Chemical Analysis Report

SE-DIST-2020-04-02-01

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: Colin Wright, Program Administrator

Date Certified: 20-APR-2020 14:59

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: Kissimmee Above **Collection Date/Time: 04/01/2020 11:00**

Field ID: G4SE0091 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2169294	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P381994	
		Sulfate	8.6		mg SO4/L	P382000	
	SM 2320 B-2011	Total Alkalinity	33		mg CaCO3/L	P381988	
	SM 2540 C-2011	TDS	117		mg/L	P382033	
	SM 2540 D-2011	TSS	6	I	mg/L	P382027	
	SM 4500 F-C-2011	Fluoride	0.11		mg F/L	P381924	
2169295	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P381824	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P381773	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P381731	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P381803	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P381850	

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 300.0 Rev. 2.1
Batch ID: P381994

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P382000

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381824

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381773

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381731

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381803

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

Reference Method: SM 2320 B-2011
Batch ID: P381988

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

Reference Method: SM 2540 C-2011
Batch ID: P382033

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P382027

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: P381850

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: P381994

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P382000

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381824

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381773

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381731

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: P381803

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

Reference Method: SM 2320 B-2011
Batch ID: P381988

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.0		P	98 - 107

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: P381850

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.5		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381994

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169205	Chloride	103		P	90 - 110
2169297	Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P382000

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169205	Sulfate	103		P	90 - 110
2169297	Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381824

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169295	Ammonia-N	99.9	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381773

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169307	Kjeldahl Nitrogen	98.1	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169295	NO2NO3-N	95.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169289	Total-P	103	104	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: P381850

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169295	Organic Carbon	97.2	95.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169297	Chloride	0.681	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P382000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169297	Sulfate	0.408	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169295	Ammonia-N	0.616	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169307	Kjeldahl Nitrogen	0.214	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169295	NO2NO3-N	1.56	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169289	Total-P	1.67	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P381988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169288	Total Alkalinity	0.372	Sample	P	0 - 3.3

Reference Method: SM 2540 C-2011
Batch ID: P382033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169258	TDS	3.10	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: P381850

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169295	Organic Carbon	1.18	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: A98609
Included Lab Sample IDs: 2169295

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	96.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A98658
Included Lab Sample IDs: 2169295

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

Reference Method: SM 5310 B-2011
Run ID: A98666
Included Lab Sample IDs: 2169295

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	95.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A98668
Included Lab Sample IDs: 2169295

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A98669
Included Lab Sample IDs: 2169295

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.3	98.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A98686
Included Lab Sample IDs: 2169294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.8	101	P/P	90 - 110
Sulfate	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A98694
Included Lab Sample IDs: 2169294

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

Reference Method: SM 2320 B-2011
Run ID: A98727
Included Lab Sample IDs: 2169294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	97.6	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		Precision		
					LCS	SMP	MS
EPA 300.0 Rev. 2.1	Chloride	103	98.6	103		0.681	
	Sulfate	103	98.5	103		0.408	
EPA 350.1 Rev. 2.0	Ammonia-N	100	99.9	101			0.616
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.8	98.1	97.7			0.214
EPA 353.2 Rev. 2.0	NO2NO3-N	96.5	95.5	97.0			1.56
EPA 365.1 Rev. 2.0	Total-P	105	103	104			1.67
SM 2320 B-2011	Total Alkalinity	99.0				0.372	
SM 2540 C-2011	TDS					3.10	
SM 4500 F-C-2011	Fluoride	102	100	99.5			0.508
SM 5310 B-2011	Organic Carbon	97.5	97.2	95.1			1.18

Reference Method Descriptions

Method	Description	Associated Samples
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2169294
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2169294
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2169295
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2169295
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2169295
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2169295
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2169294
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2169294
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2169294
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2169294
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2169295

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	04/02/2020			04/09/2020 17:39	Jhamieka S. Greenwood	2169294
EPA 350.1 Rev. 2.0	04/02/2020			04/04/2020 11:25	Ping Hua	2169295
EPA 351.2 Rev. 2.0	04/02/2020	04/03/2020 09:10	Sima Feizi	04/06/2020 10:06	Jhamieka S. Greenwood	2169295
EPA 353.2 Rev. 2.0	04/02/2020			04/02/2020 14:43	Lauren Lees	2169295
EPA 365.1 Rev. 2.0	04/02/2020	04/03/2020 14:45	Yen Ta	04/06/2020 09:00	Lipi Saha	2169295
SM 2320 B-2011	04/02/2020			04/10/2020 03:05	Samantha Davila	2169294
SM 2540 C-2011	04/02/2020			04/03/2020 14:49	Yijie Li	2169294
SM 2540 D-2011	04/02/2020			04/03/2020 14:49	Yijie Li	2169294
SM 4500 F-C-2011	04/02/2020			04/07/2020 00:14	Samantha Davila	2169294
SM 5310 B-2011	04/02/2020			04/03/2020 09:18	Madeline Gruver	2169295