Chemical Analysis Report

SW-DIST-2020-12-22-01

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

Event Description: **HA_Waheta Farms Canal**
Request ID: **RQ-2020-06-22-20**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 13-JAN-2021 12:03

B. Steinbock

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: Wahneta Farm Drain @ 19th Street **Collection Date/Time: 12/21/2020 11:05**

Field ID: G3SW0083 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2215499	EPA 180.1 Rev. 2.0	Turbidity	9.3		NTU	P391624	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P392041	
		Sulfate	20		mg SO4/L	P392043	
	SM 2120 B-2011	Color (true)	100		PCU	P391633	
	SM 2320 B-2011	Total Alkalinity	33		mg CaCO3/L	P391745	
	SM 2540 C-2011	TDS	125		mg/L	P391953	
	SM 2540 D-2011	TSS	14		mg/L	P391960	
	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P391747	
2215500	EPA 350.1 Rev. 2.0	Ammonia-N	0.044		mg N/L	P391733	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P391838	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P391659	
	EPA 365.1 Rev. 2.0	Total-P	0.073		mg P/L	P391689	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P391750	
2215501	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.032		mg P/L	P391630	

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: P391624

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391733

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391838

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391659

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391689

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391630

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

Reference Method: SM 2120 B-2011
Batch ID: P391633

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P391745

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

Reference Method: SM 2540 C-2011
Batch ID: P391953

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P391960

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P391747

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P391750

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: P392041

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391659

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391689

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391630

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

Reference Method: SM 2120 B-2011
Batch ID: P391633

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P391745

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.2		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P391747

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P391750

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: P392041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215468	Chloride	97.5		P	90 - 110
2215984	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215468	Sulfate	97.0		P	90 - 110
2215984	Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391733

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215458	Ammonia-N	97.8	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215416	Kjeldahl Nitrogen	106	113	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391659

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215475	NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215368	Total-P	102	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391630

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215470	O-Phosphate-P	100	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P391747

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215319	Fluoride	94.5	95.0	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P391750

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214867	Organic Carbon	101	101	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P391624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215485	Turbidity	4.15	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215468	Chloride	0.00329	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215468	Sulfate	0.448	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215458	Ammonia-N	2.08	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215416	Kjeldahl Nitrogen	3.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215475	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215368	Total-P	1.76	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215470	O-Phosphate-P	2.21	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P391633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215415	Color (true)	1.26	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P391745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215319	Total Alkalinity	1.16	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P391953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215468	TDS	1.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P391747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215319	Fluoride	0.477	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P391750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214867	Organic Carbon	0.172	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: A102728
Included Lab Sample IDs: 2215499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A102730
Included Lab Sample IDs: 2215501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	98.9	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A102732
Included Lab Sample IDs: 2215499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	104	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A102742
Included Lab Sample IDs: 2215500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A102784
Included Lab Sample IDs: 2215500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.1	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A102789
Included Lab Sample IDs: 2215499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.0	95.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A102789
Included Lab Sample IDs: 2215499

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

Reference Method: SM 5310 B-2011
Run ID: A102792
Included Lab Sample IDs: 2215500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A102794
Included Lab Sample IDs: 2215500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.4	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A102855
Included Lab Sample IDs: 2215500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	95.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A102875
Included Lab Sample IDs: 2215499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.3	99.8	P/P	90 - 110
Sulfate	98.7	99.5	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					4.15	
EPA 300.0 Rev. 2.1	Chloride	98.9	97.5	97.6		0.0032	
	Sulfate	99.0	97.0	99.8		0.448	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	97.8	100			2.08
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	106	113			3.42
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	98.5	98.5			0.0
EPA 365.1 Rev. 2.0	Total-P	102	102	99.5			1.76
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	100	98.3			2.21
SM 2120 B-2011	Color (true)	102				1.26	
SM 2320 B-2011	Total Alkalinity	97.2				1.16	
SM 2540 C-2011	TDS					1.90	
SM 4500 F-C-2011	Fluoride	96.7	94.5	95.0			0.477
SM 5310 B-2011	Organic Carbon	101	101	101			0.172

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2215499
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2215499
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2215499
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2215500
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2215500
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2215500
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2215500
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2215501
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2215499
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2215499
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2215499
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2215499
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2215499
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2215500

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	12/22/2020			12/22/2020 14:51	Yen Ta	2215499
EPA 300.0 Rev. 2.1	12/22/2020			01/06/2021 22:26	Lipi Saha	2215499
EPA 350.1 Rev. 2.0	12/22/2020			12/27/2020 14:28	Ping Hua	2215500
EPA 351.2 Rev. 2.0	12/22/2020	12/29/2020 10:24	Yen Ta	12/30/2020 17:01	Virginia P. Brown	2215500
EPA 353.2 Rev. 2.0	12/22/2020			12/23/2020 09:43	Beverly Y. Sanders	2215500
EPA 365.1 Rev. 2.0	12/22/2020	12/23/2020 10:14	Yen Ta	12/28/2020 11:00	Benjamin T. Nordmann	2215500
EPA 365.1 Rev. 2.0 dissolved	12/22/2020			12/22/2020 15:34	Blanca Fach	2215501
SM 2120 B-2011	12/22/2020			12/22/2020 15:57	Benjamin T. Nordmann	2215499
SM 2320 B-2011	12/22/2020			12/23/2020 19:52	Dale L. Simmons	2215499
SM 2540 C-2011	12/22/2020			12/26/2020 16:45	Yijie Li	2215499
SM 2540 D-2011	12/22/2020			12/26/2020 16:45	Yijie Li	2215499
SM 4500 F-C-2011	12/22/2020			12/23/2020 19:52	Dale L. Simmons	2215499
SM 5310 B-2011	12/22/2020			12/24/2020 01:01	Madeline Gruver	2215500