

Chemical Analysis Report

WQAP-2016-08-03-06

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

Event Description: **Alligator Creek**
Request ID: **RQ-2016-08-01-38**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
Tallahassee, FL 32399-2400
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Certified by: Colin Wright, Environmental Administrator

Date Certified: 25-AUG-2016 14:02

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored rectangular 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 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: Alligator Creek Upstream of SR 273

Collection Date/Time: 08/03/2016 09:30

Field ID: G3WA0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1821627	EPA 180.1 Rev. 2.0	Turbidity	32		NTU	P309219	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P309731	
	SM 2120 B	Color (true)	130		PCU	P309235	
	SM 2320 B-97	Total Alkalinity	7.8		mg CaCO3/L	P309335	
	SM 2540 C-97	TDS	45		mg/L	P309788	
	SM 2540 D-97	TSS	3	I	mg/L	P309711	
	SM 4500 F-C-97	Fluoride	0.047	I	mg F/L	P309342	
1821633	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P309214	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P309860	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.059		mg N/L	P309665	
	EPA 365.1 Rev. 2.0	Total-P	0.080		mg P/L	P309644	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P310029	
1821639	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P309169	

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: Little Alligator Creek at SR 273

Collection Date/Time: 08/03/2016 10:00

Field ID: G3WA0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1821628	EPA 180.1 Rev. 2.0	Turbidity	20		NTU	P309219	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P309731	
	SM 2120 B	Color (true)	95		PCU	P309235	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P309335	
	SM 2540 C-97	TDS	50		mg/L	P309789	
	SM 2540 D-97	TSS	6	I	mg/L	P309712	
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P309342	
1821634	EPA 350.1 Rev. 2.0	Ammonia-N	0.059		mg N/L	P309214	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P309860	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P309665	
	EPA 365.1 Rev. 2.0	Total-P	0.090		mg P/L	P309644	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P310029	
1821640	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.036		mg P/L	P309169	

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: Scurlock Creek at Pligim Rd.

Collection Date/Time: 08/03/2016 11:00

Field ID: G3WA0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1821629	EPA 180.1 Rev. 2.0	Turbidity	7.2		NTU	P309219	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P309731	
	SM 2120 B	Color (true)	180		PCU	P309233	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P309335	
	SM 2540 C-97	TDS	66		mg/L	P309789	

Field ID: G3WA0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1821629	SM 2540 D-97	TSS	4	I	mg/L	P309712	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P309342	
1821635	EPA 350.1 Rev. 2.0	Ammonia-N	0.081		mg N/L	P309214	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P309860	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P309665	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P309644	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P310029	
1821641	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.017		mg P/L	P309169	

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: Pine Boon Creek at Woodrest Rd.

Collection Date/Time: 08/03/2016 11:20

Field ID: G3WA0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1821630	EPA 180.1 Rev. 2.0	Turbidity	5.3		NTU	P309219	
	EPA 300.0 Rev. 2.1	Chloride	1.0		mg Cl/L	P309731	
	SM 2120 B	Color (true)	85	A	PCU	P309233	
	SM 2320 B-97	Total Alkalinity	7.9		mg CaCO3/L	P309337	
	SM 2540 C-97	TDS	34		mg/L	P309789	
	SM 2540 D-97	TSS	5	I	mg/L	P309712	
	SM 4500 F-C-97	Fluoride	0.046	I	mg F/L	P309344	
1821636	EPA 350.1 Rev. 2.0	Ammonia-N	0.081		mg N/L	P309214	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P309860	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P309665	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P309644	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P310029	
1821642	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P309169	

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: Unnamed Creek at Woodrest

Collection Date/Time: 08/03/2016 11:45

Field ID: G3WA0010

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1821631	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P309219	
	EPA 300.0 Rev. 2.1	Chloride	7.3		mg Cl/L	P309731	
	SM 2120 B	Color (true)	110		PCU	P309233	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P309337	
	SM 2540 C-97	TDS	62		mg/L	P309789	
	SM 2540 D-97	TSS	4	I	mg/L	P309712	
	SM 4500 F-C-97	Fluoride	0.056	I	mg F/L	P309344	
1821637	EPA 350.1 Rev. 2.0	Ammonia-N	0.19		mg N/L	P309214	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P309860	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.084		mg N/L	P309665	
	EPA 365.1 Rev. 2.0	Total-P	0.061		mg P/L	P309644	

Field ID: G3WA0010					Matrix: W-SURF-FRH		
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1821637	SM 5310 B-00	Organic Carbon	12		mg C/L	P310029	
1821643	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P309169	
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: Alligator Creek Upstream of Bently Rd.				Collection Date/Time: 08/03/2016 10:30			

