Chemical Analysis Report

CEN-DIST-2020-08-06-02

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

Event Description: **Coon Lake/Wolf Creek**
Request ID: **RQ-2020-08-03-59**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 28-AUG-2020 09:59

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: 08/05/2020 11:30**

Field ID: G4CE0162 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2188919	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P385743	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P385890	
		Sulfate	12		mg SO4/L	P385895	
	SM 2120 B-2011	Color (true)	150		PCU	P385745	
	SM 2320 B-2011	Total Alkalinity	4.1		mg CaCO3/L	P385833	
	SM 2540 C-2011	TDS	131		mg/L	P386383	
	SM 2540 D-2011	TSS	2	UJ	mg/L	P385852	
	SM 4500 F-C-2011	Fluoride	0.050	I	mg F/L	P385836	
2188920	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P385807	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P385880	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P385765	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P385827	
	SM 5310 B-2011	Organic Carbon	21		mg C/L	P385883	
2188921	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P385739	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The recovery of the QC standard was outside of the acceptable limit.
SM 4500 F-C-2011: 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: P385743

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385890

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385895

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385807

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385880

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385765

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385827

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385739

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

Reference Method: SM 2120 B-2011
Batch ID: P385745

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P385833

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

Reference Method: SM 2540 C-2011
Batch ID: P386383

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P385852

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P385836

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P385883

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: P385890

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385895

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385807

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385880

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: P385765

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385827

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385739

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

Reference Method: SM 2120 B-2011
Batch ID: P385745

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

Reference Method: SM 2320 B-2011
Batch ID: P385833

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P385836

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P385883

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385890

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188563	Chloride	101		P	90 - 110
2188897	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188563	Sulfate	102		P	90 - 110
2188897	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385807

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188988	Ammonia-N	99.0	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188898	Kjeldahl Nitrogen	104	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385765

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188898	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188920	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188910	O-Phosphate-P	98.9	99.2	P/P	90 - 110

Reference Method: SM 5310 B-2011
Batch ID: P385883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188901	Organic Carbon	102	102	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P385743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188778	Turbidity	2.17	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188563	Chloride	0.540	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188563	Sulfate	0.438	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188988	Ammonia-N	1.85	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188898	Kjeldahl Nitrogen	0.835	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188898	NO2NO3-N	0.473	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188920	Total-P	0.0460	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188910	O-Phosphate-P	0.303	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P385745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188794	Color (true)	0.260	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P385833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188775	Total Alkalinity	0.0281	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P386383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188775	TDS	2.77	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P385836

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188775	Fluoride	0.966	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P385883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188901	Organic Carbon	0.0306	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: A100321
Included Lab Sample IDs: 2188921

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A100322
Included Lab Sample IDs: 2188919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: SM 2120 B-2011
Run ID: A100323
Included Lab Sample IDs: 2188919

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A100340
Included Lab Sample IDs: 2188920

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A100353
Included Lab Sample IDs: 2188920

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	98.4	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A100371
Included Lab Sample IDs: 2188919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A100371
Included Lab Sample IDs: 2188919

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

Reference Method: SM 5310 B-2011
Run ID: A100385
Included Lab Sample IDs: 2188920

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A100386
Included Lab Sample IDs: 2188919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	103	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A100400
Included Lab Sample IDs: 2188920

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	95.8	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100416
Included Lab Sample IDs: 2188920

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.7	101	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					2.17	
EPA 300.0 Rev. 2.1	Chloride	102	101	103		0.540	
	Sulfate	104	102	103		0.438	
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.0	97.0			1.85
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	104	105			0.835
EPA 353.2 Rev. 2.0	NO2NO3-N	104	106	106			0.473
EPA 365.1 Rev. 2.0	Total-P	99.2	102	102			0.0460
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.9	99.2			0.303
SM 2120 B-2011	Color (true)	101				0.260	
SM 2320 B-2011	Total Alkalinity	101				0.0281	
SM 2540 C-2011	TDS					2.77	
SM 4500 F-C-2011	Fluoride	98.4					0.966
SM 5310 B-2011	Organic Carbon	100	102	102			0.0306

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2188919
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2188919
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2188919
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2188920
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2188920
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2188920
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2188920
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2188921
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2188919
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2188919
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2188919
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2188919
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2188919
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2188920

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	08/06/2020			08/06/2020 16:18	Blanca Fach	2188919
EPA 300.0 Rev. 2.1	08/06/2020			08/08/2020 16:10	Julia Storbeck	2188919
EPA 350.1 Rev. 2.0	08/06/2020			08/08/2020 17:50	Ping Hua	2188920
EPA 351.2 Rev. 2.0	08/06/2020	08/11/2020 08:40	Sima Feizi	08/12/2020 13:49	Jhamieka S. Greenwood	2188920
EPA 353.2 Rev. 2.0	08/06/2020			08/07/2020 09:58	Beverly Y. Sanders	2188920
EPA 365.1 Rev. 2.0	08/06/2020	08/10/2020 11:00	Shengyu Wang	08/12/2020 08:17	Lipi Saha	2188920
EPA 365.1 Rev. 2.0 dissolved	08/06/2020			08/06/2020 15:46	Samantha Davila	2188921
SM 2120 B-2011	08/06/2020			08/06/2020 16:35	Madeline Gruver	2188919
SM 2320 B-2011	08/06/2020			08/07/2020 16:55	Dale L. Simmons	2188919
SM 2540 C-2011	08/06/2020			08/07/2020 17:33	Madeline Gruver	2188919
SM 2540 D-2011	08/06/2020			08/07/2020 18:09	Madeline Gruver	2188919
SM 4500 F-C-2011	08/06/2020			08/07/2020 16:55	Dale L. Simmons	2188919
SM 5310 B-2011	08/06/2020			08/10/2020 23:31	David Boose	2188920