Chemical Analysis Report

SO-DIST-2018-08-30-01

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

Event Description: **BFWW**
Request ID: **RQ-2018-08-27-39**
Customer: **SO-DIST**
Project ID: **SMP**

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Date Certified: 14-SEP-2018 16:26

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: ENRE12 Lostmans Bay E **Collection Date/Time: 08/29/2018 11:25**

Field ID: G5SD0090 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2021010	EPA 180.1 Rev. 2.0	Turbidity	8.1		NTU	P351089	
	SM 2320 B-97	Total Alkalinity	128		mg CaCO3/L	P351369	
	SM 2540 D-97	TSS	9	I	mg/L	P351093	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P351373	
2021012	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P351088	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P351027	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P351340	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P351013	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P351132	
2021014	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350976	

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: ENRE9 Lostmans Bay W **Collection Date/Time: 08/29/2018 10:55**

Field ID: G5SD0091 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2021011	EPA 180.1 Rev. 2.0	Turbidity	8.1		NTU	P351089	
	SM 2320 B-97	Total Alkalinity	134		mg CaCO3/L	P351369	
	SM 2540 D-97	TSS	7	I	mg/L	P351093	
	SM 4500 F-C-97	Fluoride	0.29		mg F/L	P351413	
2021013	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P351088	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P351027	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P351341	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P351013	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P351132	
2021015	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350976	

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: P351089

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351088

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351027

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351340

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351341

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351013

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350976

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

Reference Method: SM 2320 B-97
Batch ID: P351369

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

Reference Method: SM 2540 D-97
Batch ID: P351093

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P351373

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P351413

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P351132

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: P351088

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351027

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: P351340

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351341

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351013

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350976

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: P351369

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P351373

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

Reference Method: SM 4500 F-C-97
Batch ID: P351413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	91 - 105

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P351132

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.5		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351088

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2020388	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021185	Kjeldahl Nitrogen	102	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2020434	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351341

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021013	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351013

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021187	Total-P	100	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021014	O-Phosphate-P	96.4	96.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P351373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021242	Fluoride	100	99.1	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P351413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021184	Fluoride	96.8	97.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P351132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2020931	Organic Carbon	94.6	95.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P351089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020961	Turbidity	1.45	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020388	Ammonia-N	0.214	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021185	Kjeldahl Nitrogen	3.10	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020434	NO2NO3-N	0.976	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021013	NO2NO3-N	0.912	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021187	Total-P	1.30	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021014	O-Phosphate-P	0.517	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P351369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021242	Total Alkalinity	0.607	Sample	P	0 - 1.6

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P351373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021242	Fluoride	0.979	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P351413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021184	Fluoride	0.473	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P351132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020931	Organic Carbon	0.724	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: A86214
Included Lab Sample IDs: 2021014, 2021015

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86265
Included Lab Sample IDs: 2021012, 2021013

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A86275
Included Lab Sample IDs: 2021012, 2021013

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A86276
Included Lab Sample IDs: 2021012, 2021013

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A86280
Included Lab Sample IDs: 2021010, 2021011

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

Reference Method: SM 5310 B-00
Run ID: A86299
Included Lab Sample IDs: 2021012, 2021013

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.3	94.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A86380
Included Lab Sample IDs: 2021012, 2021013

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	93.0	90.0	P/P	90 - 110
NO2NO3-N	93.0	93.0	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A86387
Included Lab Sample IDs: 2021010, 2021011

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A86387
Included Lab Sample IDs: 2021010

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

Reference Method: SM 4500 F-C-97
Run ID: A86400
Included Lab Sample IDs: 2021011

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	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					1.45	
EPA 350.1 Rev. 2.0	Ammonia-N	105	100	100			0.214
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110	102	107			3.10
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	103			0.976
	NO2NO3-N	97.0	100	101			0.912
EPA 365.1 Rev. 2.0	Total-P	98.0	100	98.6			1.30
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	96.4	96.9			0.517
SM 2320 B-97	Total Alkalinity	103				0.607	
SM 4500 F-C-97	Fluoride	101	100	99.1			0.979
	Fluoride	98.7	96.8	97.4			0.473
SM 5310 B-00	Organic Carbon	95.5	94.6	95.6			0.724

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2021010, 2021011
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2021012, 2021013
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2021012, 2021013
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2021012, 2021013
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2021012, 2021013
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2021014, 2021015
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2021010, 2021011
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2021010, 2021011
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2021010, 2021011
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2021012, 2021013

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	08/30/2018			08/30/2018 16:04	Megan Treadwell	2021010, 2021011
EPA 350.1 Rev. 2.0	08/30/2018			09/04/2018 13:03	Ping Hua	2021012
	08/30/2018			09/04/2018 13:04	Ping Hua	2021013
EPA 351.2 Rev. 2.0	08/30/2018	08/31/2018 15:00	Adrian Shelby	09/04/2018 15:08	Joseph Suarez	2021012
	08/30/2018	08/31/2018 15:00	Adrian Shelby	09/04/2018 15:10	Joseph Suarez	2021013
EPA 353.2 Rev. 2.0	08/30/2018			09/10/2018 13:45	Lauren Bottorf	2021012
	08/30/2018			09/10/2018 13:52	Lauren Bottorf	2021013
EPA 365.1 Rev. 2.0	08/30/2018	08/31/2018 12:15	Sima Feizi	09/04/2018 11:09	Beverly Y. Sanders	2021012
	08/30/2018	08/31/2018 12:15	Sima Feizi	09/04/2018 11:10	Beverly Y. Sanders	2021013
EPA 365.1 Rev. 2.0 dissolved	08/30/2018			08/30/2018 16:06	Julia Storbeck	2021014
	08/30/2018			08/30/2018 16:12	Julia Storbeck	2021015
SM 2320 B-97	08/30/2018			09/07/2018 11:49	Dale L. Simmons	2021010
	08/30/2018			09/07/2018 12:59	Dale L. Simmons	2021011
SM 2540 D-97	08/30/2018			08/31/2018 09:00	DeAsia Armster	2021010, 2021011
SM 4500 F-C-97	08/30/2018			09/07/2018 11:49	Dale L. Simmons	2021010
	08/30/2018			09/11/2018 09:42	Dale L. Simmons	2021011
SM 5310 B-00	08/30/2018			09/04/2018 21:47	Megan Treadwell	2021012
	08/30/2018			09/04/2018 22:02	Megan Treadwell	2021013