Field ID: G3WA0004					Matrix: W-SURF-FRH		
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1821632	EPA 180.1 Rev. 2.0	Turbidity	22		NTU	P309219	
	EPA 300.0 Rev. 2.1	Chloride	5.4		mg Cl/L	P309731	
	SM 2120 B	Color (true)	95	A	PCU	P309235	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P309337	
	SM 2540 C-97	TDS	51		mg/L	P309789	
	SM 2540 D-97	TSS	6	I	mg/L	P309712	
	SM 4500 F-C-97	Fluoride	0.053	I	mg F/L	P309344	
1821638	EPA 350.1 Rev. 2.0	Ammonia-N	0.057		mg N/L	P309214	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P309860	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P309665	
	EPA 365.1 Rev. 2.0	Total-P	0.096		mg P/L	P309645	
	SM 5310 B-00	Organic Carbon	9.9		mg C/L	P310029	
1821644	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P309169	
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: P309219			
Component	Result	Code	Units
Turbidity	0.10	U	NTU
Reference Method: EPA 300.0 Rev. 2.1 Batch ID: P309731			
Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L
Reference Method: EPA 350.1 Rev. 2.0 Batch ID: P309214			
Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L
Reference Method: EPA 351.2 Rev. 2.0 Batch ID: P309860			
Component	Result	Code	Units

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309860

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309665

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309644

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309645

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309169

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

Reference Method: SM 2120 B
Batch ID: P309233

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P309235

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P309335

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

Reference Method: SM 2320 B-97
Batch ID: P309337

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: P309788

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P309789

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P309711

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P309712

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P309342

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P309344

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P310029

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: P309731

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309214

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309214

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309860

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309665

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309644

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309645

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309169

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: P309335

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

Reference Method: SM 2320 B-97
Batch ID: P309337

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P309342

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P309344

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P310029

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1821395	Chloride	99.4		P	90 - 110
1821631	Chloride	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1820871	Ammonia-N	98.6	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309860

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1821633	Kjeldahl Nitrogen	90.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309665

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1821633	NO2NO3-N	90.0	90.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1821617	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309645

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1821760	Total-P	102	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309169

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1821639	O-Phosphate-P	97.7	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P309342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1821367	Fluoride	98.8	99.5	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P309344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1821748	Fluoride	99.2	99.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P310029

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1821634	Organic Carbon	106	108	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P309219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821621	Turbidity	1.79	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821395	Chloride	0.0106	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1820871	Ammonia-N	1.21	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821633	Kjeldahl Nitrogen	5.67	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821633	NO2NO3-N	0.418	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821617	Total-P	0.0214	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821760	Total-P	0.0700	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821639	O-Phosphate-P	1.44	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P309233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821630	Color (true)	0.445	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P309235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821632	Color (true)	0.501	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P309335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821367	Total Alkalinity	0.161	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P309337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821748	Total Alkalinity	0.579	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P309788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821314	TDS	3.59	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P309789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821616	TDS	3.23	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P309342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821367	Fluoride	0.467	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P309344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821748	Fluoride	0.519	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P310029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1821634	Organic Carbon	1.24	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: A70938
Included Lab Sample IDs: 1821639, 1821640, 1821641, 1821642, 1821643, 1821644

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.9	99.0	P/P	90 - 110
O-Phosphate-P	99.0	97.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A70951
Included Lab Sample IDs: 1821633, 1821634, 1821635, 1821636, 1821637, 1821638

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70951

Included Lab Sample IDs: 1821633, 1821634, 1821635, 1821636, 1821637, 1821638

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A70952

Included Lab Sample IDs: 1821627, 1821628, 1821629, 1821630, 1821631, 1821632

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

Reference Method: SM 2120 B

Run ID: A70955

Included Lab Sample IDs: 1821627, 1821628, 1821629, 1821630, 1821631, 1821632

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	100	P/P	90 - 115
Color (true)	98.9	98.5	P/P	90 - 115
Color (true)	99.6	98.9	P/P	90 - 115

Reference Method: SM 2320 B-97

Run ID: A70986

Included Lab Sample IDs: 1821627, 1821628, 1821629, 1821630, 1821631, 1821632

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A70986

Included Lab Sample IDs: 1821627, 1821628, 1821629, 1821630, 1821631, 1821632

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71078

Included Lab Sample IDs: 1821627, 1821628, 1821629, 1821630, 1821631, 1821632

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.2	P/P	90 - 110
Chloride	98.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71097

Included Lab Sample IDs: 1821633, 1821634, 1821635, 1821636, 1821637, 1821638

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71124

Included Lab Sample IDs: 1821633, 1821634, 1821635, 1821636, 1821637, 1821638

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71200

Included Lab Sample IDs: 1821633, 1821634, 1821635, 1821636, 1821637, 1821638

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	108	P/P	90 - 110
Kjeldahl Nitrogen	108	98.1	P/P	90 - 110
Kjeldahl Nitrogen	97.6	103	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A71232

