Chemical Analysis Report

SE-DIST-2021-03-24-01

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

Event Description: **SMP - IRC Boat**
Request ID: **RQ-2021-03-22-19**
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: Drew Liddick

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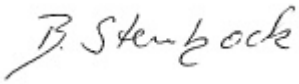
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 15-APR-2021 15:01



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: Kenansville Center **Collection Date/Time: 03/23/2021 13:00**

Field ID: G3SE0047 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2233280	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P395457	
	EPA 300.0 Rev. 2.1	Chloride	68		mg Cl/L	P395584	
		Sulfate	9.6		mg SO4/L	P395586	
	SM 2120 B-2011	Color (true)	67		PCU	P395440	
	SM 2320 B-2011	Total Alkalinity	62		mg CaCO3/L	P395527	
	SM 2540 C-2011	TDS	256	A	mg/L	P395816	
	SM 2540 D-2011	TSS	2	UA	mg/L	P395853	
	SM 4500 F-C-2011	Fluoride	0.14		mg F/L	P395529	
2233281	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P395909	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P395720	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P395462	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P395543	
	SM 5310 B-2011	Organic Carbon	21		mg C/L	P395668	
2233282	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.01	I	mg P/L	P395435	

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: P395457

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395584

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395586

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395909

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395720

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395462

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395543

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395435

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

Reference Method: SM 2120 B-2011
Batch ID: P395440

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P395527

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

Reference Method: SM 2540 C-2011
Batch ID: P395816

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P395853

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P395529

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P395668

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: P395584

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395586

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395909

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395720

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395462

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395543

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395435

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

Reference Method: SM 2120 B-2011
Batch ID: P395440

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.9		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P395527

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P395529

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P395668

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395584

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233010	Chloride	100		P	90 - 110
2233235	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395586

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233010	Sulfate	99.0		P	90 - 110
2233235	Sulfate	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233281	Ammonia-N	96.0	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395720

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233263	Kjeldahl Nitrogen	104	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395462

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233195	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395543

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233262	Total-P	106	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233237	O-Phosphate-P	97.6	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P395529

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233261	Fluoride	98.5	98.5	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P395668

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233281	Organic Carbon	99.6		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P395457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233260	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233235	Chloride	0.570	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395586

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233235	Sulfate	0.441	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233281	Ammonia-N	2.13	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233263	Kjeldahl Nitrogen	1.73	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233195	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395543

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233262	Total-P	2.55	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233237	O-Phosphate-P	0.0956	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P395440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233235	Color (true)	0.00787	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P395527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233261	Total Alkalinity	1.33	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P395816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233280	TDS	4.29	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P395529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233261	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P395668

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233281	Organic Carbon	0.273	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A104216
Included Lab Sample IDs: 2233280

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.0	98.9	P/P	90 - 110
Sulfate	98.7	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A104252
Included Lab Sample IDs: 2233282

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	98.7	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A104253
Included Lab Sample IDs: 2233280

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A104266
Included Lab Sample IDs: 2233280

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	101	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A104267
Included Lab Sample IDs: 2233281

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A104294
Included Lab Sample IDs: 2233280

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A104294
Included Lab Sample IDs: 2233280

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A104334
Included Lab Sample IDs: 2233281

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-2011
Run ID: A104362
Included Lab Sample IDs: 2233281

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A104425
Included Lab Sample IDs: 2233281

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A104465
Included Lab Sample IDs: 2233281

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.1	99.3	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					0.0	
EPA 300.0 Rev. 2.1	Chloride	97.9	100	100		0.570	
	Sulfate	97.3	98.1	99.0		0.441	
EPA 350.1 Rev. 2.0	Ammonia-N	95.6	96.0	99.0			2.13
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	104	102			1.73
EPA 353.2 Rev. 2.0	NO2NO3-N	103	99.5	99.5			0.0
EPA 365.1 Rev. 2.0	Total-P	106	106	100			2.55
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.2	97.6	97.5			0.0956
SM 2120 B-2011	Color (true)	98.9				0.0078	
SM 2320 B-2011	Total Alkalinity	101				1.33	
SM 2540 C-2011	TDS					4.29	
SM 4500 F-C-2011	Fluoride	98.3	98.5	98.5			0.0
SM 5310 B-2011	Organic Carbon	95.4	99.6				0.273

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2233280
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2233280
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2233280
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2233281
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2233281
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2233281
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2233281
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2233282
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2233280
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2233280
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2233280
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2233280
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2233280
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2233281

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	03/24/2021			03/24/2021 15:19	Blanca Fach	2233280
EPA 300.0 Rev. 2.1	03/24/2021			03/25/2021 19:15	Lipi Saha	2233280
EPA 350.1 Rev. 2.0	03/24/2021			04/03/2021 09:53	Ping Hua	2233281
EPA 351.2 Rev. 2.0	03/24/2021	03/31/2021 13:16	Benjamin T. Nordmann	04/01/2021 13:41	Virginia P. Brown	2233281
EPA 353.2 Rev. 2.0	03/24/2021			03/25/2021 09:37	Beverly Y. Sanders	2233281
EPA 365.1 Rev. 2.0	03/24/2021	03/26/2021 12:49	Yen Ta	03/29/2021 14:01	Shengyu Ding	2233281
EPA 365.1 Rev. 2.0 dissolved	03/24/2021			03/24/2021 14:31	Patrick M. Roche	2233282
SM 2120 B-2011	03/24/2021			03/24/2021 15:43	Benjamin T. Nordmann	2233280
SM 2320 B-2011	03/24/2021			03/25/2021 19:27	Dale L. Simmons	2233280
SM 2540 C-2011	03/24/2021			03/26/2021 15:08	Yijie Li	2233280
SM 2540 D-2011	03/24/2021			03/26/2021 15:08	Yijie Li	2233280
SM 4500 F-C-2011	03/24/2021			03/25/2021 19:27	Dale L. Simmons	2233280
SM 5310 B-2011	03/24/2021			03/30/2021 03:12	Madeline Gruver	2233281