

Chemical Analysis Report

SW-DIST-2017-09-20-01

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

Event Description: **SMP - DO Monitoring Retrieval**

Request ID: **RQ-2017-09-18-14**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

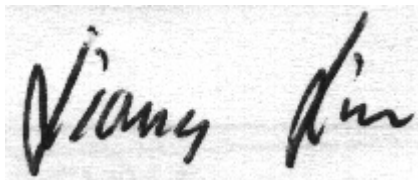
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Sarah Meyer

For additional information please contact

Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 06-OCT-2017 11:45

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored 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: Double Branch @ State St

Collection Date/Time: 09/19/2017 12:55

Field ID: G1SW0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1929853	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P331964	
	SM 2320 B-97	Total Alkalinity	54		mg CaCO3/L	P332042	
	SM 2540 D-97	TSS	4	I	mg/L	P332567	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P332044	
1929854	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P332063	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P332145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P332203	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P332165	
	SM 5310 B-00	Organic Carbon	38		mg C/L	P332138	
1929855	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P331979	

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: P331964

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P332063

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P332145

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P332203

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P332165

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P331979

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: P332042

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

Reference Method: SM 2540 D-97
Batch ID: P332567

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P332044

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P332138

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: P332063

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332145

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332203

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332165

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331979

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: P331979

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.9		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P332042

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P332044

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P332138

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929849	Ammonia-N	98.4	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929681	Kjeldahl Nitrogen	106	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332203

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929799	NO2NO3-N	96.2	95.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332165

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929887	Total-P	96.6	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331979

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: P331979

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929819	O-Phosphate-P	95.9	98.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P332044

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1930126	Fluoride	96.3	99.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P332138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929849	Organic Carbon	98.7		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929806	Turbidity	5.00	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929849	Ammonia-N	5.72	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929681	Kjeldahl Nitrogen	1.33	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929799	NO2NO3-N	0.521	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929887	Total-P	0.200	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929819	O-Phosphate-P	1.65	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P332042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1930126	Total Alkalinity	0.143	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P332044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1930126	Fluoride	2.99	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P332138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929849	Organic Carbon	0.415	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: A79048
Included Lab Sample IDs: 1929853

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A79053
Included Lab Sample IDs: 1929855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	99.1	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A79076
Included Lab Sample IDs: 1929853

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	98.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A79076
Included Lab Sample IDs: 1929853

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A79083
Included Lab Sample IDs: 1929854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	105	105	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A79120
Included Lab Sample IDs: 1929854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.3	94.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A79142
Included Lab Sample IDs: 1929854

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A79150
Included Lab Sample IDs: 1929854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A79172
Included Lab Sample IDs: 1929854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	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				5.00	
EPA 350.1 Rev. 2.0	Ammonia-N	109	98.4	105		5.72
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	106	104		1.33
EPA 353.2 Rev. 2.0	NO2NO3-N	105	96.2	95.7		0.521

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 365.1 Rev. 2.0	Total-P	95.9	96.6 96.8			0.200
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	95.9 98.1			1.65
SM 2320 B-97	Total Alkalinity	102			0.143	
SM 4500 F-C-97	Fluoride	96.3	96.3 99.8			2.99
SM 5310 B-00	Organic Carbon	95.6	98.7			0.415

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1929853
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1929854
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1929854
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1929854
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1929854
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1929855
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1929853
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1929853
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1929853
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1929854

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	09/20/2017			09/20/2017 16:03	DeAsia Armster	1929853
EPA 350.1 Rev. 2.0	09/20/2017			09/21/2017	Sofia Elnemr	1929854
EPA 351.2 Rev. 2.0	09/20/2017	09/25/2017	Adrian Shelby	09/26/2017	Joseph Suarez	1929854
EPA 353.2 Rev. 2.0	09/20/2017			09/22/2017	Beverly Y. Sanders	1929854
EPA 365.1 Rev. 2.0	09/20/2017	09/25/2017	Sima Feizi	09/26/2017	Lipi Saha	1929854
EPA 365.1 Rev. 2.0 dissolved	09/20/2017			09/20/2017 14:41	Megan Treadwell	1929855
SM 2320 B-97	09/20/2017			09/22/2017	Dale L. Simmons	1929853
SM 2540 D-97	09/20/2017			09/25/2017	Yijie Li	1929853
SM 4500 F-C-97	09/20/2017			09/22/2017	Dale L. Simmons	1929853
SM 5310 B-00	09/20/2017			09/22/2017	Ping Hua	1929854