

Chemical Analysis Report

WQAP-2016-06-17-01

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

Event Description: **Alligator Creek, Scurlock Creek, Unnamed Creek, Pine Barn Creek and Gilberts Mil**

Request ID: **RQ-2016-06-06-57**

Customer: **WQAP**

Project ID: **SMP**

Send Reports to:
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2600 Blair Stone Rd
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Date Certified: 12-JUL-2016 13:42



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: 06/16/2016 10:10

Field ID: G3WA0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809286	EPA 180.1 Rev. 2.0	Turbidity	60		NTU	P306481	
	EPA 300.0 Rev. 2.1	Chloride	5.8		mg Cl/L	P306879	
	SM 2120 B	Color (true)	45		PCU	P306731	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P306822	
	SM 2540 C-97	TDS	38		mg/L	P307010	
	SM 2540 D-97	TSS	82		mg/L	P306988	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P306902	
1809293	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P306892	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P306499	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.043		mg N/L	P306725	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P306649	
	SM 5310 B-00	Organic Carbon	8.3		mg C/L	P306808	
1809300	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.019		mg P/L	P306408	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: LITTLE ALLIGATOR CREEK AT SR 273

Collection Date/Time: 06/16/2016 11:33

Field ID: G3WA0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809287	EPA 180.1 Rev. 2.0	Turbidity	22	A	NTU	P306480	
	EPA 300.0 Rev. 2.1	Chloride	7.3		mg Cl/L	P306879	
	SM 2120 B	Color (true)	58	A	PCU	P306731	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P306822	
	SM 2540 C-97	TDS	63		mg/L	P307010	
	SM 2540 D-97	TSS	15		mg/L	P306988	
	SM 4500 F-C-97	Fluoride	0.046	I	mg F/L	P306902	
1809294	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P306892	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P306499	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P306726	
	EPA 365.1 Rev. 2.0	Total-P	0.090		mg P/L	P306649	
	SM 5310 B-00	Organic Carbon	9.1		mg C/L	P306808	
1809301	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P306408	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: ALLIGATOR CREEK UPSTREAM OF BENTLEY RD.

Collection Date/Time: 06/16/2016 12:04

Field ID: G3WA0004

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809288	EPA 180.1 Rev. 2.0	Turbidity	27		NTU	P306480	
	EPA 300.0 Rev. 2.1	Chloride	8.3		mg Cl/L	P306879	
	SM 2120 B	Color (true)	52		PCU	P306731	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P306822	

Field ID: G3WA0004

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809288	SM 2540 C-97	TDS	64		mg/L	P307010	
	SM 2540 D-97	TSS	10	I	mg/L	P306988	
	SM 4500 F-C-97	Fluoride	0.049	I	mg F/L	P306902	
1809295	EPA 350.1 Rev. 2.0	Ammonia-N	0.066		mg N/L	P306892	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P306499	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.24		mg N/L	P306727	
	EPA 365.1 Rev. 2.0	Total-P	0.090		mg P/L	P306649	
	SM 5310 B-00	Organic Carbon	8.2		mg C/L	P306808	
1809302	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P306408	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: SCURLOCK CREEK AT PILGRIM RD.

Collection Date/Time: 06/16/2016 12:40

Field ID: G3WA0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809289	EPA 180.1 Rev. 2.0	Turbidity	85	A	NTU	P306481	
	EPA 300.0 Rev. 2.1	Chloride	4.3		mg Cl/L	P307109	
	SM 2120 B	Color (true)	72		PCU	P306731	
	SM 2320 B-97	Total Alkalinity	65		mg CaCO3/L	P306822	
	SM 2540 C-97	TDS	110	A	mg/L	P307010	
	SM 2540 D-97	TSS	34	A	mg/L	P306988	
	SM 4500 F-C-97	Fluoride	0.051	I	mg F/L	P306902	
1809296	EPA 350.1 Rev. 2.0	Ammonia-N	0.099		mg N/L	P306892	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P306499	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P306727	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P306649	
	SM 5310 B-00	Organic Carbon	8.9		mg C/L	P306809	
1809303	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.017		mg P/L	P306408	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: PINE BARN CREEK AT WOODREST RD.

Collection Date/Time: 06/16/2016 14:20

Field ID: G3WA0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809290	EPA 180.1 Rev. 2.0	Turbidity	55		NTU	P306481	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P307109	
	SM 2120 B	Color (true)	43		PCU	P306731	
	SM 2320 B-97	Total Alkalinity	47		mg CaCO3/L	P306822	
	SM 2540 C-97	TDS	82		mg/L	P307010	
	SM 2540 D-97	TSS	68		mg/L	P306988	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P306902	
1809297	EPA 350.1 Rev. 2.0	Ammonia-N	0.16		mg N/L	P306892	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P306499	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.063		mg N/L	P306727	

Field ID: G3WA0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809297	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P306649	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P306809	
1809304	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P306408	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: UNNAMED CREEK AT WOODREST RD.

