

Chemical Analysis Report

CEN-DIST-2021-07-27-03

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Lindley Lake (LVI)**
Request ID: **RQ-2021-05-10-08**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 23-AUG-2021 10:48



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 Lindley @ Center of North Lobe

Collection Date/Time: 07/26/2021 11:23

Field ID: G2CE0220

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2265191	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P401602	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P401814	
		Sulfate	18		mg SO4/L	P401817	
	SM 2120 B-2011	Color (true)	16		PCU	P401606	
	SM 2320 B-2011	Total Alkalinity	7.8		mg CaCO3/L	P401669	
	SM 2540 C-2011	TDS	88		mg/L	P402088	
	SM 2540 D-2011	TSS	2	I	mg/L	P401831	
	SM 4500 F-C-2011	Fluoride	0.065	I	mg F/L	P401673	
2265192	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P402123	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P402633	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P401629	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P401761	
	SM 5310 B-2011	Organic Carbon	6.7		mg C/L	P402250	
2265193	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401599	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 4500 F-C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P401602

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401814

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401817

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402123

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402633

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401629

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401761

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401599

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: SM 2120 B-2011
Batch ID: P401606

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P401669

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011
Batch ID: P402088

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P401831

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P401673

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P402250

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401814

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401817

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402123

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402633

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: P401629

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: P401761

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	109		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401599

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

Reference Method: SM 2120 B-2011
Batch ID: P401606

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.6		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P401669

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P401673

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P402250

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401814

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264973	Chloride	101		P	90 - 110
2265165	Chloride	98.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401817

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264973	Sulfate	102		P	90 - 110
2265165	Sulfate	99.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402123

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265153	Ammonia-N	98.8	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402633

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265183	Kjeldahl Nitrogen	95.0	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401629

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265166	NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265289	Total-P	108	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401599

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265193	O-Phosphate-P	94.4	94.8	P/P	90 - 110

Reference Method: SM 5310 B-2011
Batch ID: P402250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265289	Organic Carbon	97.0	97.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P401602

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265061	Turbidity	0.656	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265165	Chloride	1.27	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265165	Sulfate	1.29	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402123

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265153	Ammonia-N	0.300	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265183	Kjeldahl Nitrogen	1.66	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265166	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265289	Total-P	0.163	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401599

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265193	O-Phosphate-P	0.423	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P401606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265182	Color (true)	0.569	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P401669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265128	Total Alkalinity	0.701	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P402088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265061	TDS	4.20	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P401673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265128	Fluoride	0.457	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P402250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265289	Organic Carbon	0.458	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A106851

Included Lab Sample IDs: 2265193

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A106852

Included Lab Sample IDs: 2265191

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

Reference Method: SM 2120 B-2011

Run ID: A106853

Included Lab Sample IDs: 2265191

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	100	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106874

Included Lab Sample IDs: 2265192

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	103	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A106891

Included Lab Sample IDs: 2265191

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	104	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A106891

Included Lab Sample IDs: 2265191

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A106905

Included Lab Sample IDs: 2265191

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A106978

Included Lab Sample IDs: 2265192

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	95.8	95.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107098

Included Lab Sample IDs: 2265192

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.6	99.3	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A107149

Included Lab Sample IDs: 2265192

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107354

Included Lab Sample IDs: 2265192

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					0.656	
EPA 300.0 Rev. 2.1	Chloride	99.9	98.7	101		1.27	
	Sulfate	99.8	99.4	102		1.29	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	98.8	99.2			0.300
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	95.0	97.8			1.66
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	98.5	98.5			0.0
EPA 365.1 Rev. 2.0	Total-P	109	108	107			0.163
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	94.4	94.8			0.423
SM 2120 B-2011	Color (true)	99.6				0.569	
SM 2320 B-2011	Total Alkalinity	102				0.701	
SM 2540 C-2011	TDS					4.20	
SM 4500 F-C-2011	Fluoride	99.2					0.457
SM 5310 B-2011	Organic Carbon	97.6	97.0	97.6			0.458

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2265191
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2265191
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2265191
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2265192
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2265192
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2265192
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2265192
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2265193
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2265191
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2265191
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2265191
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2265191
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2265191
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2265192

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	07/27/2021			07/27/2021 15:40	Sarah A Nixon	2265191
EPA 300.0 Rev. 2.1	07/27/2021			07/31/2021 06:38	Lipi Saha	2265191
EPA 350.1 Rev. 2.0	07/27/2021			08/06/2021 14:02	Roberta Tatti	2265192
EPA 351.2 Rev. 2.0	07/27/2021	08/18/2021 14:21	Benjamin T. Nordmann	08/19/2021 11:14	Virginia P. Brown	2265192
EPA 353.2 Rev. 2.0	07/27/2021			07/28/2021 11:01	Beverly Y. Sanders	2265192
EPA 365.1 Rev. 2.0	07/27/2021	07/30/2021 15:31	Simonne.V. Calhoun	08/02/2021 12:24	Shengyu Ding	2265192
EPA 365.1 Rev. 2.0 dissolved	07/27/2021			07/27/2021 15:05	Ping Hua	2265193
SM 2120 B-2011	07/27/2021			07/27/2021 16:54	Madeline Gruver	2265191
SM 2320 B-2011	07/27/2021			07/28/2021 21:21	Dale L. Simmons	2265191
SM 2540 C-2011	07/27/2021			07/30/2021 15:15	Yijie Li	2265191
SM 2540 D-2011	07/27/2021			07/30/2021 15:15	Yijie Li	2265191
SM 4500 F-C-2011	07/27/2021			07/28/2021 21:21	Dale L. Simmons	2265191
SM 5310 B-2011	07/27/2021			08/10/2021 00:37	Madeline Gruver	2265192