Chemical Analysis Report

SO-DIST-2020-12-09-01

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

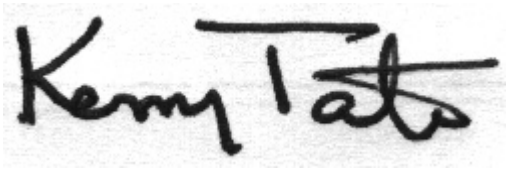
Event Description: **SMP: Last Huston Bay**
Request ID: **RQ-2020-12-07-70**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Chris Hormuth

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 29-DEC-2020 09:45



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Ener11 at Huston Bay **Collection Date/Time: 12/08/2020 10:15**

Field ID: G5SD0026 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2211714	EPA 180.1 Rev. 2.0	Turbidity	7.0		NTU	P390933	
	EPA 300.0 Rev. 2.1	Bromide	5.9		mg Br/L	P391044	
	SM 2320 B-2011	Total Alkalinity	156		mg CaCO3/L	P391137	
	SM 2540 D-2011	TSS	5	I	mg/L	P391525	
	SM 4500 F-C-2011	Fluoride	0.17		mg F/L	P391030	
2211715	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P391079	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P391554	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P391096	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P391057	
	SM 5310 B-2011	Organic Carbon	9.6		mg C/L	P391061	
2211716	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P390932	

Ref. Method and Comment:
SM 2540 D-2011: 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: P390933

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391044

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391079

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391554

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391096

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391057

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390932

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

Reference Method: SM 2320 B-2011
Batch ID: P391137

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

Reference Method: SM 2540 D-2011
Batch ID: P391525

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P391030

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P391061

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391044

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391079

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391554

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391096

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391057

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390932

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

Reference Method: SM 2320 B-2011
Batch ID: P391137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P391030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P391061

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391044

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211714	Bromide	96.3	95.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211854	Ammonia-N	101	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211857	Kjeldahl Nitrogen	94.6	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391096

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211715	NO2NO3-N	94.8	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211650	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211716	O-Phosphate-P	101	103	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P391030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211963	Fluoride	98.4	96.4	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P391061

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211954	Organic Carbon	99.5	99.5	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P390933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211680	Turbidity	6.04	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211714	Bromide	0.596	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211854	Ammonia-N	1.16	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211857	Kjeldahl Nitrogen	2.78	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391096

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211715	NO2NO3-N	0.529	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211650	Total-P	0.138	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211716	O-Phosphate-P	1.96	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P391137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212395	Total Alkalinity	1.88	Sample	P	0 - 8.1

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P391030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211963	Fluoride	1.43	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P391061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211954	Organic Carbon	0.0	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A102456
Included Lab Sample IDs: 2211714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	98.0	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A102499
Included Lab Sample IDs: 2211716

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A102500
Included Lab Sample IDs: 2211714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	104	P/P	95 - 105

Reference Method: SM 4500 F-C-2011
Run ID: A102541
Included Lab Sample IDs: 2211714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	101	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A102548
Included Lab Sample IDs: 2211715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.1	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A102553
Included Lab Sample IDs: 2211715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.0	96.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A102566
Included Lab Sample IDs: 2211715

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

Reference Method: SM 2320 B-2011
Run ID: A102580
Included Lab Sample IDs: 2211714

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A102603
Included Lab Sample IDs: 2211715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A102729
Included Lab Sample IDs: 2211715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.7	98.5	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					6.04	
EPA 300.0 Rev. 2.1	Bromide	99.0	96.3	95.4			0.596
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	101	99.2			1.16
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	94.6	97.7			2.78
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	94.8	94.3			0.529
EPA 365.1 Rev. 2.0	Total-P	107	102	102			0.138
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	101	103			1.96
SM 2320 B-2011	Total Alkalinity	103				1.88	
SM 4500 F-C-2011	Fluoride	95.6	98.4	96.4			1.43
SM 5310 B-2011	Organic Carbon	99.2	99.5	99.5			0.0

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2211714
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2211714
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2211715
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2211715
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2211715
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2211715
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2211716
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2211714
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2211714
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2211714
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2211715

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	12/09/2020			12/09/2020 15:09	Yen Ta	2211714
EPA 300.0 Rev. 2.1	12/09/2020			12/10/2020 15:27	Lipi Saha	2211714
EPA 350.1 Rev. 2.0	12/09/2020			12/13/2020 14:17	Ping Hua	2211715
EPA 351.2 Rev. 2.0	12/09/2020	12/21/2020 14:46	David Boose	12/22/2020 13:45	Julia Storbeck	2211715
EPA 353.2 Rev. 2.0	12/09/2020			12/14/2020 10:15	Beverly Y. Sanders	2211715
EPA 365.1 Rev. 2.0	12/09/2020	12/11/2020 17:49	Madeline Gruver	12/15/2020 14:44	Shengyu Wang	2211715
EPA 365.1 Rev. 2.0 dissolved	12/09/2020			12/09/2020 14:54	Blanca Fach	2211716
SM 2320 B-2011	12/09/2020			12/15/2020 02:40	Dale L. Simmons	2211714
SM 2540 D-2011	12/09/2020			12/14/2020 15:56	Yijie Li	2211714
SM 4500 F-C-2011	12/09/2020			12/10/2020 20:25	Dale L. Simmons	2211714
SM 5310 B-2011	12/09/2020			12/10/2020 23:35	Madeline Gruver	2211715