Chemical Analysis Report

NE-DIST-2016-04-19-01

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

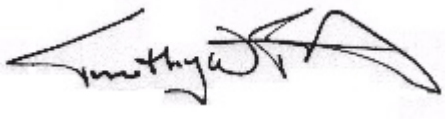
Event Description: **Suw. SCI-Olustee**
Request ID: **RQ-2016-04-11-12**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

For additional information please contact
Timothy W. Fitzpatrick
Liang-Tsair Lin, Ph.D.
Colin Wright, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 12-MAY-2016 16:14



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: ROSE CR @ BROOKWOOD **Collection Date/Time: 04/18/2016 11:00**

Field ID: ROSE CR @ BROOKWOOD Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790351	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P302524	
	EPA 300.0 Rev. 2.1	Chloride	9.1		mg Cl/L	P302870	
		Sulfate	0.24	I	mg SO4/L	P302872	
	SM 2120 B	Color (true)	390		PCU	P302503	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P302740	
	SM 2540 C-97	TDS	144		mg/L	P302957	
	SM 2540 D-97	TSS	5	I	mg/L	P302891	
	SM 4500 F-C-97	Fluoride	0.069	I	mg F/L	P302745	
1790352	EPA 350.1 Rev. 2.0	Ammonia-N	0.065		mg N/L	P303365	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P303453	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.019		mg N/L	P302998	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P303070	
	SM 5310 B-00	Organic Carbon	44		mg C/L	P303342	
1790353	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.16		mg P/L	P302519	

Ref. Method and Comment:
SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302524

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302870

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302872

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303365

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303453

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: P302998

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303070

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302519

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

Reference Method: SM 2120 B
Batch ID: P302503

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P302740

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

Reference Method: SM 2540 C-97
Batch ID: P302957

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P302891

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P302745

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P303342

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: P302870

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: P302872

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: P303365

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303453

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: P302998

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: P303070

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302519

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

Reference Method: SM 2320 B-97
Batch ID: P302740

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P302745

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: P303342

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790172	Chloride	100		P	90 - 110
1790175	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790172	Sulfate	99.2		P	90 - 110
1790175	Sulfate	99.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790308	Ammonia-N	99.1	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790352	Kjeldahl Nitrogen	98.0	99.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302998

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790303	NO2NO3-N	98.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303070

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790303	Total-P	97.8	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302519

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790315	O-Phosphate-P	99.1	99.4	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P302745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1789841	Fluoride	97.4	96.8	P/P	91 - 105

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790296	Turbidity	0.725	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790172	Chloride	1.04	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790172	Sulfate	1.50	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790308	Ammonia-N	1.56	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790352	Kjeldahl Nitrogen	0.563	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790303	NO2NO3-N	0.656	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790303	Total-P	1.17	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790315	O-Phosphate-P	0.289	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P302503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790300	Color (true)	0.633	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P302740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1789841	Total Alkalinity	0.305	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P302957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790358	TDS	5.91	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P302891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790358	TSS	7.59	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P302745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1789841	Fluoride	0.530	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P303342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790352	Organic Carbon	0.611	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 300.0 Rev. 2.1
Run ID: A68939
Included Lab Sample IDs: 1790351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.5	100	P/P	90 - 110
Sulfate	98.0	99.7	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A68952
Included Lab Sample IDs: 1790351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.1	97.9	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A68960
Included Lab Sample IDs: 1790353

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	99.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A68961
Included Lab Sample IDs: 1790351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: SM 2320 B-97
Run ID: A69026
Included Lab Sample IDs: 1790351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.4	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A69026
Included Lab Sample IDs: 1790351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69105
Included Lab Sample IDs: 1790352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69140
Included Lab Sample IDs: 1790352

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A69207
Included Lab Sample IDs: 1790352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	99.2	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A69209
Included Lab Sample IDs: 1790352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.3	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69303
Included Lab Sample IDs: 1790352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.3	96.6	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					0.725	
EPA 300.0 Rev. 2.1	Chloride	99.9	100	101		1.04	
	Sulfate	98.8	99.2	99.3		1.50	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	99.1	101			1.56
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	98.0	99.3			0.563
EPA 353.2 Rev. 2.0	NO2NO3-N	101	98.5	99.5			0.656
EPA 365.1 Rev. 2.0	Total-P	102	97.8	99.0			1.17
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.1	99.4			0.289
SM 2120 B	Color (true)					0.633	
SM 2320 B-97	Total Alkalinity	101				0.305	
SM 2540 C-97	TDS					5.91	
SM 2540 D-97	TSS					7.59	
SM 4500 F-C-97	Fluoride	97.0	97.4	96.8			0.530
SM 5310 B-00	Organic Carbon	93.0					0.611

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1790351
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1790351
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1790351
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1790352
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1790352
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1790352
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1790352
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1790353
SM 2120 B / E31780	True Color measured at 450 nm	1790351
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1790351
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1790351
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1790351
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1790351
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1790352

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	04/19/2016			04/19/2016 15:03	Sima Feizi	1790351
EPA 300.0 Rev. 2.1	04/19/2016			04/22/2016	Julia Storbeck	1790351
EPA 350.1 Rev. 2.0	04/19/2016			05/02/2016	Diana M. Turner	1790352
EPA 351.2 Rev. 2.0	04/19/2016	05/04/2016	Sofia Elnemr	05/05/2016	Christopher Armour	1790352
EPA 353.2 Rev. 2.0	04/19/2016			04/26/2016	Peter D. Kaus	1790352
EPA 365.1 Rev. 2.0	04/19/2016	04/27/2016	Lipi Saha	04/28/2016	Lipi Saha	1790352
EPA 365.1 Rev. 2.0 dissolved	04/19/2016			04/19/2016 15:20	Ping Hua	1790353
SM 2120 B	04/19/2016			04/19/2016 14:35	Rochelle Y Jackson	1790351
SM 2320 B-97	04/19/2016			04/21/2016	Dale L. Simmons	1790351
SM 2540 C-97	04/19/2016			04/20/2016	Yijie Li	1790351
SM 2540 D-97	04/19/2016			04/20/2016	Yijie Li	1790351
SM 4500 F-C-97	04/19/2016			04/21/2016	Dale L. Simmons	1790351
SM 5310 B-00	04/19/2016			04/29/2016	Sofia Elnemr	1790352