

Chemical Analysis Report

SO-DIST-2020-12-03-01

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

Event Description: **2020 SMP : Last Huston Bay**
Request ID: **RQ-2020-11-30-46**
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: Nicole Reistad

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: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 21-DEC-2020 16:45



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: 8063 @ Gordon Pass

Collection Date/Time: 12/02/2020 12:15

Field ID: G1SD0060

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2210254	EPA 180.1 Rev. 2.0	Turbidity	27		NTU	P390669	
	EPA 300.0 Rev. 2.1	Bromide	68		mg Br/L	P390929	
	SM 2320 B-2011	Total Alkalinity	118		mg CaCO3/L	P390811	
	SM 2540 D-2011	TSS	22	A	mg/L	P390958	
	SM 4500 F-C-2011	Fluoride	1.3		mg F/L	P390807	
2210255	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P391074	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40	I	mg N/L	P390833	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P390761	
	EPA 365.1 Rev. 2.0	Total-P	0.065		mg P/L	P390862	
	SM 5310 B-2011	Organic Carbon	2.7		mg C/L	P390898	
2210256	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P390663	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P390669

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390929

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391074

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P390833

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390761

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390862

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390663

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

Reference Method: SM 2320 B-2011
Batch ID: P390811

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

Reference Method: SM 2540 D-2011
Batch ID: P390958

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P390807

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P390898

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: P390929

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	99.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P391074

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P390833

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P390761

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P390862

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P390663

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.9		P	90 - 110

Reference Method: SM 2320 B-2011
 Batch ID: P390811

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	93 - 104

Reference Method: SM 4500 F-C-2011
 Batch ID: P390807

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.0		P	90 - 106

Reference Method: SM 5310 B-2011
 Batch ID: P390898

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2210358	Bromide	97.2	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2210255	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P390833

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2210284	Kjeldahl Nitrogen	115	112	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2209449	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390862

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2209878	Total-P	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390663

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2210247	O-Phosphate-P	99.9	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P390807

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2210280	Fluoride	99.6	102	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P390898

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2210942	Organic Carbon	99.4	98.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P390669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210203	Turbidity	0.697	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210358	Bromide	2.28	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210255	Ammonia-N	0.130	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P390833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210284	Kjeldahl Nitrogen	2.02	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2209449	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2209878	Total-P	1.42	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390663

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210247	O-Phosphate-P	0.227	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P390811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210941	Total Alkalinity	0.271	Sample	P	0 - 8.1

Quality Assurance Report Precision

Reference Method: SM 2540 D-2011
Batch ID: P390958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210254	TSS	9.01	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P390807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210280	Fluoride	1.39	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P390898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210942	Organic Carbon	0.753	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A102399

Included Lab Sample IDs: 2210256

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A102402

Included Lab Sample IDs: 2210254

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102442

Included Lab Sample IDs: 2210255

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102456

Included Lab Sample IDs: 2210254

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

Reference Method: SM 4500 F-C-2011

Run ID: A102458

Included Lab Sample IDs: 2210254

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

Reference Method: SM 2320 B-2011

Run ID: A102461

Included Lab Sample IDs: 2210254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.8	104	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A102488

Included Lab Sample IDs: 2210255

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102547

Included Lab Sample IDs: 2210255

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.2	98.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102553

Included Lab Sample IDs: 2210255

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.5	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102570

Included Lab Sample IDs: 2210255

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	96.8	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					0.697	
EPA 300.0 Rev. 2.1	Bromide	99.2	97.2	99.5			2.28
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	102	102			0.130
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	115	112			2.02
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	100	99.5			0.501
EPA 365.1 Rev. 2.0	Total-P	106	105	103			1.42
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.9	99.9	99.6			0.227
SM 2320 B-2011	Total Alkalinity	102				0.271	
SM 2540 D-2011	TSS					9.01	
SM 4500 F-C-2011	Fluoride	95.0	99.6	102			1.39
SM 5310 B-2011	Organic Carbon	102	99.4	98.6			0.753

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2210254
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2210254
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2210255
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2210255
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2210255
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2210255
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2210256
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2210254
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2210254
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2210254
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2210255

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	12/03/2020			12/03/2020 15:58	Yen Ta	2210254
EPA 300.0 Rev. 2.1	12/03/2020			12/08/2020 16:50	Lipi Saha	2210254
EPA 350.1 Rev. 2.0	12/03/2020			12/13/2020 10:48	Ping Hua	2210255
EPA 351.2 Rev. 2.0	12/03/2020	12/07/2020 15:00	David Boose	12/11/2020 16:58	Julia Storbeck	2210255
EPA 353.2 Rev. 2.0	12/03/2020			12/07/2020 11:01	Beverly Y. Sanders	2210255
EPA 365.1 Rev. 2.0	12/03/2020	12/08/2020 17:16	Yen Ta	12/14/2020 11:54	Lipi Saha	2210255
EPA 365.1 Rev. 2.0 dissolved	12/03/2020			12/03/2020 15:39	Samantha Davila	2210256
SM 2320 B-2011	12/03/2020			12/08/2020 01:43	Dale L. Simmons	2210254
SM 2540 D-2011	12/03/2020			12/04/2020 15:10	Yijie Li	2210254
SM 4500 F-C-2011	12/03/2020			12/04/2020 21:30	Dale L. Simmons	2210254
SM 5310 B-2011	12/03/2020			12/09/2020 05:55	David Boose	2210255