Chemical Analysis Report

NE-DIST-2019-08-30-01

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

Event Description: **Lake LVI Johnson, Twomile**
Request ID: **RQ-2019-08-26-19**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 13-SEP-2019 11:28

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: Little Lake Johnson Center **Collection Date/Time: 08/29/2019 11:15**

Field ID: G2NE1201 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115906	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P370011	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P370215	
		Sulfate	0.77		mg SO4/L	P370218	
	SM 2120 B	Color (true)	17		PCU	P370080	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P370208	
	SM 2540 C-97	TDS	25		mg/L	P370383	
	SM 2540 D-97	TSS	3	I	mg/L	P370250	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370210	
2115907	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P370238	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P370089	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370182	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P370292	
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P370277	
2115908	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P370007	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370011

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370215

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370218

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370238

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370089

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370182

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370292

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370007

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

Reference Method: SM 2120 B
Batch ID: P370080

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P370208

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

Reference Method: SM 2540 C-97
Batch ID: P370383

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370250

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370210

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370277

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: P370215

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370218

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370238

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370089

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370182

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: P370292

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370007

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.1		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P370080

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P370208

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P370210

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370277

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370215

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115635	Chloride	105		P	90 - 110
2115906	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115635	Sulfate	101		P	90 - 110
2115906	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115685	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370089

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115636	Kjeldahl Nitrogen	99.6	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370182

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115894	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370292

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115907	Total-P	97.1	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115908	O-Phosphate-P	98.2	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P370210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115914	Fluoride	97.6	97.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115924	Organic Carbon	102	101	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115918	Turbidity	3.91	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370215

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115635	Chloride	1.15	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115635	Sulfate	1.35	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115685	Ammonia-N	0.243	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115636	Kjeldahl Nitrogen	2.92	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370182

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115894	NO2NO3-N	0.489	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370292

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115907	Total-P	1.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115908	O-Phosphate-P	0.102	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P370080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115948	Color (true)	2.23	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P370208

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115914	Total Alkalinity	0.487	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P370383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115451	TDS	3.28	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P370210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115914	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P370277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115924	Organic Carbon	0.647	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: A93926
Included Lab Sample IDs: 2115908

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A93927
Included Lab Sample IDs: 2115906

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A93960
Included Lab Sample IDs: 2115906

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A93984
Included Lab Sample IDs: 2115907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A93999
Included Lab Sample IDs: 2115907

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

Reference Method: SM 2320 B-97
Run ID: A94011
Included Lab Sample IDs: 2115906

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A94011
Included Lab Sample IDs: 2115906

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	99.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A94012
Included Lab Sample IDs: 2115906

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	103	104	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A94014
Included Lab Sample IDs: 2115907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	108	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A94019
Included Lab Sample IDs: 2115907

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A94104
Included Lab Sample IDs: 2115907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.8	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 180.1 Rev. 2.0	Turbidity					3.91	
EPA 300.0 Rev. 2.1	Chloride	101	105	103		1.15	
	Sulfate	101	101	104		1.35	
EPA 350.1 Rev. 2.0	Ammonia-N	94.5	102	102			0.243
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.1	99.6	105			2.92
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	102			0.489
EPA 365.1 Rev. 2.0	Total-P	93.1	97.1	98.4			1.31
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	98.2	98.3			0.102
SM 2120 B	Color (true)	100				2.23	
SM 2320 B-97	Total Alkalinity	103				0.487	
SM 2540 C-97	TDS					3.28	
SM 4500 F-C-97	Fluoride	96.1	97.6	97.6			0.0
SM 5310 B-00	Organic Carbon	102	102	101			0.647

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2115906
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2115906
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2115906
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2115907
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2115907
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2115907
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2115907
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2115908
SM 2120 B / E31780	True Color measured at 450 nm	2115906
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2115906
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2115906
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2115906
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2115906
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2115907

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	08/30/2019			08/30/2019 16:15	Samantha Davila	2115906
EPA 300.0 Rev. 2.1	08/30/2019			09/05/2019 05:42	Jhamieka S. Greenwood	2115906
EPA 350.1 Rev. 2.0	08/30/2019			09/05/2019 13:46	Ping Hua	2115907
EPA 351.2 Rev. 2.0	08/30/2019	09/03/2019 16:50	Jhamieka S. Greenwood	09/04/2019 17:08	Julia Storbeck	2115907
EPA 353.2 Rev. 2.0	08/30/2019			09/05/2019 10:15	Beverly Y. Sanders	2115907
EPA 365.1 Rev. 2.0	08/30/2019	09/06/2019 13:30	Lipi Saha	09/10/2019 16:10	Rosalyn Ballman	2115907
EPA 365.1 Rev. 2.0 dissolved	08/30/2019			08/30/2019 14:19	Jhamieka S. Greenwood	2115908
SM 2120 B	08/30/2019			08/30/2019 17:34	Madeline Funaro	2115906
SM 2320 B-97	08/30/2019			09/04/2019 22:15	Dale L. Simmons	2115906
SM 2540 C-97	08/30/2019			08/30/2019 15:41	Yijie Li	2115906
SM 2540 D-97	08/30/2019			08/30/2019 15:41	Yijie Li	2115906
SM 4500 F-C-97	08/30/2019			09/04/2019 22:15	Dale L. Simmons	2115906
SM 5310 B-00	08/30/2019			09/05/2019 06:32	Madeline Funaro	2115907