Chemical Analysis Report

CEN-DIST-2021-07-16-04

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

Event Description: **Isabell**
Request ID: **RQ-2021-05-03-26**
Customer: **CEN-DIST**
Project ID: **SMP**

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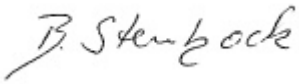
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 12-AUG-2021 16:29



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 Isabell @ Center **Collection Date/Time: 07/15/2021 11:45**

Field ID: G4CE0214 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2262837	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P401110	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P401442	
		Sulfate	25		mg SO4/L	P401446	
	SM 2120 B-2011	Color (true)	45	A	PCU	P401107	
	SM 2320 B-2011	Total Alkalinity	8.4		mg CaCO3/L	P401349	
	SM 2540 C-2011	TDS	115		mg/L	P401571	
	SM 2540 D-2011	TSS	2	U	mg/L	P401565	
	SM 4500 F-C-2011	Fluoride	0.093	I	mg F/L	P401351	
2262838	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P401597	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P402205	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P401197	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P401504	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P401622	
2262839	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401099	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 350.1 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 180.1 Rev. 2.0
Batch ID: P401110

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401442

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401446

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401597

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402205

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401197

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401504

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401099

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

Reference Method: SM 2120 B-2011
Batch ID: P401107

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P401349

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

Reference Method: SM 2540 C-2011
Batch ID: P401571

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P401565

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P401351

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P401622

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: P401442

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401446

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401597

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402205

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401197

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401504

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401099

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

Reference Method: SM 2120 B-2011
Batch ID: P401107

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P401349

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	94 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P401351

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

Reference Method: SM 5310 B-2011
Batch ID: P401622

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: P401442

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262793	Chloride	101		P	90 - 110
2263128	Chloride	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262793	Sulfate	99.5		P	90 - 110
2263128	Sulfate	99.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402205

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262799	Kjeldahl Nitrogen	115	119	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262781	NO2NO3-N	98.0	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401504

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263041	Total-P	108	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401099

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262804	O-Phosphate-P	97.9	98.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P401351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262793	Fluoride	99.0	101	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P401622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263042	Organic Carbon	98.3	96.5	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P401110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262830	Turbidity	4.32	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262793	Chloride	0.0957	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262793	Sulfate	2.82	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401597

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263124	Ammonia-N	1.68	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402205

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262799	Kjeldahl Nitrogen	3.38	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262781	NO2NO3-N	0.468	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263041	Total-P	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262804	O-Phosphate-P	0.611	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P401107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262837	Color (true)	1.07	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P401349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262793	Total Alkalinity	0.0204	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P401571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262749	TDS	5.88	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P401351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262793	Fluoride	1.41	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P401622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263042	Organic Carbon	1.51	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A106667
Included Lab Sample IDs: 2262839

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.0	96.8	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A106668
Included Lab Sample IDs: 2262837

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A106669
Included Lab Sample IDs: 2262837

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A106704
Included Lab Sample IDs: 2262838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A106753
Included Lab Sample IDs: 2262837

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

Reference Method: SM 4500 F-C-2011
Run ID: A106753
Included Lab Sample IDs: 2262837

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A106762
Included Lab Sample IDs: 2262837

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A106825
Included Lab Sample IDs: 2262838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	102	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A106850
Included Lab Sample IDs: 2262838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.6	98.0	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A106870
Included Lab Sample IDs: 2262838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A107152
Included Lab Sample IDs: 2262838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.1	100	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					4.32	
EPA 300.0 Rev. 2.1	Chloride	99.6	101	97.2		0.0957	
	Sulfate	100	99.5	99.3		2.82	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8					1.68
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	115	119			3.38
EPA 353.2 Rev. 2.0	NO2NO3-N	101	98.0	98.4			0.468
EPA 365.1 Rev. 2.0	Total-P	105	108	109			1.02
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	97.9	98.5			0.611
SM 2120 B-2011	Color (true)	100				1.07	
SM 2320 B-2011	Total Alkalinity	103				0.0204	
SM 2540 C-2011	TDS					5.88	
SM 4500 F-C-2011	Fluoride	101	99.0	101			1.41
SM 5310 B-2011	Organic Carbon	97.5	98.3	96.5			1.51

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2262837
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2262837
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2262837
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2262838
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2262838
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2262838
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2262838
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2262839
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2262837
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2262837
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2262837
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2262837
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2262837
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2262838

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	07/16/2021			07/16/2021 15:58	Sarah A Nixon	2262837
EPA 300.0 Rev. 2.1	07/16/2021			07/22/2021 22:45	Lipi Saha	2262837
EPA 350.1 Rev. 2.0	07/16/2021			07/27/2021 13:39	Roberta Tatti	2262838
EPA 351.2 Rev. 2.0	07/16/2021	08/09/2021 18:22	Madeline Gruver	08/10/2021 14:44	Virginia P. Brown	2262838
EPA 353.2 Rev. 2.0	07/16/2021			07/20/2021 09:59	Beverly Y. Sanders	2262838
EPA 365.1 Rev. 2.0	07/16/2021	07/23/2021 17:05	Madeline Gruver	07/26/2021 13:15	Shengyu Ding	2262838
EPA 365.1 Rev. 2.0 dissolved	07/16/2021			07/16/2021 15:43	Ping Hua	2262839
SM 2120 B-2011	07/16/2021			07/16/2021 17:04	Sarah A Nixon	2262837
SM 2320 B-2011	07/16/2021			07/21/2021 04:19	Dale L. Simmons	2262837
SM 2540 C-2011	07/16/2021			07/20/2021 14:56	Yijie Li	2262837
SM 2540 D-2011	07/16/2021			07/20/2021 14:56	Yijie Li	2262837
SM 4500 F-C-2011	07/16/2021			07/21/2021 04:19	Dale L. Simmons	2262837
SM 5310 B-2011	07/16/2021			07/27/2021 06:07	Touraj Touran	2262838