

Chemical Analysis Report

WAS-SECT-2018-06-14-01

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

Event Description: **East River, Dickson Bay, St. Marks**

Request ID: **RQ-2018-05-28-12**

Customer: **WAS-SECT**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Curtis Musson

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 06-JUL-2018 17:00



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: 06/14/2018 09:30

Field ID: G1WA0062

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2000957	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P346931	
	SM 2320 B-97	Total Alkalinity	104		mg CaCO3/L	P347267	RPD
	SM 2540 D-97	TSS	8	I	mg/L	P347177	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P347271	
2000959	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P347347	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P347601	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P346969	
	EPA 365.1 Rev. 2.0	Total-P	0.029	J	mg P/L	P347193	MS
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P347528	
2000961	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P346929	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Refer to the narrative for an explanation of QC Codes.

Sample Location: DICKSON BAY SOUTH

Collection Date/Time: 06/14/2018 09:50

Field ID: G1WA0063

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2000958	EPA 180.1 Rev. 2.0	Turbidity	8.8		NTU	P346931	
	SM 2320 B-97	Total Alkalinity	104		mg CaCO3/L	P347267	RPD
	SM 2540 D-97	TSS	18		mg/L	P347177	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P347271	
2000960	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P347347	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52	J	mg N/L	P347601	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P346969	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P347193	MS
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P347528	
2000962	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P346929	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346931

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347347

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347601

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346969

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347193

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346929

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

Reference Method: SM 2320 B-97
Batch ID: P347267

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

Reference Method: SM 2540 D-97
Batch ID: P347177

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P347271

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: P347528

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: P347347

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347601

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346969

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347193

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346929

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

Reference Method: SM 2320 B-97
Batch ID: P347267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P347271

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

Reference Method: SM 5310 B-00
Batch ID: P347528

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001568	Ammonia-N	98.7	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347601

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2000960	Kjeldahl Nitrogen	113	112	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2000959	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2000959	Total-P	84.6	89.6	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2000906	O-Phosphate-P	96.9	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P347271

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1999650	Fluoride	96.9	96.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P347528

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2000437	Organic Carbon	93.6	93.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2000937	Turbidity	0.656	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001568	Ammonia-N	1.57	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347601

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2000960	Kjeldahl Nitrogen	0.629	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2000959	NO2NO3-N	0.985	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2000959	Total-P	5.50	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2000906	O-Phosphate-P	1.26	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P347267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999650	Total Alkalinity	7.69	Sample	F	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P347271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999650	Fluoride	0.0	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P347528

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2000437	Organic Carbon	0.155	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: A84591

Included Lab Sample IDs: 2000961, 2000962

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	98.1	P/P	90 - 110
O-Phosphate-P	98.1	98.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A84592

Included Lab Sample IDs: 2000957, 2000958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84610

Included Lab Sample IDs: 2000959, 2000960

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

Reference Method: SM 2320 B-97

Run ID: A84752

Included Lab Sample IDs: 2000957, 2000958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A84752

Included Lab Sample IDs: 2000957, 2000958

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: A84774

Included Lab Sample IDs: 2000959, 2000960

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A84777

Included Lab Sample IDs: 2000959, 2000960

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

Reference Method: SM 5310 B-00

Run ID: A84844

Included Lab Sample IDs: 2000959, 2000960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
-----------	---------	---------	------------	----------------

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A84844

Included Lab Sample IDs: 2000959, 2000960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	96.2	P/P	90 - 110
Organic Carbon	96.8	95.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84995

Included Lab Sample IDs: 2000959, 2000960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.6	94.9	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					0.656	
EPA 350.1 Rev. 2.0	Ammonia-N	99.9	98.7	101			1.57
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	113	112			0.629
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	101	102			0.985
EPA 365.1 Rev. 2.0	Total-P	101	84.6	89.6			5.50
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.9	98.2	96.9			1.26
SM 2320 B-97	Total Alkalinity	100				7.69	
SM 4500 F-C-97	Fluoride	98.6	96.9	96.9			0.0
SM 5310 B-00	Organic Carbon	94.2	93.6	93.8			0.155

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2000957, 2000958
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2000959, 2000960
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2000959, 2000960
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2000959, 2000960
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2000959, 2000960
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2000961, 2000962
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2000957, 2000958
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2000957, 2000958
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2000957, 2000958
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2000959, 2000960

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	06/14/2018			06/14/2018 17:30	William L. Brown IV	2000957, 2000958
EPA 350.1 Rev. 2.0	06/14/2018			06/22/2018 09:37	Ping Hua	2000959
	06/14/2018			06/22/2018 09:38	Ping Hua	2000960
EPA 351.2 Rev. 2.0	06/14/2018	06/27/2018 15:30	Adrian Shelby	07/02/2018 15:51	Tanya Welborn	2000959
	06/14/2018	06/27/2018 15:30	Adrian Shelby	07/02/2018 15:52	Tanya Welborn	2000960
EPA 353.2 Rev. 2.0	06/14/2018			06/15/2018 11:33	Lauren Bottorf	2000959
	06/14/2018			06/15/2018 11:48	Lauren Bottorf	2000960
EPA 365.1 Rev. 2.0	06/14/2018	06/20/2018 11:10	Sima Feizi	06/22/2018 11:02	Beverly Y. Sanders	2000959
	06/14/2018	06/20/2018 11:10	Sima Feizi	06/22/2018 11:10	Beverly Y. Sanders	2000960
EPA 365.1 Rev. 2.0 dissolved	06/14/2018			06/14/2018 15:38	Megan Treadwell	2000961
	06/14/2018			06/14/2018 15:43	Megan Treadwell	2000962
SM 2320 B-97	06/14/2018			06/21/2018 06:59	Lauren Bottorf	2000957
	06/14/2018			06/21/2018 07:09	Lauren Bottorf	2000958
SM 2540 D-97	06/14/2018			06/15/2018 15:30	William L. Brown IV	2000957, 2000958
SM 4500 F-C-97	06/14/2018			06/21/2018 02:51	Lauren Bottorf	2000957
	06/14/2018			06/21/2018 02:55	Lauren Bottorf	2000958
SM 5310 B-00	06/14/2018			06/26/2018 09:59	Megan Treadwell	2000959
	06/14/2018			06/26/2018 10:46	Megan Treadwell	2000960