

Chemical Analysis Report

CEN-DIST-2022-09-23-02

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

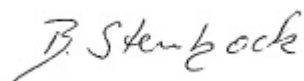
Event Description: **Lake Eaton**
Request ID: **RQ-2022-08-29-12**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 17-OCT-2022 12:57



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 ETON , CENTER

Collection Date/Time: 09/22/2022 11:06

Field ID: G1CE0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359160	DEP SOP: NU-094-1	Color (true)	330		PCU	P420046	
	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P420049	
	EPA 300.0 Rev. 2.1	Chloride	8.3		mg Cl/L	P420331	
		Sulfate	8.1		mg SO4/L	P420334	
	SM 2320 B-2011	Total Alkalinity	34		mg CaCO3/L	P420428	
	SM 2540 C-2011	TDS	110		mg/L	P420488	
	SM 2540 D-2011	TSS	4	I	mg/L	P420477	
	SM 4500-F- C-2011	Fluoride	0.061	I	mg F/L	P420430	
2359161	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P420586	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P420204	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420440	
	EPA 365.1 Rev. 2.0	Total-P	0.075		mg P/L	P420303	
	SM 5310 B-2011	Organic Carbon	28		mg C/L	P420387	

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: P420046

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420049

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420331

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420334

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420586

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420204

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420440

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420303

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

Reference Method: SM 2320 B-2011
Batch ID: P420428

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: P420488

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P420477

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P420430

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P420387

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: P420046

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.1		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420049

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420331

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420586

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420204

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: P420440

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: P420303

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

Reference Method: SM 2320 B-2011
Batch ID: P420428

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.5		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P420430

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P420387

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: P420331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359164	Chloride	96.9		P	90 - 110
2359550	Chloride	96.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359164	Sulfate	94.9		P	90 - 110
2359550	Sulfate	94.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420586

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359126	Ammonia-N	97.2	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420204

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359002	Kjeldahl Nitrogen	108	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420440

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359165	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420303

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359165	Total-P	104	108	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P420430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359300	Fluoride	99.5	99.5	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P420387

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2358936	Organic Carbon	100	97.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P420046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359103	Color (true)	0.697	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359100	Turbidity	4.03	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359164	Chloride	0.235	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359164	Sulfate	0.333	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420586

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359126	Ammonia-N	1.09	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359002	Kjeldahl Nitrogen	2.43	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359165	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420303

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359165	Total-P	3.63	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P420428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359300	Total Alkalinity	0.806	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P420488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359103	TDS	6.20	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P420430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359300	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P420387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358936	Organic Carbon	1.71	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: A114917
Included Lab Sample IDs: 2359160

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A114918
Included Lab Sample IDs: 2359160

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A114999
Included Lab Sample IDs: 2359160

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	100	P/P	90 - 110
Sulfate	99.7	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A115043
Included Lab Sample IDs: 2359161

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	102	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A115074
Included Lab Sample IDs: 2359161

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	95.9	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A115100
Included Lab Sample IDs: 2359160

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.4	96.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A115100
Included Lab Sample IDs: 2359160

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A115111
Included Lab Sample IDs: 2359161

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115115

Included Lab Sample IDs: 2359161

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115158

Included Lab Sample IDs: 2359161

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	99.7	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	MS
DEP SOP: NU-094-1	Color (true)	99.1			0.697	
EPA 180.1 Rev. 2.0	Turbidity	101			4.03	
EPA 300.0 Rev. 2.1	Chloride	101	96.9	96.8	0.235	
	Sulfate	99.1	94.9	94.2	0.333	
EPA 350.1 Rev. 2.0	Ammonia-N	95.2	97.2	98.4		1.09
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	108	105		2.43
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	104		0.0
EPA 365.1 Rev. 2.0	Total-P	102	104	108		3.63
SM 2320 B-2011	Total Alkalinity	98.5			0.806	
SM 2540 C-2011	TDS				6.20	
SM 4500-F- C-2011	Fluoride	97.9	99.5	99.5		0.0
SM 5310 B-2011	Organic Carbon	97.5	100	97.9		1.71

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2359160
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2359160
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2359160
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2359160
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2359161
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2359161
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2359161
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2359161
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2359160
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2359160
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2359160
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2359160
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2359161

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	09/23/2022			09/23/2022 14:08	Samantha L Bates	2359160
EPA 180.1 Rev. 2.0	09/23/2022			09/23/2022 13:55	Chandler E Cox	2359160
EPA 300.0 Rev. 2.1	09/23/2022			09/29/2022 21:31	Anna M. Plaviak	2359160
EPA 350.1 Rev. 2.0	09/23/2022			10/06/2022 11:23	Ping Hua	2359161
EPA 351.2 Rev. 2.0	09/23/2022	09/28/2022 12:10	Alexandra J Mattheus	10/04/2022 10:16	Samantha L Bates	2359161
EPA 353.2 Rev. 2.0	09/23/2022			10/04/2022 09:54	Beverly Y. Sanders	2359161
EPA 365.1 Rev. 2.0	09/23/2022	09/29/2022 14:45	Adam P Silver	09/30/2022 09:57	Simonne.V. Calhoun	2359161
SM 2320 B-2011	09/23/2022			10/03/2022 21:36	Dale L. Simmons	2359160
SM 2540 C-2011	09/23/2022			09/27/2022 15:36	Yijie Li	2359160
SM 2540 D-2011	09/23/2022			09/27/2022 15:36	Yijie Li	2359160
SM 4500-F- C-2011	09/23/2022			10/03/2022 21:36	Dale L. Simmons	2359160
SM 5310 B-2011	09/23/2022			09/30/2022 04:11	Touraj Touran	2359161