 1811078, 1811079, 1811080
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1811077, 1811078, 1811079, 1811080
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1811081, 1811082, 1811083, 1811084
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1811081, 1811082, 1811083, 1811084
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1811081, 1811082, 1811083, 1811084
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1811081, 1811082, 1811083, 1811084
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1811085, 1811086, 1811087, 1811088
SM 2120 B / E31780	True Color measured at 450 nm	1811077, 1811078, 1811079, 1811080
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1811077, 1811078, 1811079, 1811080
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1811077, 1811078, 1811079, 1811080
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1811077, 1811078, 1811079, 1811080
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1811077, 1811078, 1811079, 1811080
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1811081, 1811082, 1811083, 1811084

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	06/23/2016			06/24/2016 15:08	Sima Feizi	1811077, 1811078, 1811079, 1811080
EPA 300.0 Rev. 2.1	06/23/2016			06/29/2016	Ping Hua	1811077, 1811078, 1811079, 1811080
EPA 350.1 Rev. 2.0	06/23/2016			06/29/2016	Diana M. Turner	1811081, 1811082, 1811083, 1811084
EPA 351.2 Rev. 2.0	06/23/2016	06/28/2016	Sofia Elnemr	06/29/2016	Christopher Armour	1811081, 1811082, 1811083, 1811084
EPA 353.2 Rev. 2.0	06/23/2016			06/27/2016	Peter D. Kaus	1811081, 1811082, 1811083, 1811084
EPA 365.1 Rev. 2.0	06/23/2016	06/28/2016	Vijayalakshmi Reddy	06/29/2016	Lipi Saha	1811081, 1811082, 1811083, 1811084
EPA 365.1 Rev. 2.0 dissolved	06/23/2016			06/24/2016 15:34	Julia Storbeck	1811085
	06/23/2016			06/24/2016 16:12	Julia Storbeck	1811088
	06/23/2016			06/24/2016 16:13	Julia Storbeck	1811086
	06/23/2016			06/24/2016 16:14	Julia Storbeck	1811087
	06/23/2016			06/23/2016 17:00	Rochelle Y Jackson	1811077
SM 2120 B	06/23/2016			06/23/2016 17:02	Rochelle Y Jackson	1811078, 1811079
	06/23/2016			06/23/2016 17:16	Rochelle Y Jackson	1811080
	06/23/2016			07/05/2016	Dale L. Simmons	1811077, 1811078, 1811080
SM 2320 B-97	06/23/2016			07/06/2016	Dale L. Simmons	1811079
	06/23/2016			06/27/2016	Sima Feizi	1811077, 1811078, 1811079, 1811080
SM 2540 C-97	06/23/2016			06/27/2016	Sima Feizi	1811077, 1811078, 1811079, 1811080
SM 2540 D-97	06/23/2016			07/07/2016	Dale L. Simmons	1811077, 1811078, 1811079, 1811080
SM 4500 F-C-97	06/23/2016			06/30/2016	Sofia Elnemr	1811081, 1811082, 1811083, 1811084
SM 5310 B-00	06/23/2016					