

Chemical Analysis Report

SW-DIST-2016-06-09-01

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

Event Description: **RUN 5**
Request ID: **RQ-2016-06-06-36**
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-JUN-2016 12:58

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: Black Springs

Collection Date/Time: 06/08/2016 10:15

Field ID: G1SW0049

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1806827	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P306010	
	SM 2320 B-97	Total Alkalinity	146		mg CaCO3/L	P306030	
	SM 2540 D-97	TSS	2	I	mg/L	P306285	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P306035	
1806828	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P306269	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P306056	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306584	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P306217	
	SM 5310 B-00	Organic Carbon	2.0		mg C/L	P306324	
1806829	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P305928	

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: P306010

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P306269

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P306056

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P306584

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P306217

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P305928

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: P306030

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

Reference Method: SM 2540 D-97
Batch ID: P306285

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P306035

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P306324

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: P306269

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306056

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306584

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306217

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: P305928

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: P305928

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

Reference Method: SM 2320 B-97
Batch ID: P306030

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

Reference Method: SM 4500 F-C-97
Batch ID: P306035

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P306324

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	108		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806766	Ammonia-N	99.5	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806766	Kjeldahl Nitrogen	100	110	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306584

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806828	NO2NO3-N	96.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806837	Total-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305928

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: P305928

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806841	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P306035

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806873	Fluoride	101	100	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P306324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806701	Organic Carbon	108	111	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P306010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806832	Turbidity	7.97	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P306269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806766	Ammonia-N	0.162	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P306056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806766	Kjeldahl Nitrogen	7.20	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P306584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806828	NO2NO3-N	1.54	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P306217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806837	Total-P	0.453	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305928

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806841	O-Phosphate-P	0.197	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P306030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806873	Total Alkalinity	0.188	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P306035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806873	Fluoride	0.464	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P306324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806701	Organic Carbon	1.62	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: A69952
Included Lab Sample IDs: 1806829

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69980
Included Lab Sample IDs: 1806827

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	99.5	P/P	95 - 105

Reference Method: SM 2320 B-97
Run ID: A69989
Included Lab Sample IDs: 1806827

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A69989
Included Lab Sample IDs: 1806827

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A70014
Included Lab Sample IDs: 1806828

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A70068
Included Lab Sample IDs: 1806828

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

Reference Method: SM 5310 B-00
Run ID: A70079
Included Lab Sample IDs: 1806828

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70093
Included Lab Sample IDs: 1806828

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70150
Included Lab Sample IDs: 1806828

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	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				7.97	
EPA 350.1 Rev. 2.0	Ammonia-N	100	99.5	99.8		0.162
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110	100	110		7.20
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	96.5	98.0		1.54

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
EPA 365.1 Rev. 2.0	Total-P	102	103	103			0.453
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	101	102			0.197
SM 2320 B-97	Total Alkalinity	102				0.188	
SM 4500 F-C-97	Fluoride	98.1	101	100			0.464
SM 5310 B-00	Organic Carbon	108	108	111			1.62

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1806827
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1806828
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1806828
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1806828
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1806828
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1806829
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1806827
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1806827
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1806827
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1806828

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	06/09/2016			06/09/2016 15:51	Rochelle Y Jackson	1806827
EPA 350.1 Rev. 2.0	06/09/2016			06/15/2016	Diana M. Turner	1806828
EPA 351.2 Rev. 2.0	06/09/2016	06/13/2016	Sofia Elnemr	06/14/2016	Christopher Armour	1806828
EPA 353.2 Rev. 2.0	06/09/2016			06/21/2016	Beverly Y. Sanders	1806828
EPA 365.1 Rev. 2.0	06/09/2016	06/15/2016	Vijayalakshmi Reddy	06/16/2016	Lipi Saha	1806828
EPA 365.1 Rev. 2.0 dissolved	06/09/2016			06/09/2016 15:07	Julia Storbeck	1806829
SM 2320 B-97	06/09/2016			06/11/2016	Dale L. Simmons	1806827
SM 2540 D-97	06/09/2016			06/13/2016	Blanca Fach	1806827
SM 4500 F-C-97	06/09/2016			06/11/2016	Dale L. Simmons	1806827
SM 5310 B-00	06/09/2016			06/16/2016	Sofia Elnemr	1806828