Chemical Analysis Report

NE-DIST-2016-06-29-02

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

Event Description: **Gville SCI-Riverstyx**
Request ID: **RQ-2016-06-27-43**
Customer: **NE-DIST**
Project ID: **SMP**

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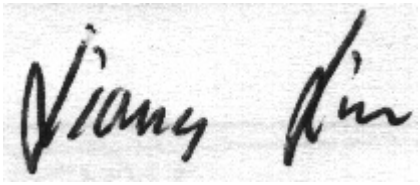
Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-JUL-2016 16:43



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 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: Deep Creek 1.25 Mile N. of Pine Island **Collection Date/Time: 06/28/2016 09:15**

Field ID: G5NE0017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1812039	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P307122	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P307886	
		Sulfate	6.0		mg SO4/L	P307888	
	SM 2120 B	Color (true)	340		PCU	P307366	
	SM 2320 B-97	Total Alkalinity	102		mg CaCO3/L	P307615	
	SM 2540 C-97	TDS	233		mg/L	P307694	
	SM 2540 D-97	TSS	3	I	mg/L	P307686	
	SM 4500 F-C-97	Fluoride	0.056	I	mg F/L	P307619	
1812040	EPA 350.1 Rev. 2.0	Ammonia-N	0.047		mg N/L	P307360	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P307195	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P307381	
	EPA 365.1 Rev. 2.0	Total-P	0.089		mg P/L	P307203	
	SM 5310 B-00	Organic Carbon	41		mg C/L	P307475	
1812041	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.074		mg P/L	P307098	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P307122

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307886

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307888

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307360

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307195

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307381

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307203

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307098

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

Reference Method: SM 2120 B
Batch ID: P307366

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P307615

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

Reference Method: SM 2540 C-97
Batch ID: P307694

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307686

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307619

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307475

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: P307886

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307888

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: P307360

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: P307195

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307381

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307203

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307098

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

Reference Method: SM 2320 B-97
Batch ID: P307615

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P307619

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.0		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P307475

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: P307886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812030	Chloride	96.8		P	90 - 110
1812200	Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307888

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812030	Sulfate	99.4		P	90 - 110
1812200	Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811679	Ammonia-N	99.0	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307195

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812013	Kjeldahl Nitrogen	94.2	94.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307381

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810762	NO2NO3-N	99.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307203

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811984	Total-P	98.0	96.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812052	O-Phosphate-P	96.8	97.7	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P307619

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812200	Fluoride	97.4	96.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P307475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811949	Organic Carbon	104		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P307122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812029	Turbidity	0.456	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812030	Chloride	0.239	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812030	Sulfate	0.317	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811679	Ammonia-N	0.175	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307195

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812013	Kjeldahl Nitrogen	0.324	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810762	NO2NO3-N	0.233	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811984	Total-P	1.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812052	O-Phosphate-P	0.925	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P307366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812046	Color (true)	3.91	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P307615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812200	Total Alkalinity	0.775	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P307694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812010	TDS	1.39	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P307619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812200	Fluoride	0.519	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P307475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811949	Organic Carbon	0.315	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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: A70308
Included Lab Sample IDs: 1812041

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	100	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A70310
Included Lab Sample IDs: 1812039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.6	94.9	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70317
Included Lab Sample IDs: 1812039

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70377
Included Lab Sample IDs: 1812040

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A70390
Included Lab Sample IDs: 1812040

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70411
Included Lab Sample IDs: 1812040

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A70413
Included Lab Sample IDs: 1812040

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	90.4	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A70435
Included Lab Sample IDs: 1812040

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

Reference Method: SM 2320 B-97
Run ID: A70474
Included Lab Sample IDs: 1812039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A70474
Included Lab Sample IDs: 1812039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A70540
Included Lab Sample IDs: 1812039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.8	99.6	P/P	90 - 110
Sulfate	99.2	94.5	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.456	
EPA 300.0 Rev. 2.1	Chloride	99.0	96.8	98.6		0.239	
	Sulfate	99.8	99.4	99.7		0.317	
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	99.0	98.8			0.175
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	94.2	94.7			0.324
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.8				0.233
EPA 365.1 Rev. 2.0	Total-P	95.2	98.0	96.2			1.45
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	96.8	97.7			0.925
SM 2120 B	Color (true)					3.91	
SM 2320 B-97	Total Alkalinity	102				0.775	
SM 2540 C-97	TDS					1.39	
SM 4500 F-C-97	Fluoride	97.0	97.4	96.8			0.519
SM 5310 B-00	Organic Carbon	100	104				0.315

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1812039
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1812039
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1812039
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1812040
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1812040
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1812040
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1812040
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1812041
SM 2120 B / E31780	True Color measured at 450 nm	1812039
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1812039
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1812039
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1812039
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1812039
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1812040

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	06/29/2016			06/29/2016 15:59	Sima Feizi	1812039
EPA 300.0 Rev. 2.1	06/29/2016			07/13/2016	Ping Hua	1812039
EPA 350.1 Rev. 2.0	06/29/2016			07/05/2016	Diana M. Turner	1812040
EPA 351.2 Rev. 2.0	06/29/2016	07/01/2016	Martin Acosta	07/06/2016	Christopher Armour	1812040
EPA 353.2 Rev. 2.0	06/29/2016			07/06/2016	Beverly Y. Sanders	1812040
EPA 365.1 Rev. 2.0	06/29/2016	07/01/2016	Vijayalakshmi Reddy	07/05/2016	Lipi Saha	1812040
EPA 365.1 Rev. 2.0 dissolved	06/29/2016			06/29/2016 15:46	Julia Storbeck	1812041
SM 2120 B	06/29/2016			06/29/2016 17:03	Rochelle Y Jackson	1812039
SM 2320 B-97	06/29/2016			07/08/2016	Dale L. Simmons	1812039
SM 2540 C-97	06/29/2016			07/01/2016	Yijie Li	1812039
SM 2540 D-97	06/29/2016			07/01/2016	Yijie Li	1812039
SM 4500 F-C-97	06/29/2016			07/08/2016	Dale L. Simmons	1812039
SM 5310 B-00	06/29/2016			07/07/2016	Sofia Elnemr	1812040