Chemical Analysis Report

NW-DIST-2023-01-17-01

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

Event Description: **Dune Lakes Run**
Request ID: **RQ-2023-01-09-24**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government Street
Suite 208
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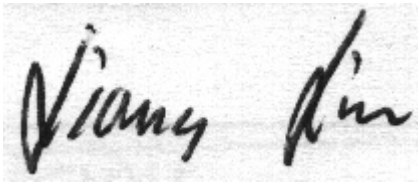
Certified by: Liang Lin, Environmental Administrator

Date Certified: 07-FEB-2023 10:18



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: 01/12/2023 12:00**

Field ID: G3NW0007 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2381126	SM 2320 B-2011	Total Alkalinity	39		mg CaCO3/L	P425022	
	SM 2540 D-2015	TSS	2	U	mg/L	P424890	
	SM 4500-F- C-2011	Fluoride	0.20		mg F/L	P425319	
2381128	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P425206	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P424940	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P424901	
	EPA 365.1 Rev. 2.0	Total-P	0.004	U	mg P/L	P424789	
	SM 5310 B-2011	Organic Carbon	8.3		mg C/L	P424872	

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

Sample Location: Alligator Lake **Collection Date/Time: 01/12/2023 12:50**

Field ID: G3NW0219 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2381127	SM 2320 B-2011	Total Alkalinity	23		mg CaCO3/L	P425022	
	SM 2540 D-2015	TSS	2	U	mg/L	P424890	
	SM 4500-F- C-2011	Fluoride	0.16		mg F/L	P425319	
2381129	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P425206	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P424940	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P424901	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P424789	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P424872	

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: EPA 350.1 Rev. 2.0
Batch ID: P425206

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424940

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424901

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424789

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

Reference Method: SM 2320 B-2011
Batch ID: P425022

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 D-2015
Batch ID: P424890

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P425319

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P424872

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425206

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424940

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: P424901

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424789

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P425022

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	94.8		P	94 - 106

Reference Method: SM 2540 D-2015
Batch ID: P424890

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	95.6		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P425319

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P424872

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425206

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380967	Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424940

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380817	Kjeldahl Nitrogen	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380970	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2381263	Total-P	98.3	98.1	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P425319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2381223	Fluoride	99.2	99.8	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P424872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2381171	Organic Carbon	104		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425206

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380967	Ammonia-N	0.616	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380817	Kjeldahl Nitrogen	0.725	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380970	NO2NO3-N	0.487	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2381263	Total-P	0.255	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P425022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2381223	Total Alkalinity	1.75	Sample	P	0 - 3.8

Reference Method: SM 4500-F- C-2011
Batch ID: P425319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2381223	Fluoride	0.477	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P424872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2381171	Organic Carbon	0.324	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-2011
Run ID: A117044
Included Lab Sample IDs: 2381128, 2381129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.4	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A117060
Included Lab Sample IDs: 2381128, 2381129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A117063
Included Lab Sample IDs: 2381128, 2381129

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

Reference Method: SM 2320 B-2011
Run ID: A117107
Included Lab Sample IDs: 2381126, 2381127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.8	95.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A117139
Included Lab Sample IDs: 2381128, 2381129

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A117180
Included Lab Sample IDs: 2381128, 2381129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.6	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A117235
Included Lab Sample IDs: 2381126, 2381127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	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	SMP	MS
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	103	102			0.616
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	101	102			0.725
EPA 353.2 Rev. 2.0	NO2NO3-N	100	103	102			0.487
EPA 365.1 Rev. 2.0	Total-P	107	98.3	98.1			0.255
SM 2320 B-2011	Total Alkalinity	94.8				1.75	
SM 2540 D-2015	TSS	95.6					
SM 4500-F- C-2011	Fluoride	97.1	99.2	99.8			0.477
SM 5310 B-2011	Organic Carbon	99.3	104				0.324

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2381128, 2381129
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2381128, 2381129
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2381128, 2381129
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2381128, 2381129
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2381126, 2381127
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2381126, 2381127
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2381126, 2381127
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2381128, 2381129

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	01/17/2023			01/31/2023 13:14	Ping Hua	2381128
	01/17/2023			01/31/2023 13:15	Ping Hua	2381129
EPA 351.2 Rev. 2.0	01/17/2023	01/26/2023 08:24	Samantha L Bates	01/27/2023 11:35	Judith K. Clark	2381128
	01/17/2023	01/26/2023 08:24	Samantha L Bates	01/27/2023 11:36	Judith K. Clark	2381129
EPA 353.2 Rev. 2.0	01/17/2023			01/24/2023 10:55	Beverly Y. Sanders	2381128
	01/17/2023			01/24/2023 10:56	Beverly Y. Sanders	2381129
EPA 365.1 Rev. 2.0	01/17/2023	01/20/2023 17:10	Adam P Silver	01/24/2023 11:08	James L Waggerby	2381128
	01/17/2023	01/20/2023 17:10	Adam P Silver	01/24/2023 11:09	James L Waggerby	2381129
SM 2320 B-2011	01/17/2023			01/25/2023 04:51	Dale L. Simmons	2381126
	01/17/2023			01/25/2023 05:01	Dale L. Simmons	2381127
SM 2540 D-2015	01/17/2023			01/18/2023 15:45	Yijie Li	2381126, 2381127
SM 4500-F- C-2011	01/17/2023			02/02/2023 02:50	Dale L. Simmons	2381126
	01/17/2023			02/02/2023 03:07	Dale L. Simmons	2381127
SM 5310 B-2011	01/17/2023			01/19/2023 19:22	Khloe J Berg	2381128
	01/17/2023			01/19/2023 19:37	Khloe J Berg	2381129