

Chemical Analysis Report

WAS-SECT-2018-06-20-01

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

Event Description: **Dickson Bay, St. Marks River, East River**
Request ID: **RQ-2018-06-18-25**
Customer: **WAS-SECT**
Project ID: **SMP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 13-JUL-2018 14:31



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: DICKSON BAY NORTH

Collection Date/Time: 06/20/2018 09:00

Field ID: G1WA0062

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2002305	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P347228	
	SM 2320 B-97	Total Alkalinity	113		mg CaCO3/L	P347811	
	SM 2540 D-97	TSS	4	I	mg/L	P347736	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P347380	
2002309	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P347351	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P347976	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P347455	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P347645	MS
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P348225	

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: DICKSON BAY SOUTH

Collection Date/Time: 06/20/2018 09:30

Field ID: G1WA0063

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2002306	EPA 180.1 Rev. 2.0	Turbidity	7.9	A	NTU	P347229	
	SM 2320 B-97	Total Alkalinity	110		mg CaCO3/L	P347811	
	SM 2540 D-97	TSS	21		mg/L	P347736	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P347380	
2002310	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P347765	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P347976	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P347455	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P347645	MS
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P348225	
2002313	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P347214	

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: 06/20/2018 12:00

Field ID: G1WA0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2002307	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P347229	
	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P347811	
	SM 2540 D-97	TSS	7	IA	mg/L	P347736	
	SM 4500 F-C-97	Fluoride	0.61		mg F/L	P347380	
2002311	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P347765	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P347976	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P347455	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P347645	MS
	SM 5310 B-00	Organic Carbon	4.8		mg C/L	P348225	
2002314	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P347214	

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.MARK RIVER AT CHANNEL MARK 60

Collection Date/Time: 06/20/2018 11:15

Field ID: G1WA0055

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2002308	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P347229	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P347842	
	SM 2540 D-97	TSS	3	I	mg/L	P347735	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P347846	
2002312	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P347352	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P348067	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P347512	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P347426	
	SM 5310 B-00	Organic Carbon	8.6		mg C/L	P347697	
2002315	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P347214	

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: P347228

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347229

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347351

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347352

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347765

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347976

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348067

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347455

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347512

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347426

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347645

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347214

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

Reference Method: SM 2320 B-97
Batch ID: P347811

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

Reference Method: SM 2320 B-97
Batch ID: P347842

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

Reference Method: SM 2540 D-97
Batch ID: P347735

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P347736

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P347380

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P347846

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P347697

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

Reference Method: SM 5310 B-00
Batch ID: P348225

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: P347351

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347352

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347765

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347976

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348067

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347455

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347512

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: P347426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347645

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.8		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347214

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

Reference Method: SM 2320 B-97
Batch ID: P347811

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P347842

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

Reference Method: SM 4500 F-C-97
Batch ID: P347380

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P347846

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

Reference Method: SM 5310 B-00
Batch ID: P347697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P348225

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001574	Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347352

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002230	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347765

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002310	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002535	Kjeldahl Nitrogen	103	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348067

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002247	Kjeldahl Nitrogen	100	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347455

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002140	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002248	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002230	Total-P	95.4	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347645

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002535	Total-P	88.4	87.6	F/F	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002313	O-Phosphate-P	94.3	96.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P347380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001753	Fluoride	95.2	94.6	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P347846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002385	Fluoride	96.3	96.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P347697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002390	Organic Carbon	94.6	95.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P348225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001811	Organic Carbon	92.1	93.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002171	Turbidity	7.24	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002306	Turbidity	2.77	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001574	Ammonia-N	0.146	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002230	Ammonia-N	0.0562	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002310	Ammonia-N	1.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002535	Kjeldahl Nitrogen	1.33	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002247	Kjeldahl Nitrogen	3.21	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002140	NO2NO3-N	0.976	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002248	NO2NO3-N	0.496	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002230	Total-P	3.52	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002535	Total-P	0.808	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002313	O-Phosphate-P	2.51	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P347811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001753	Total Alkalinity	0.293	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P347842

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002385	Total Alkalinity	0.588	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P347380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001753	Fluoride	0.470	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P347846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002385	Fluoride	0.0	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P347697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002390	Organic Carbon	0.958	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P348225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001811	Organic Carbon	1.08	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: A84723

Included Lab Sample IDs: 2002313, 2002314, 2002315

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.7	96.1	P/P	90 - 110
O-Phosphate-P	97.4	96.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A84731

Included Lab Sample IDs: 2002305, 2002306, 2002307, 2002308

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	99.5	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A84777

Included Lab Sample IDs: 2002309, 2002312

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

Reference Method: SM 4500 F-C-97

Run ID: A84785

Included Lab Sample IDs: 2002305, 2002306, 2002307

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84811

Included Lab Sample IDs: 2002309, 2002310, 2002311

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84842

Included Lab Sample IDs: 2002312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A84915

Included Lab Sample IDs: 2002312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	96.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84934

Included Lab Sample IDs: 2002312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A84937

Included Lab Sample IDs: 2002310, 2002311

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

Reference Method: SM 2320 B-97

Run ID: A84959

Included Lab Sample IDs: 2002305, 2002306, 2002307

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

Reference Method: SM 2320 B-97

Run ID: A84969

Included Lab Sample IDs: 2002308

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

Reference Method: SM 4500 F-C-97

Run ID: A84969

Included Lab Sample IDs: 2002308

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84978

Included Lab Sample IDs: 2002309, 2002310, 2002311

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85097

Included Lab Sample IDs: 2002309, 2002310, 2002311

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.4	95.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85111

