Chemical Analysis Report

SW-DIST-2017-01-25-01

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

Event Description: **SMP-RUN 2**
Request ID: **RQ-2017-01-23-62**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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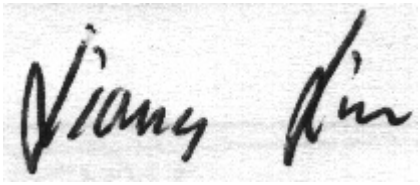
Date Certified: 17-FEB-2017 13:58



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: WEEKI WACHEE **Collection Date/Time: 01/24/2017 14:05**

Field ID: G5SW0020 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866333	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P318724	
	SM 2320 B-97	Total Alkalinity	155		mg CaCO3/L	P318855	
	SM 2540 D-97	TSS	3	U	mg/L	P319048	
	SM 4500 F-C-97	Fluoride	0.35		mg F/L	P318859	
1866336	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P319008	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40	I	mg N/L	P318754	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P319160	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P318777	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P318899	
1866339	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318730	

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

Sample Location: MUD River @ Shoal **Collection Date/Time: 01/24/2017 13:55**

Field ID: G5SW0017 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866334	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P318724	
	SM 2320 B-97	Total Alkalinity	154	A	mg CaCO3/L	P318855	
	SM 2540 D-97	TSS	3	U	mg/L	P319048	
	SM 4500 F-C-97	Fluoride	0.30		mg F/L	P318859	
1866337	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P319008	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P318754	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.35		mg N/L	P319160	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P318777	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P318899	
1866340	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P318730	

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

Sample Location: MASON CREEK @ MOUTH **Collection Date/Time: 01/24/2017 12:00**

Field ID: G5SW0005 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866335	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P318724	
	SM 2320 B-97	Total Alkalinity	156		mg CaCO3/L	P318855	
	SM 2540 D-97	TSS	4	I	mg/L	P319048	
	SM 4500 F-C-97	Fluoride	0.60		mg F/L	P318859	
1866338	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P319008	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P318754	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P319160	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P318777	
	SM 5310 B-00	Organic Carbon	7.0		mg C/L	P318899	
1866341	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P318730	

Field ID: G5SW0005 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

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: P318724

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319008

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318754

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319160

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318777

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318730

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

Reference Method: SM 2320 B-97
Batch ID: P318855

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

Reference Method: SM 2540 D-97
Batch ID: P319048

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P318859

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P318899

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	106		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318754

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319160

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318777

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318730

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	103		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P318855

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P318859

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P318859

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P318899

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866336	Ammonia-N	109	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866337	Kjeldahl Nitrogen	101	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319160

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866305	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318777

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866338	Total-P	93.0	94.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318730

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866339	O-Phosphate-P	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P318859

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866334	Fluoride	97.8	98.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P318899

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P318899

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866303	Organic Carbon	97.2	97.7	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866324	Turbidity	2.99	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866336	Ammonia-N	1.83	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866337	Kjeldahl Nitrogen	1.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866305	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866338	Total-P	1.11	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318730

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866339	O-Phosphate-P	1.46	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P318855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866334	Total Alkalinity	0.677	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P318859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866334	Fluoride	0.480	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P318899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866303	Organic Carbon	0.366	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: A74103
Included Lab Sample IDs: 1866333, 1866334, 1866335

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74104
Included Lab Sample IDs: 1866339, 1866340, 1866341

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

Reference Method: SM 2320 B-97
Run ID: A74143
Included Lab Sample IDs: 1866333, 1866334, 1866335

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A74143
Included Lab Sample IDs: 1866333, 1866334, 1866335

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A74153
Included Lab Sample IDs: 1866336, 1866337, 1866338

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A74163
Included Lab Sample IDs: 1866336, 1866337, 1866338

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A74166
Included Lab Sample IDs: 1866336, 1866337, 1866338

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	107	P/P	90 - 110
Kjeldahl Nitrogen	99.7	108	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A74193
Included Lab Sample IDs: 1866336, 1866337, 1866338

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	101	P/P	90 - 110
Ammonia-N	99.1	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A74232
Included Lab Sample IDs: 1866336, 1866337, 1866338

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	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					2.99	
EPA 350.1 Rev. 2.0	Ammonia-N	106	109	105			1.83
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	101	100			1.09
EPA 353.2 Rev. 2.0	NO2NO3-N	103	104	104			0.482
EPA 365.1 Rev. 2.0	Total-P	99.7	93.0	94.1			1.11
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	102	104			1.46
SM 2320 B-97	Total Alkalinity	104				0.677	
SM 4500 F-C-97	Fluoride	99.3	97.8	98.5			0.480
SM 5310 B-00	Organic Carbon	101	97.2	97.7			0.366

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1866333, 1866334, 1866335
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1866336, 1866337, 1866338
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1866336, 1866337, 1866338
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1866336, 1866337, 1866338
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1866336, 1866337, 1866338
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1866339, 1866340, 1866341
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1866333, 1866334, 1866335
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1866333, 1866334, 1866335
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1866333, 1866334, 1866335
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1866336, 1866337, 1866338

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	01/25/2017			01/25/2017 15:28	Sima Feizi	1866333, 1866334, 1866335
EPA 350.1 Rev. 2.0	01/25/2017			01/30/2017	Sofia Elnemr	1866336, 1866337, 1866338
EPA 351.2 Rev. 2.0	01/25/2017	01/26/2017	Adrian Shelby	01/30/2017	Joseph Suarez	1866336, 1866337, 1866338
EPA 353.2 Rev. 2.0	01/25/2017			02/02/2017	Beverly Y. Sanders	1866336, 1866337, 1866338
EPA 365.1 Rev. 2.0	01/25/2017	01/26/2017	Vijayalakshmi Reddy	01/27/2017	Lipi Saha	1866336, 1866337, 1866338
EPA 365.1 Rev. 2.0 dissolved	01/25/2017			01/25/2017 15:58	Julia Storbeck	1866339
	01/25/2017			01/25/2017 16:31	Julia Storbeck	1866340
	01/25/2017			01/25/2017 16:32	Julia Storbeck	1866341
SM 2320 B-97	01/25/2017			01/27/2017	Dale L. Simmons	1866333, 1866334, 1866335
SM 2540 D-97	01/25/2017			01/27/2017	Blanca Fach	1866333, 1866334, 1866335
SM 4500 F-C-97	01/25/2017			01/27/2017	Dale L. Simmons	1866333, 1866334, 1866335
SM 5310 B-00	01/25/2017			01/27/2017	Jared I. Manley	1866336, 1866337, 1866338