Chemical Analysis Report

CEN-DIST-2022-03-29-01

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

Event Description: **Coon Lake**
Request ID: **RQ-2022-03-28-18**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 15-APR-2022 18:11

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: Coon Lake @ Center **Collection Date/Time: 03/28/2022 11:45**

Field ID: G4CE0162 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2314976	DEP SOP: NU-094-1	Color (true)**	270		PCU	P411729	
	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P411716	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P411905	
		Sulfate	8.5		mg SO4/L	P411908	
	SM 2320 B-2011	Total Alkalinity	2.4	I	mg CaCO3/L	P411966	
	SM 2540 C-2011	TDS	112		mg/L	P411923	
	SM 2540 D-2011	TSS	2	I	mg/L	P411892	
	SM 4500-F- C-2011	Fluoride	0.042	I	mg F/L	P411970	
2314977	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P411760	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P412165	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P411736	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P411944	
	SM 5310 B-2011	Organic Carbon	23		mg C/L	P411792	

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: DEP SOP: NU-094-1
Batch ID: P411729

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411716

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411905

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411908

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411760

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412165

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411736

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411944

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

Reference Method: SM 2320 B-2011
Batch ID: P411966

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P411923

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P411892

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P411970

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P411792

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P411729

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411716

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411905

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411908

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411760

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412165

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: P411736

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411944

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

Reference Method: SM 2320 B-2011
Batch ID: P411966

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.0		P	94 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P411970

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

Reference Method: SM 5310 B-2011
Batch ID: P411792

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.7		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411905

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2314848	Chloride	97.8		P	90 - 110
2315096	Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2314848	Sulfate	97.5		P	90 - 110
2315096	Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411760

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2314875	Ammonia-N	96.0	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412165

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2314853	Kjeldahl Nitrogen	94.8	91.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411736

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2314875	NO2NO3-N	99.0	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2314876	Total-P	103	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P411970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315428	Fluoride	98.3	98.9	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P411792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315048	Organic Carbon	94.2	96.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P411729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315145	Color (true)	1.48	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315000	Turbidity	7.66	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411905

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2314848	Chloride	0.367	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2314848	Sulfate	0.0383	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2314875	Ammonia-N	0.546	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2314853	Kjeldahl Nitrogen	3.15	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2314875	NO2NO3-N	2.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2314876	Total-P	0.840	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P411966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315428	Total Alkalinity	1.92	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P411923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2314848	TDS	0.712	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P411970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315428	Fluoride	0.490	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P411792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315048	Organic Carbon	1.48	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A111208
Included Lab Sample IDs: 2314976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.5	98.6	P/P	90 - 110
Sulfate	98.9	98.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A111213
Included Lab Sample IDs: 2314976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1
Run ID: A111224
Included Lab Sample IDs: 2314976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A111226
Included Lab Sample IDs: 2314977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A111234
Included Lab Sample IDs: 2314977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.2	98.3	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A111243
Included Lab Sample IDs: 2314977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	95.0	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A111305
Included Lab Sample IDs: 2314976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.2	96.7	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A111305
Included Lab Sample IDs: 2314976

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A111344
Included Lab Sample IDs: 2314977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A111453
Included Lab Sample IDs: 2314977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	108	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
DEP SOP: NU-094-1	Color (true)	102				1.48	
EPA 180.1 Rev. 2.0	Turbidity	96.2				7.66	
EPA 300.0 Rev. 2.1	Chloride	98.3	97.8	98.2		0.367	
	Sulfate	98.6	97.5	97.3		0.0383	
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	96.0	96.6			0.546
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	94.8	91.6			3.15
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	99.0	97.0			2.04
EPA 365.1 Rev. 2.0	Total-P	102	103	104			0.840
SM 2320 B-2011	Total Alkalinity	98.0				1.92	
SM 2540 C-2011	TDS					0.712	
SM 4500-F- C-2011	Fluoride	101	98.3	98.9			0.490
SM 5310 B-2011	Organic Carbon	93.7	94.2	96.8			1.48

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2314976
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2314976
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2314976
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2314976
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2314977
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2314977
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2314977
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2314977
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2314976
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2314976
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2314976
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2314976
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2314977

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	03/29/2022			03/29/2022 15:32	Blanca Fach	2314976
EPA 180.1 Rev. 2.0	03/29/2022			03/29/2022 14:26	Anna M. Plaviak	2314976
EPA 300.0 Rev. 2.1	03/29/2022			04/01/2022 13:57	Anna M. Plaviak	2314976
EPA 350.1 Rev. 2.0	03/29/2022			03/30/2022 11:43	Ping Hua	2314977
EPA 351.2 Rev. 2.0	03/29/2022	04/12/2022 17:06	Samantha L Bates	04/13/2022 11:27	Alexandra J Mattheus	2314977
EPA 353.2 Rev. 2.0	03/29/2022			03/30/2022 09:39	Beverly Y. Sanders	2314977
EPA 365.1 Rev. 2.0	03/29/2022	04/05/2022 17:35	Simonne.V. Calhoun	04/06/2022 14:42	James L Waggerby	2314977
SM 2320 B-2011	03/29/2022			04/02/2022 04:00	Dale L. Simmons	2314976
SM 2540 C-2011	03/29/2022			03/31/2022 15:30	Blanca Fach	2314976
SM 2540 D-2011	03/29/2022			03/31/2022 15:30	Blanca Fach	2314976
SM 4500-F- C-2011	03/29/2022			04/02/2022 04:00	Dale L. Simmons	2314976
SM 5310 B-2011	03/29/2022			03/31/2022 00:08	Khloe J Berg	2314977