Chemical Analysis Report

CEN-DIST-2020-10-13-01

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

Event Description: **Coon/Center**
Request ID: **RQ-2020-10-12-35**
Customer: **CEN-DIST**
Project ID: **SMP**

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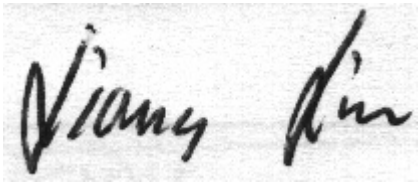
Date Certified: 29-OCT-2020 13:58



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: Lake Center @ Center **Collection Date/Time: 10/12/2020 10:54**

Field ID: G4CE0163 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2201323	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P388593	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P388999	
		Sulfate	6.5		mg SO4/L	P389001	
	SM 2120 B-2011	Color (true)	740		PCU	P388684	
	SM 2320 B-2011	Total Alkalinity	1.5	I	mg CaCO3/L	P388941	
	SM 2540 C-2011	TDS	130		mg/L	P389264	
	SM 2540 D-2011	TSS	2	I	mg/L	P389159	
	SM 4500 F-C-2011	Fluoride	0.045	I	mg F/L	P388955	
2201324	EPA 350.1 Rev. 2.0	Ammonia-N	0.047		mg N/L	P388835	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.4		mg N/L	P388661	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.057		mg N/L	P388799	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P388640	
	SM 5310 B-2011	Organic Carbon	44		mg C/L	P388725	
2201325	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P388601	

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: P388593

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388999

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389001

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388835

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388661

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388799

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388640

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388601

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

Reference Method: SM 2120 B-2011
Batch ID: P388684

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P388941

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

Reference Method: SM 2540 C-2011
Batch ID: P389264

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P389159

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P388955

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P388725

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: P388999

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389001

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388835

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388661

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388799

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388640

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388601

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

Reference Method: SM 2120 B-2011
Batch ID: P388684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.6		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P388941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P388955

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P388725

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388999

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201191	Chloride	98.2		P	90 - 110
2201344	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389001

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201191	Sulfate	97.2		P	90 - 110
2201344	Sulfate	94.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201330	Ammonia-N	98.5	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388661

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201192	Kjeldahl Nitrogen	108	114	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201249	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388640

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201249	Total-P	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388601

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201185	O-Phosphate-P	100	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P388955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201327	Fluoride	100	100	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P388725

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201026	Organic Carbon	105		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P388593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201276	Turbidity	3.73	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201191	Chloride	0.317	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389001

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201191	Sulfate	0.602	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201330	Ammonia-N	0.812	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388661

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201192	Kjeldahl Nitrogen	4.03	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201249	NO2NO3-N	0.329	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388640

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201249	Total-P	0.793	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388601

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201185	O-Phosphate-P	1.29	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P388684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201345	Color (true)	18.0	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P388941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201327	Total Alkalinity	1.60	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P389264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201248	TDS	5.93	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P388955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201327	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P388725

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201026	Organic Carbon	0.540	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: A101491
Included Lab Sample IDs: 2201323

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A101494
Included Lab Sample IDs: 2201325

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

Reference Method: SM 2120 B-2011
Run ID: A101521
Included Lab Sample IDs: 2201323

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	105	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A101535
Included Lab Sample IDs: 2201324

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

Reference Method: SM 5310 B-2011
Run ID: A101541
Included Lab Sample IDs: 2201324

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A101547
Included Lab Sample IDs: 2201324

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	107	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A101572
Included Lab Sample IDs: 2201324

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A101595
Included Lab Sample IDs: 2201324

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	93.0	91.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-2011
Run ID: A101630
Included Lab Sample IDs: 2201323

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.8	104	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A101630
Included Lab Sample IDs: 2201323

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A101649
Included Lab Sample IDs: 2201323

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.6	P/P	90 - 110
Sulfate	99.9	98.5	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					3.73	
EPA 300.0 Rev. 2.1	Chloride	100	98.2	99.3		0.317	
	Sulfate	97.9	97.2	94.3		0.602	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	98.5	97.6			0.812
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	108	114			4.03
EPA 353.2 Rev. 2.0	NO2NO3-N	100	101	100			0.329
EPA 365.1 Rev. 2.0	Total-P	103	105	106			0.793
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	100	102			1.29
SM 2120 B-2011	Color (true)	98.6				18.0	
SM 2320 B-2011	Total Alkalinity	102				1.60	
SM 2540 C-2011	TDS					5.93	
SM 4500 F-C-2011	Fluoride	96.5	100	100			0.0
SM 5310 B-2011	Organic Carbon	99.6	105				0.540

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2201323
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2201323
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2201323
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2201324
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2201324
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2201324
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2201324
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2201325
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2201323
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2201323
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2201323
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2201323
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2201323
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2201324

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	10/13/2020			10/13/2020 15:29	Yen Ta	2201323
EPA 300.0 Rev. 2.1	10/13/2020			10/20/2020 20:02	Lipi Saha	2201323
EPA 350.1 Rev. 2.0	10/13/2020			10/17/2020 12:19	Ping Hua	2201324
EPA 351.2 Rev. 2.0	10/13/2020	10/14/2020 12:30	David Boose	10/15/2020 17:50	Julia Storbeck	2201324
EPA 353.2 Rev. 2.0	10/13/2020			10/15/2020 10:13	Beverly Y. Sanders	2201324
EPA 365.1 Rev. 2.0	10/13/2020	10/14/2020 12:45	Yen Ta	10/19/2020 12:19	Shengyu Wang	2201324
EPA 365.1 Rev. 2.0 dissolved	10/13/2020			10/13/2020 15:43	Blanca Fach	2201325
SM 2120 B-2011	10/13/2020			10/13/2020 17:50	Madeline Gruver	2201323
SM 2320 B-2011	10/13/2020			10/19/2020 21:23	Samantha Davila	2201323
SM 2540 C-2011	10/13/2020			10/15/2020 15:25	Yijie Li	2201323
SM 2540 D-2011	10/13/2020			10/15/2020 15:25	Yijie Li	2201323
SM 4500 F-C-2011	10/13/2020			10/19/2020 21:23	Samantha Davila	2201323
SM 5310 B-2011	10/13/2020			10/15/2020 05:44	Madeline Gruver	2201324