Chemical Analysis Report

NE-DIST-2019-09-06-01

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

Event Description: **Suwannee 5mile**
Request ID: **RQ-2019-09-02-76**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 23-SEP-2019 08:42

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: Five Mile Cr. At SW 150th blvd **Collection Date/Time: 09/05/2019 12:00**

Field ID: G1NE0919 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116955	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P370295	
	EPA 300.0 Rev. 2.1	Chloride	9.6		mg Cl/L	P370545	
		Sulfate	0.31	I	mg SO4/L	P370548	
	SM 2120 B	Color (true)	1.0E+03		PCU	P370309	
	SM 2320 B-97	Total Alkalinity	5.8		mg CaCO3/L	P370399	
	SM 2540 C-97	TDS	180		mg/L	P370733	
	SM 2540 D-97	TSS	3	I	mg/L	P370619	
	SM 4500 F-C-97	Fluoride	0.072	I	mg F/L	P370403	
2116956	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P370671	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P370714	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P370319	
	EPA 365.1 Rev. 2.0	Total-P	0.083		mg P/L	P370491	
	SM 5310 B-00	Organic Carbon	88		mg C/L	P370527	
2116957	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.052		mg P/L	P370297	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: 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: P370295

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370545

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370548

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370671

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370714

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370319

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370491

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370297

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

Reference Method: SM 2120 B
Batch ID: P370309

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P370399

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

Reference Method: SM 2540 C-97
Batch ID: P370733

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370619

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370403

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370527

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: P370545

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370548

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370671

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370714

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: P370319

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370297

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

Reference Method: SM 2120 B
Batch ID: P370309

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P370399

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P370403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370527

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	107		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370545

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116911	Chloride	101	103	P/P	90 - 110
2117231	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370548

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116911	Sulfate	102	104	P/P	90 - 110
2117231	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116898	Ammonia-N	95.3	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370714

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118232	Kjeldahl Nitrogen	99.6	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116898	NO2NO3-N	96.0	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116942	Total-P	99.1	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116969	O-Phosphate-P	97.7	98.5	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P370527

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116909	Organic Carbon	104	106	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116967	Turbidity	0.939	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116911	Chloride	1.10	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116911	Sulfate	1.72	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116898	Ammonia-N	1.47	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118232	Kjeldahl Nitrogen	1.41	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116898	NO2NO3-N	0.519	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116942	Total-P	4.43	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116969	O-Phosphate-P	0.815	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P370309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116934	Color (true)	3.49	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P370399

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116620	Total Alkalinity	1.21	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P370733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116908	TDS	5.45	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P370403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116620	Fluoride	0.471	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P370527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116909	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 180.1 Rev. 2.0
Run ID: A94042
Included Lab Sample IDs: 2116955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A94044
Included Lab Sample IDs: 2116957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	99.1	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A94055
Included Lab Sample IDs: 2116955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	100	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A94057
Included Lab Sample IDs: 2116956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A94093
Included Lab Sample IDs: 2116955

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: A94093
Included Lab Sample IDs: 2116955

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

Reference Method: SM 5310 B-00
Run ID: A94151
Included Lab Sample IDs: 2116956

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A94158
Included Lab Sample IDs: 2116956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	102	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A94159
Included Lab Sample IDs: 2116955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A94214
Included Lab Sample IDs: 2116956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.4	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A94277
Included Lab Sample IDs: 2116956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	103	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						0.939	
EPA 300.0 Rev. 2.1	Chloride	100	101	103	101			1.10
	Sulfate	101	102	104	102			1.72
EPA 350.1 Rev. 2.0	Ammonia-N	95.8	95.3	97.0				1.47
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.1	99.6	102				1.41
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	96.0	96.5				0.519
EPA 365.1 Rev. 2.0	Total-P	97.9	99.1	104				4.43
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	97.7	98.5				0.815
SM 2120 B	Color (true)	101					3.49	
SM 2320 B-97	Total Alkalinity	105					1.21	
SM 2540 C-97	TDS						5.45	
SM 4500 F-C-97	Fluoride	96.5						0.471
SM 5310 B-00	Organic Carbon	107	104	106				1.27

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2116955
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2116955
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2116955
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2116956
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2116956
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2116956
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2116956
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2116957
SM 2120 B / E31780	True Color measured at 450 nm	2116955
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2116955
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2116955
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2116955
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2116955
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2116956

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	09/06/2019			09/06/2019 16:35	Samantha Davila	2116955
EPA 300.0 Rev. 2.1	09/06/2019			09/11/2019 23:38	Jhamieka S. Greenwood	2116955
EPA 350.1 Rev. 2.0	09/06/2019			09/13/2019 12:09	Ping Hua	2116956
EPA 351.2 Rev. 2.0	09/06/2019	09/16/2019 14:05	Sima Feizi	09/17/2019 13:17	Julia Storbeck	2116956
EPA 353.2 Rev. 2.0	09/06/2019			09/09/2019 09:20	Beverly Y. Sanders	2116956
EPA 365.1 Rev. 2.0	09/06/2019	09/11/2019 10:25	Lipi Saha	09/12/2019 09:49	Rosalyn Ballman	2116956
EPA 365.1 Rev. 2.0 dissolved	09/06/2019			09/06/2019 16:22	Jhamieka S. Greenwood	2116957
SM 2120 B	09/06/2019			09/06/2019 17:54	Madeline Funaro	2116955
SM 2320 B-97	09/06/2019			09/09/2019 21:41	Dale L. Simmons	2116955
SM 2540 C-97	09/06/2019			09/10/2019 14:32	Yijie Li	2116955
SM 2540 D-97	09/06/2019			09/10/2019 14:32	Yijie Li	2116955
SM 4500 F-C-97	09/06/2019			09/09/2019 21:41	Dale L. Simmons	2116955
SM 5310 B-00	09/06/2019			09/11/2019 18:27	Madeline Funaro	2116956