

Chemical Analysis Report

SW-DIST-2016-03-11-02

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

Event Description: **1341H**
Request ID: **RQ-2016-03-07-36**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Matt Bearden

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Certified by: Colin Wright, Environmental Administrator

Date Certified: 29-MAR-2016 11:47

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored rectangular background.

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: G1SW0049

Collection Date/Time: 03/10/2016 10:40

Field ID: G1SW0049

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779173	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P300240	
	SM 2320 B-97	Total Alkalinity	156		mg CaCO3/L	P300587	
	SM 2540 D-97	TSS	5	I	mg/L	P300449	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P300590	
1779174	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P300858	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	U	mg N/L	P300741	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.29		mg N/L	P300798	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P300614	
	SM 5310 B-00	Organic Carbon	0.91	I	mg C/L	P300650	
1779175	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P300238	

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: P300240

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P300858

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P300741

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P300798

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P300614

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P300238

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: P300587

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-97
Batch ID: P300449

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300590

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P300650

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: P300858

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300741

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300798

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300614

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300238

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300238

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

Reference Method: SM 2320 B-97
Batch ID: P300587

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P300590

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P300650

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300858

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779698	Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779174	Kjeldahl Nitrogen	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300798

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779174	NO2NO3-N	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778468	Total-P	91.7	94.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779140	O-Phosphate-P	99.2	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P300590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779161	Fluoride	100	101	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P300650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778926	Organic Carbon	93.4	93.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P300240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779155	Turbidity	6.51	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779698	Ammonia-N	0.598	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779174	Kjeldahl Nitrogen	1.15	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779174	NO2NO3-N	0.413	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778468	Total-P	3.19	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779140	O-Phosphate-P	1.10	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P300587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779161	Total Alkalinity	0.262	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P300590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779161	Fluoride	0.470	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P300650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778926	Organic Carbon	0.0556	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: A68175
Included Lab Sample IDs: 1779175

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	99.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A68177
Included Lab Sample IDs: 1779173

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

Reference Method: SM 2320 B-97
Run ID: A68295
Included Lab Sample IDs: 1779173

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97
 Run ID: A68295
 Included Lab Sample IDs: 1779173

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	102	P/P	90 - 110

Reference Method: SM 5310 B-00
 Run ID: A68315
 Included Lab Sample IDs: 1779174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A68367
 Included Lab Sample IDs: 1779174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Run ID: A68372
 Included Lab Sample IDs: 1779174

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

Reference Method: EPA 350.1 Rev. 2.0
 Run ID: A68389
 Included Lab Sample IDs: 1779174

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

Reference Method: EPA 351.2 Rev. 2.0
 Run ID: A68399
 Included Lab Sample IDs: 1779174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	110	106	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				6.51	
EPA 350.1 Rev. 2.0	Ammonia-N	101	104 105			0.598
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	92.6	104 103			1.15
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	97.0			0.413

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 365.1 Rev. 2.0	Total-P	98.4	91.7	94.7			3.19
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	99.2	100			1.10
SM 2320 B-97	Total Alkalinity	102				0.262	
SM 4500 F-C-97	Fluoride	99.4	100	101			0.470
SM 5310 B-00	Organic Carbon	95.0	93.4	93.4			0.0556

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1779173
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1779174
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1779174
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1779174
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1779174
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1779175
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1779173
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1779173
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1779173
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1779174

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	03/11/2016			03/11/2016 14:18	Sima Feizi	1779173
EPA 350.1 Rev. 2.0	03/11/2016			03/22/2016	Diana M. Turner	1779174
EPA 351.2 Rev. 2.0	03/11/2016	03/22/2016	Sofia Elnemr	03/23/2016	Rochelle Y Jackson	1779174
EPA 353.2 Rev. 2.0	03/11/2016			03/22/2016	Virginia P. Brown	1779174
EPA 365.1 Rev. 2.0	03/11/2016	03/18/2016	Christopher Armour	03/21/2016	Lipi Saha	1779174
EPA 365.1 Rev. 2.0 dissolved	03/11/2016			03/11/2016 14:48	Ping Hua	1779175
SM 2320 B-97	03/11/2016			03/17/2016	Dale L. Simmons	1779173
SM 2540 D-97	03/11/2016			03/15/2016	Christopher Armour	1779173
SM 4500 F-C-97	03/11/2016			03/17/2016	Dale L. Simmons	1779173
SM 5310 B-00	03/11/2016			03/17/2016	Sofia Elnemr	1779174