

Chemical Analysis Report

SW-DIST-2023-08-08-01

Florida DEP Laboratory
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

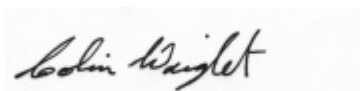
Event Description: **Run 10**
Request ID: **RQ-2023-07-17-53**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 23-AUG-2023 13:24

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

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 Dan at Center

Collection Date/Time: 08/07/2023 11:00

Field ID: G5SW0161

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2429317	DEP SOP: NU-094-1	Color (true)	32		PCU	P433587	
	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P433581	
	EPA 300.0 Rev. 2.1	Chloride	7.4		mg Cl/L	P434076	
		Sulfate	3.8		mg SO4/L	P434079	
	SM 2320 B-2011	Total Alkalinity	47		mg CaCO3/L	P433672	
	SM 2540 C-2015	TDS	91		mg/L	P433933	
	SM 2540 D-2015	TSS	3	I	mg/L	P433896	
	SM 4500-F- C-2011	Fluoride	0.085	I	mg F/L	P433676	
2429318	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P433838	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P433840	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P433685	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P433606	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P433659	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: 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: P433587

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P433581

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434076

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434079

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433838

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433840

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433685

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433606

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

Reference Method: SM 2320 B-2011
Batch ID: P433672

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: P433933

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P433896

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P433676

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P433659

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: P433587

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.8		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P433581

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: P434076

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434079

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433840

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433685

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: P433606

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

Reference Method: SM 2320 B-2011
Batch ID: P433672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.6		P	92 - 105

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P433933

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

Reference Method: SM 2540 D-2015
Batch ID: P433896

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	91.4		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P433676

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P433659

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434076

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2429040	Chloride	97.7		P	90 - 110
2429302	Chloride	96.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2429040	Sulfate	94.2		P	90 - 110
2429302	Sulfate	93.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2428851	Ammonia-N	97.6	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433685

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2429263	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P433676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2429321	Fluoride	98.3	99.7	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P433659

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2429301	Organic Carbon	96.3	98.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P433587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2429225	Color (true)	14.3	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P433581

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2429303	Turbidity	3.62	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434076

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2429040	Chloride	0.143	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2429040	Sulfate	0.164	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2428851	Ammonia-N	1.73	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433840

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2429305	Kjeldahl Nitrogen	3.39	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433685

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2429263	NO2NO3-N	0.480	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2429301	Total-P	0.388	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P433672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2429321	Total Alkalinity	0.483	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P433933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2428838	TDS	2.32	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P433676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2429321	Fluoride	0.960	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P433659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2429301	Organic Carbon	2.01	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: A120899
Included Lab Sample IDs: 2429317

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

Reference Method: DEP SOP: NU-094-1
Run ID: A120900
Included Lab Sample IDs: 2429317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.6	98.7	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A120947
Included Lab Sample IDs: 2429318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	99.2	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A120949
Included Lab Sample IDs: 2429317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.6	94.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A120949
Included Lab Sample IDs: 2429317

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A120956
Included Lab Sample IDs: 2429318

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A120962
Included Lab Sample IDs: 2429318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A121029
Included Lab Sample IDs: 2429318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A121057

Included Lab Sample IDs: 2429317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.6	96.8	P/P	90 - 110
Sulfate	96.4	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A121065

Included Lab Sample IDs: 2429318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.2	94.1	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)	97.8			14.3	
EPA 180.1 Rev. 2.0	Turbidity	99.1			3.62	
EPA 300.0 Rev. 2.1	Chloride	96.1	97.7	96.4	0.143	
	Sulfate	94.3	94.2	93.0	0.164	
EPA 350.1 Rev. 2.0	Ammonia-N	93.6	97.6	101		1.73
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.5				3.39
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	104	104		0.480
EPA 365.1 Rev. 2.0	Total-P	102				0.388
SM 2320 B-2011	Total Alkalinity	96.6			0.483	
SM 2540 C-2015	TDS	103			2.32	
SM 2540 D-2015	TSS	91.4				
SM 4500-F- C-2011	Fluoride	99.8	98.3	99.7		0.960
SM 5310 B-2011	Organic Carbon	97.0	96.3	98.9		2.01

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2429317
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2429317
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2429317
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2429317
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2429318
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2429318
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2429318
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2429318
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2429317
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2429317
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2429317
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2429317
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2429318

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	08/08/2023			08/08/2023 15:51	Anna M. Plaviak	2429317
EPA 180.1 Rev. 2.0	08/08/2023			08/08/2023 13:52	Alexis Price	2429317
EPA 300.0 Rev. 2.1	08/08/2023			08/18/2023 19:10	James L Waggeberby	2429317
EPA 350.1 Rev. 2.0	08/08/2023			08/14/2023 13:53	Khloe J Berg	2429318
EPA 351.2 Rev. 2.0	08/08/2023	08/15/2023 11:03	Simonne.V. Calhoun	08/16/2023 10:50	Samantha L Bates	2429318
EPA 353.2 Rev. 2.0	08/08/2023			08/10/2023 10:20	Beverly Y. Sanders	2429318
EPA 365.1 Rev. 2.0	08/08/2023	08/09/2023 14:50	Simonne.V. Calhoun	08/10/2023 11:45	Simonne.V. Calhoun	2429318
SM 2320 B-2011	08/08/2023			08/10/2023 03:10	Dale L. Simmons	2429317
SM 2540 C-2015	08/08/2023			08/09/2023 15:59	Yijie Li	2429317
SM 2540 D-2015	08/08/2023			08/09/2023 15:59	Yijie Li	2429317
SM 4500-F- C-2011	08/08/2023			08/10/2023 03:10	Dale L. Simmons	2429317
SM 5310 B-2011	08/08/2023			08/10/2023 01:08	Elise M. Gillis	2429318