Included Lab Sample IDs: 1821633, 1821634, 1821635, 1821636, 1821637, 1821638

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	103	105	P/P	90 - 110
Organic Carbon	105	106	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.79	
EPA 300.0 Rev. 2.1	Chloride	98.2	99.4 97.1		0.0106	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.6 100			1.21
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	90.5 100			5.67
EPA 353.2 Rev. 2.0	NO2NO3-N	102	90.0 90.6			0.418
EPA 365.1 Rev. 2.0	Total-P	104	104 104			0.0214
	Total-P	104	102 102			0.0700
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	97.7 99.4			1.44
SM 2120 B	Color (true)				0.445	
	Color (true)				0.501	
SM 2320 B-97	Total Alkalinity	103			0.161	
	Total Alkalinity	104			0.579	
SM 2540 C-97	TDS				3.59	
	TDS				3.23	
SM 4500 F-C-97	Fluoride	99.0	98.8 99.5			0.467
	Fluoride	99.9	99.2 99.8			0.519
SM 5310 B-00	Organic Carbon	103	106 108			1.24

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1821627, 1821628, 1821629, 1821630, 1821631, 1821632
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1821627, 1821628, 1821629, 1821630, 1821631, 1821632
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1821633, 1821634, 1821635, 1821636, 1821637, 1821638
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1821633, 1821634, 1821635, 1821636, 1821637, 1821638
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1821633, 1821634, 1821635, 1821636, 1821637, 1821638
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1821633, 1821634, 1821635, 1821636, 1821637, 1821638
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1821639, 1821640, 1821641, 1821642, 1821643, 1821644
SM 2120 B / E31780	True Color measured at 450 nm	1821627, 1821628, 1821629, 1821630, 1821631, 1821632
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1821627, 1821628, 1821629, 1821630, 1821631, 1821632
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1821627, 1821628, 1821629, 1821630, 1821631, 1821632
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1821627, 1821628, 1821629, 1821630, 1821631, 1821632
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1821627, 1821628, 1821629, 1821630, 1821631, 1821632
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1821633, 1821634, 1821635, 1821636, 1821637, 1821638

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	08/03/2016			08/04/2016 15:00	Sima Feizi	1821627, 1821628, 1821629, 1821630, 1821631, 1821632
EPA 300.0 Rev. 2.1	08/03/2016			08/12/2016	Elisa J Lutz	1821627, 1821628, 1821629, 1821630, 1821631, 1821632
EPA 350.1 Rev. 2.0	08/03/2016			08/04/2016	Julie Michelle Frank	1821633, 1821634, 1821635, 1821636, 1821637, 1821638
EPA 351.2 Rev. 2.0	08/03/2016	08/17/2016	Sofia Elnemr	08/18/2016	Christopher Armour	1821633, 1821634, 1821635, 1821636, 1821637, 1821638
EPA 353.2 Rev. 2.0	08/03/2016			08/11/2016	Peter D. Kaus	1821633, 1821634, 1821635, 1821636, 1821637, 1821638
EPA 365.1 Rev. 2.0	08/03/2016	08/12/2016	Vijayalakshmi Reddy	08/15/2016	Lipi Saha	1821633, 1821634, 1821635, 1821636, 1821637, 1821638
EPA 365.1 Rev. 2.0 dissolved	08/03/2016			08/04/2016 10:29	Julia Storbeck	1821639
	08/03/2016			08/04/2016 10:32	Julia Storbeck	1821640
	08/03/2016			08/04/2016 10:35	Julia Storbeck	1821641
	08/03/2016			08/04/2016 10:41	Julia Storbeck	1821642
	08/03/2016			08/04/2016 10:42	Julia Storbeck	1821643
	08/03/2016			08/04/2016 10:43	Julia Storbeck	1821644
SM 2120 B	08/03/2016			08/04/2016 16:58	Rochelle Y Jackson	1821627
	08/03/2016			08/04/2016 16:59	Rochelle Y Jackson	1821628
	08/03/2016			08/04/2016 17:00	Rochelle Y Jackson	1821632
	08/03/2016			08/04/2016 17:21	Rochelle Y Jackson	1821629
	08/03/2016			08/04/2016 17:30	Rochelle Y Jackson	1821630
	08/03/2016			08/04/2016 17:31	Rochelle Y Jackson	1821631
SM 2320 B-97	08/03/2016			08/06/2016	Dale L. Simmons	1821627, 1821628, 1821629, 1821630, 1821631, 1821632
SM 2540 C-97	08/03/2016			08/05/2016	Yijie Li	1821627, 1821628, 1821629, 1821630, 1821631, 1821632
SM 2540 D-97	08/03/2016			08/05/2016	Yijie Li	1821627, 1821628, 1821629, 1821630, 1821631, 1821632
SM 4500 F-C-97	08/03/2016			08/06/2016	Dale L. Simmons	1821627, 1821628, 1821629, 1821630, 1821631, 1821632
SM 5310 B-00	08/03/2016			08/18/2016	Sofia Elnemr	1821633, 1821634, 1821635, 1821636, 1821637, 1821638