

Chemical Analysis Report

NW-DIST-2023-12-12-01

Florida DEP Laboratory
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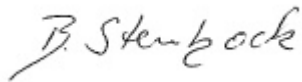
Event Description: **Dune Lake Make-up**
Request ID: **RQ-2023-12-11-17**
Customer: **NW-DIST**
Project ID: **SMP**

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Date Certified: 04-JAN-2024 13:30



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: Western Lake

Collection Date/Time: 12/11/2023 11:45

Field ID: G3NW0007

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2456083	DEP SOP: NU-094-1	Color (true)	130		PCU	P438850	
	EPA 180.1 Rev. 2.0	Turbidity	2.1	A	NTU	P438845	
	EPA 300.0 Rev. 2.1	Chloride	4.8E+03		mg Cl/L	P439530	
		Sulfate	690		mg SO4/L	P439444	
	SM 2320 B-2011	Total Alkalinity	37	A	mg CaCO3/L	P438946	
	SM 2540 C-2015	TDS	7.95E+03		mg/L	P439353	
	SM 2540 D-2015	TSS	3	I	mg/L	P439295	
	SM 4500-F- C-2011	Fluoride	0.27		mg F/L	P438949	
2456084	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P438986	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P438856	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P439154	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P438865	
	SM 5310 B-2014	Organic Carbon	15		mg C/L	P438995	

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: P438850

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438845

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439444

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439530

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438986

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438856

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P439154

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438865

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

Reference Method: SM 2320 B-2011
Batch ID: P438946

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: P439353

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P439295

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P438949

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P438995

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: P438850

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: P438845

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439444

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439530

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438986

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438856

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P439154

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438865

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

Reference Method: SM 2320 B-2011
Batch ID: P438946

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.4		P	92 - 105

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P439353

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	98.0		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P439295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	96.0		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P438949

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

Reference Method: SM 5310 B-2014
Batch ID: P438995

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2457901	Sulfate	101		P	90 - 110
2458032	Sulfate	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439530

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2458077	Chloride	103		P	90 - 110
2458169	Chloride	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456084	Ammonia-N	98.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456177	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P439154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456084	NO2NO3-N	95.4	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2455611	Total-P	96.3	96.9	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P438949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456083	Fluoride	102	103	P/P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P438995

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456024	Organic Carbon	98.2	98.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P438850

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456052	Color (true)	1.04	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456083	Turbidity	2.91	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2457901	Sulfate	1.34	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439530

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2458077	Chloride	0.0665	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456084	Ammonia-N	2.00	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456177	Kjeldahl Nitrogen	2.00	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P439154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456084	NO2NO3-N	0.490	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455611	Total-P	0.621	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P438946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456083	Total Alkalinity	0.100	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P439353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456018	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P438949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456083	Fluoride	1.00	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2014
Batch ID: P438995

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456024	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: EPA 180.1 Rev. 2.0

Run ID: A123164

Included Lab Sample IDs: 2456083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1

Run ID: A123167

Included Lab Sample IDs: 2456083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.5	102	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A123209

Included Lab Sample IDs: 2456083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.5	97.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A123209

Included Lab Sample IDs: 2456083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A123222

Included Lab Sample IDs: 2456084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	107	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A123230

Included Lab Sample IDs: 2456084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.0	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A123232

Included Lab Sample IDs: 2456084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	99.8	P/P	90 - 110

Reference Method: SM 5310 B-2014

Run ID: A123234

Included Lab Sample IDs: 2456084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	99.2	P/P	85 - 115

Quality Assurance Report

Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A123237

Included Lab Sample IDs: 2456084

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A123338

Included Lab Sample IDs: 2456083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	103	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A123466

Included Lab Sample IDs: 2456083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	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	MS
DEP SOP: NU-094-1	Color (true)	99.2			1.04	
EPA 180.1 Rev. 2.0	Turbidity	103			2.91	
EPA 300.0 Rev. 2.1	Chloride	102	103	101	0.0665	
	Sulfate	103	101	98.8	1.34	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	98.2	101		2.00
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	107	105		2.00
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	95.4	95.8		0.490
EPA 365.1 Rev. 2.0	Total-P	103	96.3	96.9		0.621
SM 2320 B-2011	Total Alkalinity	97.4			0.100	
SM 2540 C-2015	TDS	98.0			0.0	
SM 2540 D-2015	TSS	96.0				
SM 4500-F- C-2011	Fluoride	103	102	103		1.00
SM 5310 B-2014	Organic Carbon	100	98.2	98.3		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)	2456083
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2456083
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2456083
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2456083
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2456084
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2456084
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2456084
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2456084
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2456083
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2456083
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2456083
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2456083
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2456084

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	12/12/2023			12/12/2023 15:04	Samantha L Bates	2456083
EPA 180.1 Rev. 2.0	12/12/2023			12/12/2023 14:04	Chandler E Cox	2456083
EPA 300.0 Rev. 2.1	12/12/2023			12/22/2023 21:10	James L Waggeberby	2456083
	12/12/2023			12/28/2023 20:28	Anna M. Plaviak	2456083
EPA 350.1 Rev. 2.0	12/12/2023			12/14/2023 11:31	Khloe J Berg	2456084
EPA 351.2 Rev. 2.0	12/12/2023	12/13/2023 09:31	Samantha L Bates	12/14/2023 11:23	Samantha L Bates	2456084
EPA 353.2 Rev. 2.0	12/12/2023			12/14/2023 13:54	Fadila Guebre	2456084
EPA 365.1 Rev. 2.0	12/12/2023	12/13/2023 13:13	Adam P Silver	12/14/2023 13:50	James L Waggeberby	2456084
SM 2320 B-2011	12/12/2023			12/13/2023 22:00	Chandler E Cox	2456083
SM 2540 C-2015	12/12/2023			12/15/2023 15:49	Yijie Li	2456083
SM 2540 D-2015	12/12/2023			12/15/2023 15:49	Yijie Li	2456083
SM 4500-F- C-2011	12/12/2023			12/13/2023 22:13	Chandler E Cox	2456083
SM 5310 B-2014	12/12/2023			12/14/2023 04:31	Kenneth H Lee	2456084