

Chemical Analysis Report

SE-DIST-2019-11-13-03

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

Event Description: **SMP- SLE Boat Addon**
Request ID: **RQ-2019-11-11-35**
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
Attn: Matthew Sewell

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: Colin Wright, Program Administrator

Date Certified: 05-DEC-2019 10:30

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

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: North Fork SLR @ Marker 4

Collection Date/Time: 11/12/2019 11:25

Field ID: G2SE0042

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2135714	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P374360	
	EPA 300.0	Bromide	19		mg Br/L	P374769	
	SM 2320 B-97	Total Alkalinity	138	A	mg CaCO3/L	P374290	
	SM 2540 D-97	TSS	4	I	mg/L	P374823	
	SM 4500 F-C-97	Fluoride	0.48		mg F/L	P374292	
2135715	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P374460	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P374511	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P374369	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P374707	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P374430	
2135716	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P374185	

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: P374360

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P374769

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374460

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374511

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374369

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374707

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374185

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

Reference Method: SM 2320 B-97
Batch ID: P374290

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

Reference Method: SM 2540 D-97
Batch ID: P374823

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P374292

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P374430

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P374360

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

Reference Method: EPA 300.0
Batch ID: P374769

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374460

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374511

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374369

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: P374707

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374185

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

Reference Method: SM 2320 B-97
Batch ID: P374290

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.7		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P374292

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	92 - 103

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P374430

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
 Batch ID: P374769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2135473	Bromide	97.8	99.8	P/P	90 - 110
2135668	Bromide	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P374460

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136144	Ammonia-N	104	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P374511

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2135606	Kjeldahl Nitrogen	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P374369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2135674	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P374707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2135715	Total-P	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P374185

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2135399	O-Phosphate-P	101	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P374292

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2135714	Fluoride	96.5	98.1	P/P	89 - 106

Reference Method: SM 5310 B-00
 Batch ID: P374430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2135715	Organic Carbon	102	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P374360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2135558	Turbidity	19.0	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P374769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2135473	Bromide	1.96	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136144	Ammonia-N	1.44	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374511

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2135606	Kjeldahl Nitrogen	0.0420	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2135674	NO2NO3-N	0.328	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2135715	Total-P	1.38	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374185

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2135399	O-Phosphate-P	0.729	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P374290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2135714	Total Alkalinity	0.195	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P374292

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2135714	Fluoride	1.01	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P374430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2135715	Organic Carbon	0.993	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: A95717

Included Lab Sample IDs: 2135716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A95757

Included Lab Sample IDs: 2135714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.7	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A95757

Included Lab Sample IDs: 2135714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A95789

Included Lab Sample IDs: 2135714

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95794

Included Lab Sample IDs: 2135715

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

Reference Method: SM 5310 B-00

Run ID: A95823

Included Lab Sample IDs: 2135715

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95834

Included Lab Sample IDs: 2135715

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95884

Included Lab Sample IDs: 2135715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	97.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0

Run ID: A95940

Included Lab Sample IDs: 2135714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	106	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95968

Included Lab Sample IDs: 2135715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.7	99.9	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			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity	102				19.0	
EPA 300.0	Bromide	101	97.8	99.8	97.3		1.96
EPA 350.1 Rev. 2.0	Ammonia-N	98.3	104	106			1.44
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	101	101			0.0420
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	102	102			0.328
EPA 365.1 Rev. 2.0	Total-P	100	103	105			1.38
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	101	99.6			0.729
SM 2320 B-97	Total Alkalinity	98.7				0.195	
SM 4500 F-C-97	Fluoride	96.9	96.5	98.1			1.01
SM 5310 B-00	Organic Carbon	103	102	101			0.993

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2135714
EPA 300.0 / E31780	Bromide in aqueous matrices	2135714
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2135715
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2135715
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2135715
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2135715
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2135716
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2135714
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2135714
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2135714
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2135715

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	11/13/2019			11/13/2019 17:28	Samantha Davila	2135714
EPA 300.0	11/13/2019			11/21/2019 03:43	Lipi Saha	2135714
EPA 350.1 Rev. 2.0	11/13/2019			11/19/2019 11:18	Ping Hua	2135715
EPA 351.2 Rev. 2.0	11/13/2019	11/20/2019 12:20	Sima Feizi	11/21/2019 15:38	Jhamieka S. Greenwood	2135715
EPA 353.2 Rev. 2.0	11/13/2019			11/18/2019 12:37	Beverly Y. Sanders	2135715
EPA 365.1 Rev. 2.0	11/13/2019	11/22/2019 13:04	Yen Ta	11/26/2019 13:50	Benjamin T. Nordmann	2135715
EPA 365.1 Rev. 2.0 dissolved	11/13/2019			11/13/2019 14:09	Virginia P. Brown	2135716
SM 2320 B-97	11/13/2019			11/14/2019 17:28	Dale L. Simmons	2135714
SM 2540 D-97	11/13/2019			11/15/2019 15:21	Yijie Li	2135714
SM 4500 F-C-97	11/13/2019			11/14/2019 15:26	Dale L. Simmons	2135714
SM 5310 B-00	11/13/2019			11/19/2019 05:21	Lauren Lees	2135715