Chemical Analysis Report

CEN-DIST-2022-10-21-01

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

Event Description: **Lake Eaton**
Request ID: **RQ-2022-10-17-24**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant Date Certified: 15-NOV-2022 10:05

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: 10/20/2022 11:41**

Field ID: G1CE0119 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2364138	DEP SOP: NU-094-1	Color (true)	420		PCU	P421265	
	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P421273	
	EPA 300.0 Rev. 2.1	Chloride	8.8		mg Cl/L	P422011	
		Sulfate	3.8		mg SO4/L	P421824	
	SM 2320 B-2011	Total Alkalinity	25		mg CaCO3/L	P421457	
	SM 2540 C-2015	TDS	133		mg/L	P421907	
	SM 2540 D-2015	TSS	3	I	mg/L	P421850	
	SM 4500-F- C-2011	Fluoride	0.064	I	mg F/L	P421906	
2364139	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P421859	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P421572	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P421530	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P421427	
	SM 5310 B-2011	Organic Carbon	39		mg C/L	P421544	

Ref. Method and Comment:
SM 2540 D-2015: 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: P421265

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P421273

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P421824

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422011

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421859

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421572

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P421530

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P421427

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

Reference Method: SM 2320 B-2011
Batch ID: P421457

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-2015
Batch ID: P421907

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P421850

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P421906

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P421544

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: P421265

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	95.2		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P421273

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P421824

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	107		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422011

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421859

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421572

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: P421530

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P421427

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

Reference Method: SM 2320 B-2011
Batch ID: P421457

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.0		P	94 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P421907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	97.4		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P421850

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	94.0		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P421906

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P421544

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P421824

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2364196	Sulfate	109		P	90 - 110
2364229	Sulfate	108		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2364196	Chloride	105		P	90 - 110
2364229	Chloride	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421859

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2364123	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421572

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2363935	Kjeldahl Nitrogen	101	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P421530

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2364143	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P421427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2364125	Total-P	105	106	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P421906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2363953	Fluoride	99.3	100	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P421544

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2364275	Organic Carbon	99.6		P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P421265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2364140	Color (true)	12.3	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P421273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2364140	Turbidity	4.33	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P421824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2364196	Sulfate	0.512	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2364196	Chloride	0.0389	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2364123	Ammonia-N	0.946	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2363935	Kjeldahl Nitrogen	0.727	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P421530

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2364143	NO2NO3-N	0.489	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P421427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2364125	Total-P	0.245	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P421457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2363953	Total Alkalinity	1.76	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P421907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2364122	TDS	7.28	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P421906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2363953	Fluoride	0.470	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P421544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2364275	Organic Carbon	0.645	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: A115455
Included Lab Sample IDs: 2364138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.7	95.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A115458
Included Lab Sample IDs: 2364138

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

Reference Method: SM 2320 B-2011
Run ID: A115538
Included Lab Sample IDs: 2364138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.1	95.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A115564
Included Lab Sample IDs: 2364139

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A115568
Included Lab Sample IDs: 2364139

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

Reference Method: SM 5310 B-2011
Run ID: A115572
Included Lab Sample IDs: 2364139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A115643
Included Lab Sample IDs: 2364139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.7	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A115675
Included Lab Sample IDs: 2364138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.5	98.7	P/P	90 - 110
Sulfate	104	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A115726
Included Lab Sample IDs: 2364139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	99.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A115743
Included Lab Sample IDs: 2364138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	99.5	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)	95.2				12.3	
EPA 180.1 Rev. 2.0	Turbidity	101				4.33	
EPA 300.0 Rev. 2.1	Chloride	106	105	101		0.0389	
	Sulfate	107	109	108		0.512	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	101	102			0.946
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	101	103			0.727
EPA 353.2 Rev. 2.0	NO2NO3-N	103	102	102			0.489
EPA 365.1 Rev. 2.0	Total-P	102	105	106			0.245
SM 2320 B-2011	Total Alkalinity	99.0				1.76	
SM 2540 C-2015	TDS	97.4				7.28	
SM 2540 D-2015	TSS	94.0					
SM 4500-F- C-2011	Fluoride	100	99.3	100			0.470
SM 5310 B-2011	Organic Carbon	97.4	99.6				0.645

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2364138
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2364138
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2364138
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2364138
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2364139
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2364139
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2364139
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2364139
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2364138
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2364138
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2364138
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2364138
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2364139

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	10/21/2022			10/21/2022 14:51	Samantha L Bates	2364138
EPA 180.1 Rev. 2.0	10/21/2022			10/21/2022 14:23	Anna M. Plaviak	2364138
EPA 300.0 Rev. 2.1	10/21/2022			11/03/2022 01:19	Anna M. Plaviak	2364138
	10/21/2022			11/04/2022 21:56	Anna M. Plaviak	2364138
EPA 350.1 Rev. 2.0	10/21/2022			11/03/2022 13:37	Ping Hua	2364139
EPA 351.2 Rev. 2.0	10/21/2022	10/28/2022 11:18	Simonne.V. Calhoun	10/31/2022 12:33	Alexandra J Mattheus	2364139
EPA 353.2 Rev. 2.0	10/21/2022			10/27/2022 10:51	Beverly Y. Sanders	2364139
EPA 365.1 Rev. 2.0	10/21/2022	10/26/2022 15:16	Adam P Silver	10/27/2022 12:15	Simonne.V. Calhoun	2364139
SM 2320 B-2011	10/21/2022			10/26/2022 00:37	Adam P Silver	2364138
SM 2540 C-2015	10/21/2022			10/26/2022 15:26	Yijie Li	2364138
SM 2540 D-2015	10/21/2022			10/26/2022 15:26	Yijie Li	2364138
SM 4500-F- C-2011	10/21/2022			11/04/2022 08:02	Dale L. Simmons	2364138
SM 5310 B-2011	10/21/2022			10/27/2022 01:35	Khloe J Berg	2364139