

Chemical Analysis Report

NW-DIST-2023-12-08-02

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

Event Description: **Crescent Lake Make-up**
Request ID: **RQ-2023-12-04-45**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 W Government Street
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Certified by: Colin Wright, Program Administrator

Date Certified: 03-JAN-2024 10:57

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a white 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: CRESCENT LAKE

Collection Date/Time: 12/07/2023 10:40

Field ID: G5NW0159

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2455773	DEP SOP: NU-094-1	Color (true)	15	A	PCU	P438723	
	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P438725	
	EPA 300.0 Rev. 2.1	Chloride	9.2		mg Cl/L	P439438	
		Sulfate	8.2		mg SO4/L	P439443	
	SM 2320 B-2011	Total Alkalinity	16		mg CaCO3/L	P438822	
	SM 2540 C-2015	TDS	40		mg/L	P439248	
	SM 2540 D-2015	TSS	3	I	mg/L	P439288	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P438825	
2455774	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P438987	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P438854	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P438890	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P438968	
	SM 5310 B-2014	Organic Carbon	2.8		mg C/L	P438782	

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: P438723

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438725

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439438

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439443

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438987

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438854

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438890

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438968

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

Reference Method: SM 2320 B-2011
Batch ID: P438822

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: P439248

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P439288

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P438825

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P438782

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: P438723

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438725

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439438

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439443

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438987

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438854

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: P438890

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438968

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

Reference Method: SM 2320 B-2011
Batch ID: P438822

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.7		P	92 - 105

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P439248

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	95.2		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P439288

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	105		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P438825

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

Reference Method: SM 5310 B-2014
Batch ID: P438782

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439438

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2455788	Chloride	92.8		P	90 - 110
2456018	Chloride	96.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2455788	Sulfate	92.7		P	90 - 110
2456018	Sulfate	94.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2455704	Ammonia-N	99.0	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456255	Kjeldahl Nitrogen	102	98.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438890

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2455630	NO2NO3-N	96.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2455774	Total-P	110	108	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P438825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2455777	Fluoride	102	102	P/P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P438782

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2455518	Organic Carbon	98.6	98.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P438723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455773	Color (true)	4.49	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438725

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455625	Turbidity	15.4	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455788	Chloride	0.550	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455788	Sulfate	1.18	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455704	Ammonia-N	1.89	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456255	Kjeldahl Nitrogen	2.94	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455630	NO2NO3-N	1.26	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455774	Total-P	1.73	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P438822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455777	Total Alkalinity	0.100	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P439248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455716	TDS	6.50	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P438825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455777	Fluoride	0.0	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2014
Batch ID: P438782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455518	Organic Carbon	0.175	Spike	P	0 - 15

* 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: A123108
Included Lab Sample IDs: 2455773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	102	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A123111
Included Lab Sample IDs: 2455773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105

Reference Method: SM 5310 B-2014
Run ID: A123141
Included Lab Sample IDs: 2455774

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	100	P/P	85 - 115

Reference Method: SM 2320 B-2011
Run ID: A123158
Included Lab Sample IDs: 2455773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.3	94.7	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A123158
Included Lab Sample IDs: 2455773

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A123188
Included Lab Sample IDs: 2455774

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A123222
Included Lab Sample IDs: 2455774

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A123230
Included Lab Sample IDs: 2455774

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.4	97.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A123263

Included Lab Sample IDs: 2455774

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	95.5	96.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A123338

Included Lab Sample IDs: 2455773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	102	P/P	90 - 110
Sulfate	101	103	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)	102			4.49	
EPA 180.1 Rev. 2.0	Turbidity	103			15.4	
EPA 300.0 Rev. 2.1	Chloride	102	92.8	96.5	0.550	
	Sulfate	102	92.7	94.3	1.18	
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	99.0	101		1.89
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	102	98.3		2.94
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	96.2			1.26
EPA 365.1 Rev. 2.0	Total-P	106	110	108		1.73
SM 2320 B-2011	Total Alkalinity	98.7			0.100	
SM 2540 C-2015	TDS	95.2			6.50	
SM 2540 D-2015	TSS	105				
SM 4500-F- C-2011	Fluoride	103	102	102		0.0
SM 5310 B-2014	Organic Carbon	101	98.6	98.5		0.175

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2455773
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2455773
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2455773
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2455773
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2455774
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2455774
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2455774
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2455774
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2455773
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2455773
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2455773
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2455773
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2455774

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	12/08/2023			12/08/2023 14:56	Samantha L Bates	2455773
EPA 180.1 Rev. 2.0	12/08/2023			12/08/2023 14:11	Anna M. Plaviak	2455773
EPA 300.0 Rev. 2.1	12/08/2023			12/22/2023 16:38	James L Waggerby	2455773
EPA 350.1 Rev. 2.0	12/08/2023			12/14/2023 12:05	Khloe J Berg	2455774
EPA 351.2 Rev. 2.0	12/08/2023	12/13/2023 09:31	Samantha L Bates	12/14/2023 10:41	Samantha L Bates	2455774
EPA 353.2 Rev. 2.0	12/08/2023			12/12/2023 13:43	Fadila Guebre	2455774
EPA 365.1 Rev. 2.0	12/08/2023	12/14/2023 11:55	Adam P Silver	12/15/2023 13:51	James L Waggerby	2455774
SM 2320 B-2011	12/08/2023			12/12/2023 01:05	Adam P Silver	2455773
SM 2540 C-2015	12/08/2023			12/12/2023 15:24	Yijie Li	2455773
SM 2540 D-2015	12/08/2023			12/12/2023 15:24	Yijie Li	2455773
SM 4500-F- C-2011	12/08/2023			12/12/2023 01:05	Adam P Silver	2455773
SM 5310 B-2014	12/08/2023			12/11/2023 20:57	Kenneth H Lee	2455774