

Chemical Analysis Report

NE-DIST-2019-08-02-02

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

Event Description: **Lake LVI Stella, Asbury, Estella**
Request ID: **RQ-2019-07-22-09**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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8800 Baymeadows Way West
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 15-AUG-2019 13:23

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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 Stella Center

Collection Date/Time: 08/01/2019 10:20

Field ID: 20030439

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2108309	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P368412	
	EPA 300.0 Rev. 2.1	Chloride	20	A	mg Cl/L	P368655	
		Sulfate	21	A	mg SO4/L	P368657	
	SM 2120 B	Color (true)	32		PCU	P368415	
	SM 2320 B-97	Total Alkalinity	26		mg CaCO3/L	P368838	
	SM 2540 C-97	TDS	104	A	mg/L	P368936	
	SM 2540 D-97	TSS	2	IA	mg/L	P368922	
	SM 4500 F-C-97	Fluoride	0.080	I	mg F/L	P368841	
2108310	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P368824	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P368456	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368447	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P368444	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P368483	
2108311	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368408	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-97: 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.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368412

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368655

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368657

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368824

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368456

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368447

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368444

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368408

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

Reference Method: SM 2120 B
Batch ID: P368415

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P368838

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

Reference Method: SM 2540 C-97
Batch ID: P368936

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368922

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P368841

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P368483

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: P368655

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P368657

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P368824

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P368456

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P368447

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: P368444

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P368408

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.5		P	90 - 110

Reference Method: SM 2120 B
 Batch ID: P368415

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-97
 Batch ID: P368838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P368841

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P368483

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: P368655

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108309	Chloride	95.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368657

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108309	Sulfate	100		P	90 - 110
2108333	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368824

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108310	Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368447

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108272	NO2NO3-N	99.9	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108310	Total-P	99.6	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368408

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108311	O-Phosphate-P	95.2	96.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P368841

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107167	Fluoride	97.5	95.8	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P368483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108232	Organic Carbon	103	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108304	Turbidity	1.88	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108309	Chloride	0.576	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108309	Sulfate	0.117	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108310	Ammonia-N	0.0733	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108272	Kjeldahl Nitrogen	0.781	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108272	NO2NO3-N	0.816	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108310	Total-P	3.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368408

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108311	O-Phosphate-P	0.941	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P368415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108304	Color (true)	1.86	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P368838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107167	Total Alkalinity	0.297	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P368936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108309	TDS	4.83	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P368841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107167	Fluoride	1.48	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P368483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108232	Organic Carbon	1.27	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93240

Included Lab Sample IDs: 2108311

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	98.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93241

Included Lab Sample IDs: 2108309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A93242

Included Lab Sample IDs: 2108309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	104	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93267

Included Lab Sample IDs: 2108310

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

Reference Method: SM 5310 B-00

Run ID: A93280

Included Lab Sample IDs: 2108310

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93319

Included Lab Sample IDs: 2108310

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93320

Included Lab Sample IDs: 2108310

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A93324

Included Lab Sample IDs: 2108309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.0	97.2	P/P	90 - 110
Sulfate	101	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93414

Included Lab Sample IDs: 2108310

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

Reference Method: SM 2320 B-97

Run ID: A93419

Included Lab Sample IDs: 2108309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A93419

Included Lab Sample IDs: 2108309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.1	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					1.88	
EPA 300.0 Rev. 2.1	Chloride	94.7	95.5			0.576	
	Sulfate	98.8	100	101		0.117	
EPA 350.1 Rev. 2.0	Ammonia-N	101	103	103			0.0733
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102					0.781
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	99.9	98.9			0.816
EPA 365.1 Rev. 2.0	Total-P	101	99.6	96.4			3.10
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.5	95.2	96.1			0.941
SM 2120 B	Color (true)	102				1.86	
SM 2320 B-97	Total Alkalinity	104				0.297	
SM 2540 C-97	TDS					4.83	
SM 4500 F-C-97	Fluoride	100	97.5	95.8			1.48
SM 5310 B-00	Organic Carbon	101	103	101			1.27

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2108309
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2108309
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2108309
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2108310
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2108310
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2108310
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2108310
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2108311
SM 2120 B / E31780	True Color measured at 450 nm	2108309
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2108309
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2108309
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2108309
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2108309
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2108310

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	08/02/2019			08/02/2019 16:57	Adrian Shelby	2108309
EPA 300.0 Rev. 2.1	08/02/2019			08/07/2019 12:42	Jhamieka S. Greenwood	2108309
EPA 350.1 Rev. 2.0	08/02/2019			08/11/2019 11:41	Ping Hua	2108310
EPA 351.2 Rev. 2.0	08/02/2019	08/05/2019 13:30	Adrian Shelby	08/07/2019 11:18	Joseph Suarez	2108310
EPA 353.2 Rev. 2.0	08/02/2019			08/05/2019 11:58	Beverly Y. Sanders	2108310
EPA 365.1 Rev. 2.0	08/02/2019	08/05/2019 12:54	Vijayalakshmi Reddy	08/06/2019 12:13	Lipi Saha	2108310
EPA 365.1 Rev. 2.0 dissolved	08/02/2019			08/02/2019 15:54	Jhamieka S. Greenwood	2108311
SM 2120 B	08/02/2019			08/02/2019 16:39	Madeline Funaro	2108309
SM 2320 B-97	08/02/2019			08/09/2019 09:41	Dale L. Simmons	2108309
SM 2540 C-97	08/02/2019			08/07/2019 15:21	Yijie Li	2108309
SM 2540 D-97	08/02/2019			08/07/2019 15:21	Yijie Li	2108309
SM 4500 F-C-97	08/02/2019			08/09/2019 09:41	Dale L. Simmons	2108309
SM 5310 B-00	08/02/2019			08/05/2019 16:52	Madeline Funaro	2108310