

Chemical Analysis Report

CEN-DIST-2022-05-11-02

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

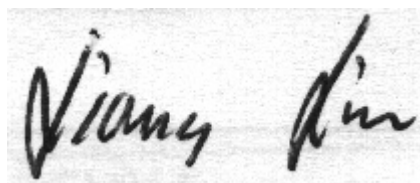
Event Description: **Coon Lake**
Request ID: **RQ-2022-05-09-21**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Matthew Bearden

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 06-JUN-2022 09:21

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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: 05/10/2022 13:33

Field ID: G4CE0162

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2326360	DEP SOP: NU-094-1	Color (true)**	260		PCU	P413729	
	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P413738	
	EPA 300.0 Rev. 2.1	Chloride	27		mg Cl/L	P414105	
		Sulfate	8.9		mg SO4/L	P414109	
	SM 2320 B-2011	Total Alkalinity	2.6		mg CaCO3/L	P413916	
	SM 2540 C-2011	TDS	116		mg/L	P414209	
	SM 2540 D-2011	TSS	2	I	mg/L	P414169	
	SM 4500-F- C-2011	Fluoride	0.040	I	mg F/L	P413918	
2326361	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P414157	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P414075	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P414180	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P413994	
	SM 5310 B-2011	Organic Carbon	23		mg C/L	P413877	

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: P413729

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P413738

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414105

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414109

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414157

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414075

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414180

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413994

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

Reference Method: SM 2320 B-2011
Batch ID: P413916

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: P414209

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P414169

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P413918

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P413877

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: P413729

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P413738

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414105

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414109

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: P414157

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414075

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: P414180

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	93.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413994

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

Reference Method: SM 2320 B-2011
Batch ID: P413916

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.2		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P413918

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P413877

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326287	Chloride	98.8		P	90 - 110
2326442	Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326287	Sulfate	96.5		P	90 - 110
2326442	Sulfate	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326288	Ammonia-N	99.4	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414075

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2325442	Kjeldahl Nitrogen	111	106	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326433	NO2NO3-N	90.5	91.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413994

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326588	Total-P	103	103	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P413918

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326041	Fluoride	96.8	96.0	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P413877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326178	Organic Carbon	89.0	91.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P413729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326432	Color (true)	0.329	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P413738

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326174	Turbidity	6.53	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326287	Chloride	0.0520	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326287	Sulfate	0.0441	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326288	Ammonia-N	0.831	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2325442	Kjeldahl Nitrogen	3.38	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326433	NO2NO3-N	0.581	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326588	Total-P	0.0193	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P413916

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326041	Total Alkalinity	0.113	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P414209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326039	TDS	5.88	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P413918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326041	Fluoride	0.480	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P413877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326178	Organic Carbon	1.55	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1
Run ID: A112075
Included Lab Sample IDs: 2326360

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	100	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A112080
Included Lab Sample IDs: 2326360

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

Reference Method: SM 5310 B-2011
Run ID: A112165
Included Lab Sample IDs: 2326361

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.2	95.4	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A112189
Included Lab Sample IDs: 2326360

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.5	96.9	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A112189
Included Lab Sample IDs: 2326360

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A112198
Included Lab Sample IDs: 2326360

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	100	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A112288
Included Lab Sample IDs: 2326361

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A112294
Included Lab Sample IDs: 2326361

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	94.5	93.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A112297

Included Lab Sample IDs: 2326361

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A112419

Included Lab Sample IDs: 2326361

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		LCS	Precision	MS
						SMP	
DEP SOP: NU-094-1	Color (true)	100				0.329	
EPA 180.1 Rev. 2.0	Turbidity	98.3				6.53	
EPA 300.0 Rev. 2.1	Chloride	100	98.8	99.7		0.0520	
	Sulfate	99.0	96.5	97.4		0.0441	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	99.4	98.4			0.831
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	111	106			3.38
EPA 353.2 Rev. 2.0	NO2NO3-N	93.5	90.5	91.5			0.581
EPA 365.1 Rev. 2.0	Total-P	104	103	103			0.0193
SM 2320 B-2011	Total Alkalinity	98.2				0.113	
SM 2540 C-2011	TDS					5.88	
SM 4500-F- C-2011	Fluoride	97.5	96.8	96.0			0.480
SM 5310 B-2011	Organic Carbon	92.4	89.0	91.6			1.55

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2326360
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2326360
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2326360
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2326360
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2326361
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2326361
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2326361
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2326361
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2326360
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2326360
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2326360
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2326360
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2326361

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	05/11/2022			05/11/2022 14:42	Anna M. Plaviak	2326360
EPA 180.1 Rev. 2.0	05/11/2022			05/11/2022 13:56	Khloe J Berg	2326360
EPA 300.0 Rev. 2.1	05/11/2022			05/19/2022 01:55	Anna M. Plaviak	2326360
EPA 350.1 Rev. 2.0	05/11/2022			05/20/2022 08:59	Judith K. Clark	2326361
EPA 351.2 Rev. 2.0	05/11/2022	05/25/2022 11:36	Samantha L Bates	05/25/2022 12:43	Alexandra J Mattheus	2326361
EPA 353.2 Rev. 2.0	05/11/2022			05/20/2022 14:16	Nathaniel J Jones	2326361
EPA 365.1 Rev. 2.0	05/11/2022	05/19/2022 14:04	Simonne.V. Calhoun	05/20/2022 14:26	James L Waggerby	2326361
SM 2320 B-2011	05/11/2022			05/17/2022 01:52	Dale L. Simmons	2326360
SM 2540 C-2011	05/11/2022			05/13/2022 15:08	Yijie Li	2326360
SM 2540 D-2011	05/11/2022			05/13/2022 15:08	Yijie Li	2326360
SM 4500-F- C-2011	05/11/2022			05/17/2022 01:52	Dale L. Simmons	2326360
SM 5310 B-2011	05/11/2022			05/14/2022 02:16	Khloe J Berg	2326361