

Chemical Analysis Report

WQAP-2016-11-30-03

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

Event Description: **East River, St. Marks River and Wakulla River**

Request ID: **RQ-2016-11-28-15**

Customer: **WQAP**

Project ID: **SMP**

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

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 21-DEC-2016 11:32



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: MOUTH OF EAST RIVER

Collection Date/Time: 11/30/2016 09:30

Field ID: G1WA0011-11302016

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1853065	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P316184	
	SM 2320 B-97	Total Alkalinity	131		mg CaCO3/L	P316124	
	SM 2540 D-97	TSS	4	I	mg/L	P316585	
	SM 4500 F-C-97	Fluoride	0.71		mg F/L	P316127	
1853069	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P316474	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P316363	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P316218	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P316260	
	SM 5310 B-00	Organic Carbon	2.7		mg C/L	P315952	
1853073	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P315946	

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: EAST RIVER DOWNSTREAM OF BOGGY BAYOU

Collection Date/Time: 11/30/2016 10:00

Field ID: G1WA0056-11302016

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1853066	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P316184	
	SM 2320 B-97	Total Alkalinity	129		mg CaCO3/L	P316124	
	SM 2540 D-97	TSS	4	I	mg/L	P316585	
	SM 4500 F-C-97	Fluoride	0.81		mg F/L	P316127	
1853070	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P316474	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39	I	mg N/L	P316363	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P316218	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P316260	
	SM 5310 B-00	Organic Carbon	3.5		mg C/L	P315952	
1853074	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P315946	

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: ST. MARKS RIVER AT CHANNEL MARKER 22

Collection Date/Time: 11/30/2016 10:45

Field ID: G1WA0008-11302016

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1853067	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P316184	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P316124	
	SM 2540 D-97	TSS	3	U	mg/L	P316585	
	SM 4500 F-C-97	Fluoride	0.45		mg F/L	P317059	
1853071	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P316242	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23	I	mg N/L	P316477	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.063		mg N/L	P316218	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P316260	
	SM 5310 B-00	Organic Carbon	2.3		mg C/L	P315952	
1853075	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P315946	

Field ID: G1WA0008-11302016

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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: ST. MARKS RIVER AT CHANNEL MARKER 60 Collection Date/Time: 11/30/2016 11:00

Field ID: G1WA0055-11302016

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1853068	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P316184	
	SM 2320 B-97	Total Alkalinity	139		mg CaCO3/L	P316122	
	SM 2540 D-97	TSS	3	I	mg/L	P316584	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P316125	
1853072	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P316240	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P316664	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P316179	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P316258	
	SM 5310 B-00	Organic Carbon	1.6		mg C/L	P315951	
1853076	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P315945	
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: P316184

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P316240

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P316242

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P316474

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P316363

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316477

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316664

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316179

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316218

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316258

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316260

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315945

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315946

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

Reference Method: SM 2320 B-97
Batch ID: P316122

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P316124

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

Reference Method: SM 2540 D-97
Batch ID: P316584

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P316585

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P316125

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P316127

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P317059

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P315951

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

Reference Method: SM 5310 B-00
Batch ID: P315952

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316240

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: P316240

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316242

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316474

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316363

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316477

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316664

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316179

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316218

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316258

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316260

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315945

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315946

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

Reference Method: SM 2320 B-97
Batch ID: P316122

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.5		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P316124

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.6		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P316125

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P316127

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P317059

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

Reference Method: SM 5310 B-00
Batch ID: P315951

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P315952

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P316240

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853086	Ammonia-N	99.2	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P316242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853071	Ammonia-N	99.1	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P316474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853069	Ammonia-N	100	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P316363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853069	Kjeldahl Nitrogen	97.7	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P316477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853071	Kjeldahl Nitrogen	99.7	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P316664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855242	Kjeldahl Nitrogen	99.5	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P316179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853072	NO2NO3-N	101		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P316218

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852685	NO2NO3-N	107	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316258

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853360	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316260

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852238	Total-P	103	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853076	O-Phosphate-P	98.4	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315946

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853073	O-Phosphate-P	98.0	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P316125

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853751	Fluoride	98.2	98.2	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P316127

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853724	Fluoride	96.0	95.3	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P317059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855103	Fluoride	101	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P315951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852523	Organic Carbon	95.7	94.8	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P315952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852685	Organic Carbon	94.8	96.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853035	Turbidity	4.72	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853086	Ammonia-N	1.91	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853071	Ammonia-N	2.24	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853069	Ammonia-N	0.958	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853069	Kjeldahl Nitrogen	1.45	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853071	Kjeldahl Nitrogen	4.65	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855242	Kjeldahl Nitrogen	2.75	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853072	NO2NO3-N	1.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852685	NO2NO3-N	0.468	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853360	Total-P	0.0215	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852238	Total-P	4.69	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853076	O-Phosphate-P	0.890	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853073	O-Phosphate-P	1.06	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P316122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853751	Total Alkalinity	0.0771	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P316124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853724	Total Alkalinity	0.230	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P316125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853751	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P316127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853724	Fluoride	0.480	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P317059

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855103	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P315951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852523	Organic Carbon	0.773	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P315952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852685	Organic Carbon	1.28	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: A73092
Included Lab Sample IDs: 1853073, 1853074, 1853075, 1853076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	98.5	P/P	90 - 110
O-Phosphate-P	99.7	99.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A73095

