Chemical Analysis Report

SO-DIST-2016-03-23-02

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

Event Description: **SMP: Marco Area**
Request ID: **RQ-2016-03-21-20**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

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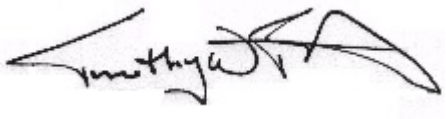
Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 12-APR-2016 10:39



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: 3278P @ #4 SOUTH OF GOODLAND **Collection Date/Time: 03/22/2016 10:15**

Field ID: G1SD0037 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1782588	EPA 180.1 Rev. 2.0	Turbidity	40		NTU	P300945	
	SM 2320 B-97	Total Alkalinity	148		mg CaCO3/L	P301444	
	SM 2540 D-97	TSS	57	A	mg/L	P301156	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P301447	
1782589	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P301339	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P301274	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P301159	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P301259	
	SM 5310 B-00	Organic Carbon	5.6		mg C/L	P301143	
1782590	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P300919	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P300945

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301339

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301274

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301159

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301259

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300919

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P301444

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

Reference Method: SM 2540 D-97
Batch ID: P301156

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P301447

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P301143

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: P301339

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301274

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301159

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301259

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300919

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300919

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

Reference Method: SM 2320 B-97
Batch ID: P301444

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P301447

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P301143

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301339

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782325	Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301274

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782320	Kjeldahl Nitrogen	96.0	93.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782666	NO2NO3-N	99.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782320	Total-P	103	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300919

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300919

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782590	O-Phosphate-P	98.5	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P301447

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1783694	Fluoride	95.9	96.6	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P301143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1781600	Organic Carbon	93.4	93.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P300945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782826	Turbidity	3.74	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301339

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782325	Ammonia-N	0.496	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782320	Kjeldahl Nitrogen	1.96	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782666	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782320	Total-P	4.42	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782590	O-Phosphate-P	1.53	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P301444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1783694	Total Alkalinity	0.418	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P301156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782588	TSS	6.27	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P301447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1783694	Fluoride	0.516	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P301143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1781600	Organic Carbon	0.139	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: A68407
Included Lab Sample IDs: 1782590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A68413
Included Lab Sample IDs: 1782588

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A68477
Included Lab Sample IDs: 1782589

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	96.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A68481
Included Lab Sample IDs: 1782589

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A68548
Included Lab Sample IDs: 1782589

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	103	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A68600
Included Lab Sample IDs: 1782588

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A68600
Included Lab Sample IDs: 1782588

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A68663
Included Lab Sample IDs: 1782589

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A68672
Included Lab Sample IDs: 1782589

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.7	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					3.74	
EPA 350.1 Rev. 2.0	Ammonia-N	102	103	104			0.496
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.6	96.0	93.9			1.96
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	99.5	98.5			1.01
EPA 365.1 Rev. 2.0	Total-P	104	103	99.0			4.42
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	98.5	100			1.53
SM 2320 B-97	Total Alkalinity	103				0.418	
SM 2540 D-97	TSS					6.27	
SM 4500 F-C-97	Fluoride	97.8	95.9	96.6			0.516
SM 5310 B-00	Organic Carbon	105	93.4	93.2			0.139

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1782588
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1782589
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1782589
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1782589
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1782589
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1782590
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1782588
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1782588
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1782588
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1782589

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	03/23/2016			03/23/2016 17:04	Blanca Fach	1782588
EPA 350.1 Rev. 2.0	03/23/2016			03/30/2016	Diana M. Turner	1782589
EPA 351.2 Rev. 2.0	03/23/2016	03/30/2016	Sofia Elnemr	04/05/2016	Virginia P. Brown	1782589
EPA 353.2 Rev. 2.0	03/23/2016			03/28/2016	Virginia P. Brown	1782589
EPA 365.1 Rev. 2.0	03/23/2016	03/30/2016	Christopher Armour	04/01/2016	Lipi Saha	1782589
EPA 365.1 Rev. 2.0 dissolved	03/23/2016			03/23/2016 14:34	Ping Hua	1782590
SM 2320 B-97	03/23/2016			03/30/2016	Dale L. Simmons	1782588
SM 2540 D-97	03/23/2016			03/24/2016	Yijie Li	1782588
SM 4500 F-C-97	03/23/2016			03/30/2016	Dale L. Simmons	1782588
SM 5310 B-00	03/23/2016			03/26/2016	Sofia Elnemr	1782589