

Chemical Analysis Report

CEN-DIST-2022-11-18-01

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

Event Description: **Hourglass Lake**
Request ID: **RQ-2022-10-03-23**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 09-DEC-2022 15:23



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: Hourglass Lake @ Center

Collection Date/Time: 11/17/2022 10:46

Field ID: G4CE0178

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370944	DEP SOP: NU-094-1	Color (true)	15	A	PCU	P422591	
	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P422602	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P423086	
		Sulfate	16		mg SO4/L	P423088	
	SM 2320 B-2011	Total Alkalinity	43		mg CaCO3/L	P422891	
	SM 2540 C-2015	TDS	101		mg/L	P423109	
	SM 2540 D-2015	TSS	5	I	mg/L	P422926	
	SM 4500-F- C-2011	Fluoride	0.026	I	mg F/L	P422895	
2370945	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P423234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P423020	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.34		mg N/L	P422802	
	EPA 365.1 Rev. 2.0	Total-P	0.066		mg P/L	P422690	
	SM 5310 B-2011	Organic Carbon	4.5		mg C/L	P422887	

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: P422591

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422602

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423086

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423088

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423234

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423020

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422802

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422690

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

Reference Method: SM 2320 B-2011
Batch ID: P422891

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: P423109

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P422926

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P422895

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P422887

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: P422591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422602

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423086

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423088

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423234

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: P423020

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422802

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: P422690

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

Reference Method: SM 2320 B-2011
Batch ID: P422891

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.5		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P423109

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	97.7		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P422926

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	93.6		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P422895

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P422887

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370887	Chloride	96.9		P	90 - 110
2370899	Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423088

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370887	Sulfate	96.1		P	90 - 110
2370899	Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370118	Ammonia-N	96.8	96.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370945	Kjeldahl Nitrogen	99.6	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370945	NO2NO3-N	96.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422690

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370922	Total-P	102	103	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P422895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370883	Fluoride	101	101	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P422887

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370974	Organic Carbon	96.2	96.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P422591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370944	Color (true)	6.02	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422602

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370920	Turbidity	5.70	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370887	Chloride	0.00828	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370887	Sulfate	0.147	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370118	Ammonia-N	0.301	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370945	Kjeldahl Nitrogen	0.160	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370945	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422690

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370922	Total-P	0.442	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P422891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370883	Total Alkalinity	0.595	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P423109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370586	TDS	1.97	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P422895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370883	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P422887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370974	Organic Carbon	0.218	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: A116036
Included Lab Sample IDs: 2370944

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A116038
Included Lab Sample IDs: 2370944

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
Run ID: A116111
Included Lab Sample IDs: 2370945

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A116148
Included Lab Sample IDs: 2370945

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A116179
Included Lab Sample IDs: 2370945

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	98.4	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A116180
Included Lab Sample IDs: 2370944

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.9	95.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A116180
Included Lab Sample IDs: 2370944

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A116259
Included Lab Sample IDs: 2370944

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A116263

Included Lab Sample IDs: 2370945

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	96.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A116310

Included Lab Sample IDs: 2370945

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	99.6	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)	101			6.02	
EPA 180.1 Rev. 2.0	Turbidity	101			5.70	
EPA 300.0 Rev. 2.1	Chloride	101	96.9	98.0	0.0082	
	Sulfate	99.8	96.1	97.1	0.147	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	96.8	96.4		0.301
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	99.6	99.8		0.160
EPA 353.2 Rev. 2.0	NO2NO3-N	104	96.2			0.0
EPA 365.1 Rev. 2.0	Total-P	101	102	103		0.442
SM 2320 B-2011	Total Alkalinity	97.5			0.595	
SM 2540 C-2015	TDS	97.7			1.97	
SM 2540 D-2015	TSS	93.6				
SM 4500-F- C-2011	Fluoride	102	101	101		0.0
SM 5310 B-2011	Organic Carbon	97.1	96.2	96.4		0.218

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2370944
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2370944
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2370944
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2370944
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2370945
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2370945
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2370945
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2370945
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2370944
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2370944
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2370944
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2370944
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2370945

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	11/18/2022			11/18/2022 14:35	Chandler E Cox	2370944
EPA 180.1 Rev. 2.0	11/18/2022			11/18/2022 14:23	Khloe J Berg	2370944
EPA 300.0 Rev. 2.1	11/18/2022			12/02/2022 23:12	Anna M. Plaviak	2370944
EPA 350.1 Rev. 2.0	11/18/2022			12/07/2022 11:30	Ping Hua	2370945
EPA 351.2 Rev. 2.0	11/18/2022	12/02/2022 13:20	Simonne.V. Calhoun	12/05/2022 14:23	Judith K. Clark	2370945
EPA 353.2 Rev. 2.0	11/18/2022			11/28/2022 11:42	Beverly Y. Sanders	2370945
EPA 365.1 Rev. 2.0	11/18/2022	11/22/2022 12:22	Adam P Silver	11/22/2022 15:47	James L Waggerby	2370945
SM 2320 B-2011	11/18/2022			11/30/2022 04:21	Dale L. Simmons	2370944
SM 2540 C-2015	11/18/2022			11/22/2022 16:06	Yijie Li	2370944
SM 2540 D-2015	11/18/2022			11/22/2022 16:06	Yijie Li	2370944
SM 4500-F- C-2011	11/18/2022			11/30/2022 04:21	Dale L. Simmons	2370944
SM 5310 B-2011	11/18/2022			11/30/2022 01:17	Khloe J Berg	2370945