Included Lab Sample IDs: 2002312

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A85136

Included Lab Sample IDs: 2002309, 2002310, 2002311

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	91.4	92.8	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					7.24	
	Turbidity					2.77	
EPA 350.1 Rev. 2.0	Ammonia-N	101	103	103			0.146
	Ammonia-N	101	101	101			0.0562
	Ammonia-N	99.0	102	101			1.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.0	103	101			1.33
	Kjeldahl Nitrogen	98.5	100	106			3.21
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	103			0.976
	NO2NO3-N	102	101	100			0.496
EPA 365.1 Rev. 2.0	Total-P	96.4	95.4	101			3.52
	Total-P	96.8	88.4	87.6			0.808
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.4	94.3	96.7			2.51
SM 2320 B-97	Total Alkalinity	105				0.293	
	Total Alkalinity	102				0.588	
SM 4500 F-C-97	Fluoride	97.4	95.2	94.6			0.470
	Fluoride	98.8	96.3	96.3			0.0
SM 5310 B-00	Organic Carbon	99.2	94.6	95.6			0.958
	Organic Carbon	93.6	93.4	92.1			1.08

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2002305, 2002306, 2002307, 2002308
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2002309, 2002310, 2002311, 2002312
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2002309, 2002310, 2002311, 2002312
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2002309, 2002310, 2002311, 2002312
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2002309, 2002310, 2002311, 2002312
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2002313, 2002314, 2002315
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2002305, 2002306, 2002307, 2002308
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2002305, 2002306, 2002307, 2002308
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2002305, 2002306, 2002307, 2002308
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2002309, 2002310, 2002311, 2002312

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	06/20/2018			06/20/2018 16:21	William L. Brown IV	2002305, 2002306, 2002307, 2002308
EPA 350.1 Rev. 2.0	06/20/2018			06/22/2018 11:55	Ping Hua	2002309
	06/20/2018			06/22/2018 12:21	Ping Hua	2002312
	06/20/2018			06/29/2018 12:07	Julia Storbeck	2002310
	06/20/2018			06/29/2018 12:12	Julia Storbeck	2002311
EPA 351.2 Rev. 2.0	06/20/2018	07/05/2018 14:45	Adrian Shelby	07/06/2018 17:30	Virginia P. Brown	2002309
	06/20/2018	07/05/2018 14:45	Adrian Shelby	07/06/2018 17:32	Virginia P. Brown	2002310
	06/20/2018	07/05/2018 14:45	Adrian Shelby	07/06/2018 17:33	Virginia P. Brown	2002311
	06/20/2018	07/09/2018 10:25	Tanya Welborn	07/10/2018 09:35	Joseph Suarez	2002312
EPA 353.2 Rev. 2.0	06/20/2018			06/25/2018 13:20	Lauren Bottorf	2002309
	06/20/2018			06/25/2018 13:21	Lauren Bottorf	2002310
	06/20/2018			06/25/2018 13:23	Lauren Bottorf	2002311
	06/20/2018			06/26/2018 13:10	Lauren Bottorf	2002312
EPA 365.1 Rev. 2.0	06/20/2018	06/25/2018 09:50	Sima Feizi	06/29/2018 14:15	Beverly Y. Sanders	2002312
	06/20/2018	06/28/2018 11:45	Sima Feizi	07/02/2018 16:20	Beverly Y. Sanders	2002309
	06/20/2018	06/28/2018 11:45	Sima Feizi	07/02/2018 16:21	Beverly Y. Sanders	2002310
	06/20/2018	06/28/2018 11:45	Sima Feizi	07/02/2018 16:22	Beverly Y. Sanders	2002311
EPA 365.1 Rev. 2.0 dissolved	06/20/2018			06/20/2018 15:08	Megan Treadwell	2002313
	06/20/2018			06/20/2018 15:11	Megan Treadwell	2002314
	06/20/2018			06/20/2018 15:16	Megan Treadwell	2002315
SM 2320 B-97	06/20/2018			07/01/2018 12:46	Dale L. Simmons	2002305
	06/20/2018			07/01/2018 12:54	Dale L. Simmons	2002306
	06/20/2018			07/01/2018 13:03	Dale L. Simmons	2002307
	06/20/2018			07/01/2018 22:35	Dale L. Simmons	2002308
SM 2540 D-97	06/20/2018			06/22/2018 15:45	Yijie Li	2002305, 2002306, 2002307, 2002308
SM 4500 F-C-97	06/20/2018			06/22/2018 12:03	Lauren Bottorf	2002305
	06/20/2018			06/22/2018 12:07	Lauren Bottorf	2002306
	06/20/2018			06/22/2018 12:11	Lauren Bottorf	2002307
	06/20/2018			07/01/2018 22:35	Dale L. Simmons	2002308
SM 5310 B-00	06/20/2018			06/27/2018 17:33	Julia Storbeck	2002312
	06/20/2018			07/11/2018 03:21	Megan Treadwell	2002309
	06/20/2018			07/11/2018 03:41	Megan Treadwell	2002310
	06/20/2018			07/11/2018 04:14	Megan Treadwell	2002311