

Chemical Analysis Report

SO-DIST-2023-06-09-01

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

Event Description: **Lake June In Winter**
Request ID: **RQ-2023-06-05-48**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
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Date Certified: 29-JUN-2023 11:42



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 JUNE IN WINTER

Collection Date/Time: 06/08/2023 10:40

Field ID: G4SD0186

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2416411	DEP SOP: NU-094-1	Color (true)	7.2		PCU	P431087	
	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P431082	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P431374	
		Sulfate	28		mg SO4/L	P431534	
	SM 2320 B-2011	Total Alkalinity	22	A	mg CaCO3/L	P431205	
	SM 2540 C-2015	TDS	110	A	mg/L	P431287	
	SM 2540 D-2015	TSS	2	IA	mg/L	P431172	
	SM 4500-F- C-2011	Fluoride	0.064	I	mg F/L	P431699	
2416412	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P431199	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P431397	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P431389	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P431218	
	SM 5310 B-2011	Organic Carbon	6.2		mg C/L	P431370	

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: P431087

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P431082

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431374

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431534

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P431199

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431397

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P431389

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P431218

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

Reference Method: SM 2320 B-2011
Batch ID: P431205

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: P431287

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P431172

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P431699

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P431370

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: P431087

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P431082

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431374

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431534

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P431199

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431397

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P431389

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P431218

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

Reference Method: SM 2320 B-2011
Batch ID: P431205

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.4		P	92 - 105

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P431287

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	96.8		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P431172

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	88.1		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P431699

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P431370

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431374

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2416405	Chloride	97.0		P	90 - 110
2416793	Chloride	94.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2416405	Sulfate	98.3		P	90 - 110
2416793	Sulfate	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P431199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2416407	Ammonia-N	99.4	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2416514	Kjeldahl Nitrogen	103	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P431389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2416422	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P431218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2416412	Total-P	98.7	99.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P431699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2416411	Fluoride	101	103	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P431370

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2416407	Organic Carbon	92.4	96.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P431087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2416258	Color (true)	0.658	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P431082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2416258	Turbidity	0.849	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2416405	Chloride	1.60	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2416405	Sulfate	0.724	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P431199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2416407	Ammonia-N	0.402	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2416514	Kjeldahl Nitrogen	4.02	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P431389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2416422	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P431218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2416412	Total-P	0.807	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P431205

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2416411	Total Alkalinity	0.292	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P431287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2416411	TDS	8.22	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P431699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2416411	Fluoride	1.49	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P431370

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2416407	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: A119695

Included Lab Sample IDs: 2416411

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

Reference Method: DEP SOP: NU-094-1

Run ID: A119700

Included Lab Sample IDs: 2416411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.6	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A119760

Included Lab Sample IDs: 2416412

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.5	96.3	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A119765

Included Lab Sample IDs: 2416411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.4	95.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A119778

Included Lab Sample IDs: 2416411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	95.6	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A119834

Included Lab Sample IDs: 2416412

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	98.2	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A119848

Included Lab Sample IDs: 2416412

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A119852

Included Lab Sample IDs: 2416412

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: A119880

Included Lab Sample IDs: 2416412

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A119927

Included Lab Sample IDs: 2416411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	99.5	100	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A119988

Included Lab Sample IDs: 2416411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	102	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)	99.2			0.658	
EPA 180.1 Rev. 2.0	Turbidity	99.1			0.849	
EPA 300.0 Rev. 2.1	Chloride	97.5	97.0	94.5	1.60	
	Sulfate	99.0	98.3	96.6	0.724	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	99.4	99.8		0.402
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	103	98.7		4.02
EPA 353.2 Rev. 2.0	NO2NO3-N	102	104	104		0.482
EPA 365.1 Rev. 2.0	Total-P	98.0	98.7	99.5		0.807
SM 2320 B-2011	Total Alkalinity	98.4			0.292	
SM 2540 C-2015	TDS	96.8			8.22	
SM 2540 D-2015	TSS	88.1				
SM 4500-F- C-2011	Fluoride	103	101	103		1.49
SM 5310 B-2011	Organic Carbon	95.8	92.4	96.3		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)	2416411
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2416411
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2416411
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2416411
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2416412
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2416412
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2416412
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2416412
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2416411
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2416411
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2416411
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2416411
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2416412

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	06/09/2023			06/09/2023 13:57	Anna M. Plaviak	2416411
EPA 180.1 Rev. 2.0	06/09/2023			06/09/2023 12:57	Alexis Price	2416411
EPA 300.0 Rev. 2.1	06/09/2023			06/15/2023 12:47	James L Waggeberby	2416411
	06/09/2023			06/19/2023 20:55	James L Waggeberby	2416411
EPA 350.1 Rev. 2.0	06/09/2023			06/13/2023 13:33	Khloe J Berg	2416412
EPA 351.2 Rev. 2.0	06/09/2023	06/16/2023 10:18	Simonne.V. Calhoun	06/19/2023 11:00	Samantha L Bates	2416412
EPA 353.2 Rev. 2.0	06/09/2023			06/16/2023 09:59	Beverly Y. Sanders	2416412
EPA 365.1 Rev. 2.0	06/09/2023	06/14/2023 13:30	Simonne.V. Calhoun	06/15/2023 14:23	Simonne.V. Calhoun	2416412
SM 2320 B-2011	06/09/2023			06/12/2023 16:04	Dale L. Simmons	2416411
SM 2540 C-2015	06/09/2023			06/12/2023 15:10	Dana G. Hughes	2416411
SM 2540 D-2015	06/09/2023			06/12/2023 15:10	Dana G. Hughes	2416411
SM 4500-F- C-2011	06/09/2023			06/23/2023 08:00	Adam P Silver	2416411
SM 5310 B-2011	06/09/2023			06/15/2023 18:06	Elise M. Gillis	2416412