Chemical Analysis Report

SE-DIST-2020-07-23-01

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

Event Description: **North Boat + Deploy**
Request ID: **RQ-2020-07-13-44**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 10-AUG-2020 11:33

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Sebastian 50m downstream of S-157 **Collection Date/Time: 07/22/2020 11:35**

Field ID: G5SE0083 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2185062	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P385089	
	EPA 300.0 Rev. 2.1	Bromide	4.7		mg Br/L	P385583	MS
	SM 2320 B-2011	Total Alkalinity	133		mg CaCO3/L	P385166	
	SM 2540 D-2011	TSS	3	I A	mg/L	P385513	
	SM 4500 F-C-2011	Fluoride	0.29		mg F/L	P385169	
2185063	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P385147	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P385256	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.064		mg N/L	P385109	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P385347	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P385263	
2185064	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P385084	

Ref. Method and Comment:
SM 2540 D-2011: 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: P385089

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385583

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385147

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385256

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385109

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385347

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385084

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

Reference Method: SM 2320 B-2011
Batch ID: P385166

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

Reference Method: SM 2540 D-2011
Batch ID: P385513

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P385169

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P385263

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: P385583

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	95.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385147

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385256

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: P385109

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385347

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385084

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

Reference Method: SM 2320 B-2011
Batch ID: P385166

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P385169

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P385263

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385583

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2183463	Bromide	90.8		P	90 - 110
2184296	Bromide	90.0	90.6	F/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385147

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2185076	Ammonia-N	96.6	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2185059	Kjeldahl Nitrogen	94.1	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2185018	NO2NO3-N	98.2	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2185046	Total-P	109	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2185158	O-Phosphate-P	99.2	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P385169

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2185105	Fluoride	99.5	98.9	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P385263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2185076	Organic Carbon	95.3	97.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P385089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2185193	Turbidity	4.15	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385583

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184296	Bromide	0.600	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385147

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2185076	Ammonia-N	0.556	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2185059	Kjeldahl Nitrogen	5.92	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2185018	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2185046	Total-P	0.349	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2185158	O-Phosphate-P	0.603	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P385166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2185105	Total Alkalinity	1.81	Sample	P	0 - 8.1

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P385169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2185105	Fluoride	0.474	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P385263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2185076	Organic Carbon	1.75	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A100045
Included Lab Sample IDs: 2185064

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.3	97.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A100046
Included Lab Sample IDs: 2185062

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A100058
Included Lab Sample IDs: 2185063

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A100074
Included Lab Sample IDs: 2185063

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	101	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A100080
Included Lab Sample IDs: 2185062

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.9	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A100080
Included Lab Sample IDs: 2185062

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

Reference Method: SM 5310 B-2011
Run ID: A100127
Included Lab Sample IDs: 2185063

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	96.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100150
Included Lab Sample IDs: 2185063

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A100221
Included Lab Sample IDs: 2185063

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A100250
Included Lab Sample IDs: 2185062

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	97.6	97.7	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						4.15	
EPA 300.0 Rev. 2.1	Bromide	95.0	90.0	90.6	90.8			0.600
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	96.6	97.2				0.556
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	94.1	105				5.92
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	98.2	98.2				0.0
EPA 365.1 Rev. 2.0	Total-P	104	109	108				0.349
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	99.2	99.8				0.603
SM 2320 B-2011	Total Alkalinity	101					1.81	
SM 4500 F-C-2011	Fluoride	98.2	99.5	98.9				0.474
SM 5310 B-2011	Organic Carbon	96.8	95.3	97.1				1.75

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2185062
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2185062
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2185063
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2185063
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2185063
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2185063
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2185064
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2185062
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2185062
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2185062
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2185063

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	07/23/2020			07/23/2020 16:01	Samantha Davila	2185062
EPA 300.0 Rev. 2.1	07/23/2020			07/29/2020 06:24	Julia Storbeck	2185062
EPA 350.1 Rev. 2.0	07/23/2020			07/26/2020 11:39	Ping Hua	2185063
EPA 351.2 Rev. 2.0	07/23/2020	07/28/2020 11:20	Jhamieka S. Greenwood	07/29/2020 11:42	Jhamieka S. Greenwood	2185063
EPA 353.2 Rev. 2.0	07/23/2020			07/24/2020 08:31	Beverly Y. Sanders	2185063
EPA 365.1 Rev. 2.0	07/23/2020	07/30/2020 11:20	Lipi Saha	07/31/2020 14:16	Benjamin T. Nordmann	2185063
EPA 365.1 Rev. 2.0 dissolved	07/23/2020			07/23/2020 14:55	Jhamieka S. Greenwood	2185064
SM 2320 B-2011	07/23/2020			07/24/2020 21:17	Dale L. Simmons	2185062
SM 2540 D-2011	07/23/2020			07/28/2020 18:00	Madeline Gruver	2185062
SM 4500 F-C-2011	07/23/2020			07/24/2020 21:17	Dale L. Simmons	2185062
SM 5310 B-2011	07/23/2020			07/28/2020 09:54	David Boose	2185063