

Chemical Analysis Report

CEN-DIST-2022-08-30-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Lakes: Effie, Isabell, Leonore**
Request ID: **RQ-2022-08-22-19**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 19-SEP-2022 10:58



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 Effie @ Center

Collection Date/Time: 08/29/2022 11:02

Field ID: G3CE0036

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2352901	DEP SOP: NU-094-1	Color (true)	57		PCU	P418891	
	EPA 180.1 Rev. 2.0	Turbidity	7.0		NTU	P418879	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P419468	
		Sulfate	11		mg SO4/L	P419471	
	SM 2320 B-2011	Total Alkalinity	124		mg CaCO3/L	P419278	
	SM 2540 C-2011	TDS	219		mg/L	P419427	
	SM 2540 D-2011	TSS	12	I	mg/L	P419317	
2352902	SM 4500-F- C-2011	Fluoride	0.071	I	mg F/L	P419281	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P419068	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P418961	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P419057	
	EPA 365.1 Rev. 2.0	Total-P	0.084		mg P/L	P418986	
2352903	SM 5310 B-2011	Organic Carbon	18		mg C/L	P419185	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P418883	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated because of sample matrix interference.

EPA 351.2 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: DEP SOP: NU-094-1
Batch ID: P418891

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P418879

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419468

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419471

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419068

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418961

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419057

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P418986

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P418883

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P419278

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011
Batch ID: P419427

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P419317

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P419281

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P419185

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: P418891

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.8		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P418879

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419468

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419471

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419068

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418961

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419057

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P418986

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P418883

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P419278

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.1		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P419281

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P419185

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419468

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2352704	Chloride	96.6		P	90 - 110
2352758	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419471

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2352704	Sulfate	93.3		P	90 - 110
2352758	Sulfate	95.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2352902	Ammonia-N	96.6	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2352706	NO2NO3-N	99.1	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P418986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2352721	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P418883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353077	O-Phosphate-P	102	98.8	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P419281

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2352991	Fluoride	102	102	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P419185

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353034	Organic Carbon	89.1	93.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P418891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2352991	Color (true)	1.05	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2352704	Chloride	0.0217	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419471

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2352704	Sulfate	0.0618	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2352902	Ammonia-N	1.45	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2352880	Kjeldahl Nitrogen	4.38	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2352706	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P418986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2352721	Total-P	0.467	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P418883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353077	O-Phosphate-P	3.09	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P419278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2352991	Total Alkalinity	0.709	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P419427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2352991	TDS	7.74	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P419281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2352991	Fluoride	0.470	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P419185

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353034	Organic Carbon	3.09	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: A114434

Included Lab Sample IDs: 2352901

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A114436

Included Lab Sample IDs: 2352903

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	99.3	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A114439

Included Lab Sample IDs: 2352901

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A114512

Included Lab Sample IDs: 2352902

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A114514

Included Lab Sample IDs: 2352902

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A114517

Included Lab Sample IDs: 2352902

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.0	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114561

Included Lab Sample IDs: 2352902

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.4	92.5	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A114570

Included Lab Sample IDs: 2352902

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.2	95.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A114599

Included Lab Sample IDs: 2352901

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.6	101	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A114599

Included Lab Sample IDs: 2352901

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A114600

Included Lab Sample IDs: 2352901

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	100	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 SMP	MS
					LCS	
DEP SOP: NU-094-1	Color (true)	98.8			1.05	
EPA 180.1 Rev. 2.0	Turbidity	96.7				
EPA 300.0 Rev. 2.1	Chloride	99.2	96.6	97.6	0.0217	
	Sulfate	97.8	93.3	95.6	0.0618	
EPA 350.1 Rev. 2.0	Ammonia-N	95.0	96.6	95.0		1.45
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.2				4.38
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	99.1	99.1		0.0
EPA 365.1 Rev. 2.0	Total-P	104	107	107		0.467
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	102	98.8		3.09
SM 2320 B-2011	Total Alkalinity	99.1			0.709	
SM 2540 C-2011	TDS				7.74	
SM 4500-F- C-2011	Fluoride	101	102	102		0.470
SM 5310 B-2011	Organic Carbon	95.6	89.1	93.6		3.09

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2352901
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2352901
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2352901
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2352901
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2352902
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2352902
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2352902
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2352902
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2352903
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2352901
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2352901
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2352901
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2352901
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2352902

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	08/30/2022			08/30/2022 15:45	Anna M. Plaviak	2352901
EPA 180.1 Rev. 2.0	08/30/2022			08/30/2022 11:51	Chandler E Cox	2352901
EPA 300.0 Rev. 2.1	08/30/2022			09/09/2022 22:10	Anna M. Plaviak	2352901
EPA 350.1 Rev. 2.0	08/30/2022			09/02/2022 11:40	Ping Hua	2352902
EPA 351.2 Rev. 2.0	08/30/2022	09/02/2022 08:53	Samantha L Bates	09/06/2022 14:04	Samantha L Bates	2352902
EPA 353.2 Rev. 2.0	08/30/2022			09/02/2022 10:23	Beverly Y. Sanders	2352902
EPA 365.1 Rev. 2.0	08/30/2022	09/01/2022 15:55	Simonne.V. Calhoun	09/02/2022 11:09	Simonne.V. Calhoun	2352902
EPA 365.1 Rev. 2.0 dissolved	08/30/2022			08/30/2022 15:12	Elise M. Gillis	2352903
SM 2320 B-2011	08/30/2022			09/08/2022 05:57	Adam P Silver	2352901
SM 2540 C-2011	08/30/2022			09/02/2022 16:08	Yijie Li	2352901
SM 2540 D-2011	08/30/2022			09/02/2022 16:08	Yijie Li	2352901
SM 4500-F- C-2011	08/30/2022			09/08/2022 05:57	Adam P Silver	2352901
SM 5310 B-2011	08/30/2022			09/06/2022 21:03	Khloe J Berg	2352902