Collection Date/Time: 06/16/2016 14:50

Field ID: G3WA0010

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809291	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P306480	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P307109	
	SM 2120 B	Color (true)	64		PCU	P306731	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P306822	
	SM 2540 C-97	TDS	59		mg/L	P307010	
	SM 2540 D-97	TSS	8	I	mg/L	P306988	
	SM 4500 F-C-97	Fluoride	0.050	I	mg F/L	P306902	
1809298	EPA 350.1 Rev. 2.0	Ammonia-N	0.24		mg N/L	P306892	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P306499	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P306727	
	EPA 365.1 Rev. 2.0	Total-P	0.081		mg P/L	P306649	
	SM 5310 B-00	Organic Carbon	8.8		mg C/L	P306809	
1809305	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P306408	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: GILBERTS MILL CREEK AT AYCOCK RD.

Collection Date/Time: 06/16/2016 15:18

Field ID: G3WA0012

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809292	EPA 180.1 Rev. 2.0	Turbidity	22		NTU	P306480	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P307109	
	SM 2120 B	Color (true)	150		PCU	P306731	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P306822	
	SM 2540 C-97	TDS	56		mg/L	P307010	
	SM 2540 D-97	TSS	8	I	mg/L	P306988	
	SM 4500 F-C-97	Fluoride	0.045	I	mg F/L	P306902	
1809299	EPA 350.1 Rev. 2.0	Ammonia-N	0.60		mg N/L	P306893	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P306499	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.055		mg N/L	P306727	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P306649	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P306809	
1809306	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P306408	

**Quality Assurance Report
Method Blank Results**

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306480

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306481

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306879

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307109

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306892

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306893

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306499

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306725

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306726

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306727

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306649

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306408

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

Reference Method: SM 2120 B
Batch ID: P306731

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P306822

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

Reference Method: SM 2540 C-97
Batch ID: P307010

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P306988

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P306902

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P306808

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P306809

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: P306879

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307109

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306892

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306893

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306499

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306725

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306726

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306727

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: P306727

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P306649

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P306408

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

Reference Method: SM 2320 B-97
 Batch ID: P306822

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
 Batch ID: P306902

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

Reference Method: SM 5310 B-00
 Batch ID: P306808

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P306809

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P306879

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808950	Chloride	103		P	90 - 110
1809000	Chloride	102		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809378	Chloride	96.6	97.6	P/P	90 - 110
1809379	Chloride	98.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306893

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809382	Ammonia-N	95.8	96.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306499

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809294	Kjeldahl Nitrogen	97.7	93.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306725

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809293	NO2NO3-N	96.4	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306726

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809294	NO2NO3-N	95.0	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809295	NO2NO3-N	99.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306649

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809294	Total-P	100	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306408

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809300	O-Phosphate-P	98.7	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P306902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809001	Fluoride	102	103	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P306808

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809049	Organic Carbon	103		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P306809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809296	Organic Carbon	100	99.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809287	Turbidity	0.901	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809289	Turbidity	1.41	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306879

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808950	Chloride	0.0794	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809378	Chloride	0.660	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809295	Ammonia-N	0.220	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306893

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306893

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809382	Ammonia-N	0.632	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306499

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809294	Kjeldahl Nitrogen	2.68	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306725

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809293	NO2NO3-N	0.423	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306726

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809294	NO2NO3-N	1.06	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809295	NO2NO3-N	0.692	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809294	Total-P	0.962	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306408

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809300	O-Phosphate-P	0.761	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P306731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809287	Color (true)	0.249	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P306822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809001	Total Alkalinity	0.130	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P307010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809289	TDS	2.74	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P306988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809289	TSS	8.19	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P306902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809001	Fluoride	0.473	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P306808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809049	Organic Carbon	0.442	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P306809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809296	Organic Carbon	0.345	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: A70107
Included Lab Sample IDs: 1809300, 1809301, 1809302, 1809303, 1809304, 1809305, 1809306

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	98.6	P/P	90 - 110
O-Phosphate-P	99.2	99.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A70125

Included Lab Sample IDs: 1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	101	P/P	95 - 105
Turbidity	99.5	101	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70175

Included Lab Sample IDs: 1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70181

Included Lab Sample IDs: 1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.7	98.2	P/P	90 - 110
Total-P	98.2	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70185

Included Lab Sample IDs: 1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299

