Chemical Analysis Report

SE-DIST-2020-08-05-01

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-2020-07-27-16**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
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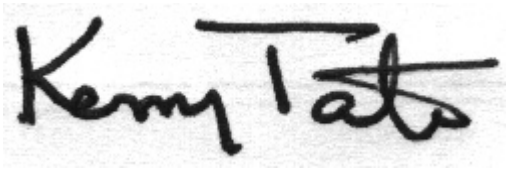
Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 26-AUG-2020 12:06



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: 08/04/2020 10:45**

Field ID: G5SE0083 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2188582	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P385689	
	EPA 300.0 Rev. 2.1	Bromide	9.6		mg Br/L	P386266	
	SM 2320 B-2011	Total Alkalinity	184		mg CaCO3/L	P385771	
	SM 2540 D-2011	TSS	3	U	mg/L	P386007	
	SM 4500 F-C-2011	Fluoride	0.46		mg F/L	P385837	
2188583	EPA 350.1 Rev. 2.0	Ammonia-N	0.036		mg N/L	P385801	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P385877	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P385864	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P385781	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P385777	
2188584	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P385694	

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: P385689

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386266

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385801

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385877

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385864

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385781

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385694

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

Reference Method: SM 2320 B-2011
Batch ID: P385771

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

Reference Method: SM 2540 D-2011
Batch ID: P386007

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P385837

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P385777

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: P386266

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385801

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385877

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385864

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: P385781

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385694

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

Reference Method: SM 2320 B-2011
Batch ID: P385771

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.1		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P385837

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P385777

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2187687	Bromide	97.4	94.6	P/P	90 - 110
2188922	Bromide	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188507	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188652	Kjeldahl Nitrogen	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385864

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188583	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385781

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188437	Total-P	99.4	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385694

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188508	O-Phosphate-P	99.5	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P385837

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189089	Fluoride	100	100	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P385777

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188647	Organic Carbon	100	102	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P385689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188415	Turbidity	7.38	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2187687	Bromide	2.43	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188507	Ammonia-N	0.544	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188652	Kjeldahl Nitrogen	0.438	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188583	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188437	Total-P	1.86	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188508	O-Phosphate-P	0.0868	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P385771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188430	Total Alkalinity	0.500	Sample	P	0 - 8.1

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P385837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189089	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P385777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188647	Organic Carbon	1.30	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A100297
Included Lab Sample IDs: 2188582

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A100298
Included Lab Sample IDs: 2188584

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

Reference Method: SM 2320 B-2011
Run ID: A100341
Included Lab Sample IDs: 2188582

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.5	98.3	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A100342
Included Lab Sample IDs: 2188583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.5	99.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A100352
Included Lab Sample IDs: 2188583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A100369
Included Lab Sample IDs: 2188583

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

Reference Method: SM 4500 F-C-2011
Run ID: A100371
Included Lab Sample IDs: 2188582

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A100382
Included Lab Sample IDs: 2188583

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100416
Included Lab Sample IDs: 2188583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A100541
Included Lab Sample IDs: 2188582

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	104	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			Precision		
						LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						7.38	
EPA 300.0 Rev. 2.1	Bromide	103	97.4	94.6	96.7			2.43
EPA 350.1 Rev. 2.0	Ammonia-N	95.8	102	102				0.544
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	101	102				0.438
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100	100				0.0
EPA 365.1 Rev. 2.0	Total-P	103	99.4	96.9				1.86
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	99.5	99.6				0.0868
SM 2320 B-2011	Total Alkalinity	99.1					0.500	
SM 4500 F-C-2011	Fluoride	98.4	100	100				0.0
SM 5310 B-2011	Organic Carbon	101	100	102				1.30

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2188582
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2188582
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2188583
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2188583
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2188583
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2188583
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2188584
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2188582
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2188582
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2188582
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2188583

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	08/05/2020			08/05/2020 15:58	Blanca Fach	2188582
EPA 300.0 Rev. 2.1	08/05/2020			08/15/2020 14:57	Julia Storbeck	2188582
EPA 350.1 Rev. 2.0	08/05/2020			08/08/2020 13:30	Ping Hua	2188583
EPA 351.2 Rev. 2.0	08/05/2020	08/11/2020 09:50	Sima Feizi	08/12/2020 12:13	Jhamieka S. Greenwood	2188583
EPA 353.2 Rev. 2.0	08/05/2020			08/11/2020 08:51	Beverly Y. Sanders	2188583
EPA 365.1 Rev. 2.0	08/05/2020	08/07/2020 13:00	Shengyu Wang	08/10/2020 10:51	Benjamin T. Nordmann	2188583
EPA 365.1 Rev. 2.0 dissolved	08/05/2020			08/05/2020 16:16	Virginia P. Brown	2188584
SM 2320 B-2011	08/05/2020			08/07/2020 01:08	Dale L. Simmons	2188582
SM 2540 D-2011	08/05/2020			08/10/2020 13:50	Yijie Li	2188582
SM 4500 F-C-2011	08/05/2020			08/07/2020 21:31	Dale L. Simmons	2188582
SM 5310 B-2011	08/05/2020			08/07/2020 05:05	David Boose	2188583