

Chemical Analysis Report

SE-DIST-2020-04-01-01

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

Event Description: **SMP- Biology Sites**
Request ID: **RQ-2020-03-30-46**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 20-APR-2020 13:25



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: South Prong Sebastian East of Eagles Circle

Collection Date/Time: 03/31/2020 14:30

Field ID: G5SE0070

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2169055	EPA 300.0 Rev. 2.1	Chloride	530		mg Cl/L	P381992	
		Sulfate	120		mg SO4/L	P381998	
	SM 2320 B-2011	Total Alkalinity	168		mg CaCO3/L	P381987	
	SM 2540 C-2011	TDS	1.15E+03		mg/L	P382030	
	SM 2540 D-2011	TSS	3	I	mg/L	P382024	
	SM 4500 F-C-2011	Fluoride	0.52		mg F/L	P381924	
2169056	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P381754	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P381886	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.086		mg N/L	P381663	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P381739	
	SM 5310 B-2011	Organic Carbon	7.9		mg C/L	P381808	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381992

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381998

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381754

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381886

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381663

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381739

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

Reference Method: SM 2320 B-2011
Batch ID: P381987

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

Reference Method: SM 2540 C-2011
Batch ID: P382030

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P382024

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P381924

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P381808

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: P381992

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381998

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381754

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381886

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381663

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	96.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381739

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

Reference Method: SM 2320 B-2011
Batch ID: P381987

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

Reference Method: SM 4500 F-C-2011
Batch ID: P381924

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	92 - 104

Reference Method: SM 5310 B-2011
Batch ID: P381808

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381992

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168976	Chloride	100		P	90 - 110
2169075	Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381998

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168976	Sulfate	101		P	90 - 110
2169075	Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169038	Ammonia-N	96.4	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381663

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169056	NO2NO3-N	98.8	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169056	Total-P	108	105	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P381924

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169306	Fluoride	100	99.5	P/P	91 - 105

Reference Method: SM 5310 B-2011
Batch ID: P381808

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169030	Organic Carbon	97.2	99.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381992

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169075	Chloride	0.335	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169075	Sulfate	0.479	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169038	Ammonia-N	1.40	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169029	Kjeldahl Nitrogen	1.25	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381663

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169056	NO2NO3-N	0.704	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169056	Total-P	2.24	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P381987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169075	Total Alkalinity	2.10	Sample	P	0 - 3.3

Reference Method: SM 2540 C-2011
Batch ID: P382030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169035	TDS	5.56	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P381924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169306	Fluoride	0.508	Spike	P	0 - 2.0

Reference Method: SM 5310 B-2011
Batch ID: P381808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169030	Organic Carbon	1.09	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98582

Included Lab Sample IDs: 2169056

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.5	97.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98623

Included Lab Sample IDs: 2169056

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

Reference Method: SM 5310 B-2011

Run ID: A98644

Included Lab Sample IDs: 2169056

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98648

Included Lab Sample IDs: 2169056

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98686

Included Lab Sample IDs: 2169055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.6	99.8	P/P	90 - 110
Sulfate	99.7	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A98694

Included Lab Sample IDs: 2169055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	104	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98705

Included Lab Sample IDs: 2169056

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

Reference Method: SM 2320 B-2011

Run ID: A98727

Included Lab Sample IDs: 2169055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.3	101	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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 300.0 Rev. 2.1	Chloride	99.7	99.4	100		0.335	
	Sulfate	100	98.5	101		0.479	
EPA 350.1 Rev. 2.0	Ammonia-N	102	96.4	98.1			1.40
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100					1.25
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	96.5	98.8	99.8			0.704
EPA 365.1 Rev. 2.0	Total-P	101	108	105			2.24
SM 2320 B-2011	Total Alkalinity	99.0				2.10	
SM 2540 C-2011	TDS					5.56	
SM 4500 F-C-2011	Fluoride	102	100	99.5			0.508
SM 5310 B-2011	Organic Carbon	94.5	97.2	99.2			1.09

Reference Method Descriptions

Method	Description	Associated Samples
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2169055
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2169055
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2169056
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2169056
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2169056
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2169056
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2169055
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2169055
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2169055
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2169055
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2169056

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 300.0 Rev. 2.1	04/01/2020			04/09/2020 04:49	Jhamieka S. Greenwood	2169055
EPA 350.1 Rev. 2.0	04/01/2020			04/02/2020 13:40	Julia Storbeck	2169056
EPA 351.2 Rev. 2.0	04/01/2020	04/07/2020 11:00	Jhamieka S. Greenwood	04/08/2020 10:49	Jhamieka S. Greenwood	2169056
EPA 353.2 Rev. 2.0	04/01/2020			04/01/2020 16:23	Lauren Lees	2169056
EPA 365.1 Rev. 2.0	04/01/2020	04/02/2020 15:18	Yen Ta	04/03/2020 16:10	Benjamin T. Nordmann	2169056
SM 2320 B-2011	04/01/2020			04/09/2020 23:28	Samantha Davila	2169055
SM 2540 C-2011	04/01/2020			04/03/2020 14:49	Yijie Li	2169055
SM 2540 D-2011	04/01/2020			04/03/2020 14:49	Yijie Li	2169055
SM 4500 F-C-2011	04/01/2020			04/07/2020 03:07	Samantha Davila	2169055
SM 5310 B-2011	04/01/2020			04/03/2020 02:05	Madeline Gruver	2169056