Included Lab Sample IDs: 1853069, 1853070, 1853071, 1853072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.3	96.8	P/P	90 - 110
Organic Carbon	96.8	96.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A73150

Included Lab Sample IDs: 1853065, 1853066, 1853067, 1853068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.2	97.0	P/P	90 - 110
Total Alkalinity	98.4	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A73150

Included Lab Sample IDs: 1853065, 1853066, 1853068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	101	P/P	90 - 110
Fluoride	99.0	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A73166

Included Lab Sample IDs: 1853072

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A73167

Included Lab Sample IDs: 1853065, 1853066, 1853067, 1853068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	98.0	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A73189

Included Lab Sample IDs: 1853069, 1853070, 1853071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73197

Included Lab Sample IDs: 1853071, 1853072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	100	P/P	90 - 110
Ammonia-N	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73226

Included Lab Sample IDs: 1853069, 1853070, 1853071, 1853072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	97.8	P/P	90 - 110
Total-P	98.2	96.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73263

Included Lab Sample IDs: 1853069, 1853070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73267

Included Lab Sample IDs: 1853069, 1853070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	101	P/P	90 - 110
Kjeldahl Nitrogen	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73317

Included Lab Sample IDs: 1853071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.9	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73367

Included Lab Sample IDs: 1853072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	97.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A73482

Included Lab Sample IDs: 1853067

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				4.72	
EPA 350.1 Rev. 2.0	Ammonia-N	107	99.2 102			1.91

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 350.1 Rev. 2.0	Ammonia-N	102	99.1	102			2.24
	Ammonia-N	103	100	99.4			0.958
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	97.7	99.3			1.45
	Kjeldahl Nitrogen	100	99.7	105			4.65
	Kjeldahl Nitrogen	102	99.5	103			2.75
EPA 353.2 Rev. 2.0	NO2NO3-N	104	101				1.42
	NO2NO3-N	104	107	106			0.468
EPA 365.1 Rev. 2.0	Total-P	100	105	105			0.0215
	Total-P	102	103	97.9			4.69
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	98.4	99.5			0.890
	O-Phosphate-P	100	98.0	99.1			1.06
SM 2320 B-97	Total Alkalinity	98.5				0.0771	
	Total Alkalinity	98.6				0.230	
SM 4500 F-C-97	Fluoride	98.6	98.2	98.2			0.0
	Fluoride	97.5	96.0	95.3			0.480
	Fluoride	99.8	101	101			0.0
SM 5310 B-00	Organic Carbon	97.0	95.7	94.8			0.773
	Organic Carbon	97.9	94.8	96.1			1.28

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1853065, 1853066, 1853067, 1853068
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1853069, 1853070, 1853071, 1853072
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1853069, 1853070, 1853071, 1853072
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1853069, 1853070, 1853071, 1853072
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1853069, 1853070, 1853071, 1853072
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1853073, 1853074, 1853075, 1853076
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1853065, 1853066, 1853067, 1853068
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1853065, 1853066, 1853067, 1853068
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1853065, 1853066, 1853067, 1853068
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1853069, 1853070, 1853071, 1853072

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	11/30/2016			11/30/2016 16:14	Julie Michelle Frank	1853065, 1853066, 1853067, 1853068
EPA 350.1 Rev. 2.0	11/30/2016			12/05/2016	Sofia Elnemr	1853071, 1853072
	11/30/2016			12/08/2016	Sofia Elnemr	1853069, 1853070
EPA 351.2 Rev. 2.0	11/30/2016	12/08/2016	Adrian Shelby	12/09/2016	Joseph Suarez	1853069, 1853070
	11/30/2016	12/09/2016	Adrian Shelby	12/12/2016	Joseph Suarez	1853071
	11/30/2016	12/13/2016	Adrian Shelby	12/14/2016	Joseph Suarez	1853072
EPA 353.2 Rev. 2.0	11/30/2016			12/05/2016	Beverly Y. Sanders	1853072
	11/30/2016			12/06/2016	Beverly Y. Sanders	1853069, 1853070, 1853071
EPA 365.1 Rev. 2.0	11/30/2016	12/06/2016	Vijayalakshmi Reddy	12/07/2016	Lipi Saha	1853069, 1853070, 1853071, 1853072
EPA 365.1 Rev. 2.0 dissolved	11/30/2016			11/30/2016 15:45	Julia Storbeck	1853076
	11/30/2016			11/30/2016 15:49	Julia Storbeck	1853073
	11/30/2016			11/30/2016 16:23	Julia Storbeck	1853074
	11/30/2016			11/30/2016 16:24	Julia Storbeck	1853075
SM 2320 B-97	11/30/2016			12/02/2016	Dale L. Simmons	1853068
	11/30/2016			12/03/2016	Dale L. Simmons	1853065, 1853066, 1853067
SM 2540 D-97	11/30/2016			12/01/2016	Yijie Li	1853065, 1853066, 1853067, 1853068
SM 4500 F-C-97	11/30/2016			12/02/2016	Dale L. Simmons	1853068
	11/30/2016			12/03/2016	Dale L. Simmons	1853065, 1853066
	11/30/2016			12/16/2016	Dale L. Simmons	1853067
SM 5310 B-00	11/30/2016			12/01/2016	Julie Michelle Frank	1853069, 1853070, 1853071, 1853072