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

Reference Method: SM 2120 B

Run ID: A70187

Included Lab Sample IDs: 1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.2	98.2	P/P	90 - 115

Reference Method: SM 5310 B-00

Run ID: A70211

Included Lab Sample IDs: 1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299

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

Reference Method: SM 2320 B-97

Run ID: A70215

Included Lab Sample IDs: 1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A70215

Included Lab Sample IDs: 1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70233

Included Lab Sample IDs: 1809286, 1809287, 1809288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.9	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70237

Included Lab Sample IDs: 1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	94.5	95.1	P/P	90 - 110
Ammonia-N	96.0	94.5	P/P	90 - 110
Ammonia-N	96.6	96.5	P/P	90 - 110
Ammonia-N	97.5	96.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70313

Included Lab Sample IDs: 1809289, 1809290, 1809291, 1809292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.5	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			SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.901	
	Turbidity					1.41	
EPA 300.0 Rev. 2.1	Chloride	102	103	102		0.0794	
	Chloride	97.7	96.6	97.6	98.4		0.660
EPA 350.1 Rev. 2.0	Ammonia-N	95.1					0.220
	Ammonia-N	95.4	95.8	96.4			0.632
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.4	97.7	93.3			2.68
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	96.4	96.8			0.423
	NO2NO3-N	98.5	95.0	97.0			1.06
	NO2NO3-N	98.5	99.8				0.692
EPA 365.1 Rev. 2.0	Total-P	98.8	100	99.1			0.962
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	98.7	99.6			0.761
SM 2120 B	Color (true)					0.249	
SM 2320 B-97	Total Alkalinity	102				0.130	
SM 2540 C-97	TDS					2.74	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 2540 D-97	TSS				8.19	
SM 4500 F-C-97	Fluoride	103	102	103		0.473
SM 5310 B-00	Organic Carbon	97.8	103			0.442
	Organic Carbon	99.1	100	99.9		0.345

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1809300, 1809301, 1809302, 1809303, 1809304, 1809305, 1809306
SM 2120 B / E31780	True Color measured at 450 nm	1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299

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	06/16/2016			06/17/2016 15:32	Blanca Fach	1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292
EPA 300.0 Rev. 2.1	06/16/2016			06/25/2016	Julia Storbeck	1809286, 1809287, 1809288
	06/16/2016			06/28/2016	Ping Hua	1809289, 1809290, 1809291, 1809292
EPA 350.1 Rev. 2.0	06/16/2016			06/24/2016	Diana M. Turner	1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299
EPA 351.2 Rev. 2.0	06/16/2016	06/21/2016	Sofia Elnemr	06/23/2016	Christopher Armour	1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299
EPA 353.2 Rev. 2.0	06/16/2016			06/23/2016	Beverly Y. Sanders	1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299
EPA 365.1 Rev. 2.0	06/16/2016	06/22/2016	Vijayalakshmi Reddy	06/23/2016	Lipi Saha	1809293, 1809294, 1809295, 1809296, 1809297, 1809298, 1809299
EPA 365.1 Rev. 2.0 dissolved	06/16/2016			06/17/2016 14:19	Virginia P. Brown	1809300
	06/16/2016			06/17/2016 14:43	Virginia P. Brown	1809301
	06/16/2016			06/17/2016 14:44	Virginia P. Brown	1809302
	06/16/2016			06/17/2016 14:45	Virginia P. Brown	1809303, 1809304
	06/16/2016			06/17/2016 14:46	Virginia P. Brown	1809305
	06/16/2016			06/17/2016 14:47	Virginia P. Brown	1809306
SM 2120 B	06/16/2016			06/17/2016 16:57	Chrisoulla Rakowski	1809286
	06/16/2016			06/17/2016 16:59	Chrisoulla Rakowski	1809287, 1809288
	06/16/2016			06/17/2016 17:00	Chrisoulla Rakowski	1809289
	06/16/2016			06/17/2016 17:01	Chrisoulla Rakowski	1809290
	06/16/2016			06/17/2016 17:02	Chrisoulla Rakowski	1809291, 1809292
SM 2320 B-97	06/16/2016			06/23/2016	Rochelle Y Jackson	1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292
SM 2540 C-97	06/16/2016			06/22/2016	Yijie Li	1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292
SM 2540 D-97	06/16/2016			06/22/2016	Yijie Li	1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292
SM 4500 F-C-97	06/16/2016			06/23/2016	Rochelle Y Jackson	1809286, 1809287, 1809288, 1809289, 1809290, 1809291, 1809292
SM 5310 B-00	06/16/2016			06/23/2016	Diana M. Turner	1809293, 1809294, 1809295
	06/16/2016			06/24/2016	Diana M. Turner	1809296, 1809297, 1809298, 1809299