

Chemical Analysis Report

SO-DIST-2020-06-25-01

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

Event Description: **2020 SMP : Small Highlands**
Request ID: **RQ-2020-04-06-36**
Customer: **SO-DIST**
Project ID: **SMP**

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Date Certified: 13-JUL-2020 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 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: Lake Damon @ Middle

Collection Date/Time: 06/24/2020 09:55

Field ID: G4SD0168

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2178640	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P383686	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P383969	
		Sulfate	39		mg SO4/L	P383973	
	SM 2120 B-2011	Color (true)	8.7		PCU	P383692	
	SM 2320 B-2011	Total Alkalinity	23		mg CaCO3/L	P383781	
	SM 2540 C-2011	TDS	135		mg/L	P383892	
	SM 2540 D-2011	TSS	2	U	mg/L	P383826	
	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P383784	
2178641	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P383768	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36		mg N/L	P383880	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P383799	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P383811	
	SM 5310 B-2011	Organic Carbon	4.1		mg C/L	P383902	
2178642	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P383748	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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: P383686

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383969

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383973

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383768

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383880

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383799

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383811

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383748

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

Reference Method: SM 2120 B-2011
Batch ID: P383692

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P383781

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

Reference Method: SM 2540 C-2011
Batch ID: P383892

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P383826

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P383784

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P383902

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: P383969

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P383973

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P383768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	90.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P383880

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P383799

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P383811

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P383748

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

Reference Method: SM 2120 B-2011
 Batch ID: P383692

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-2011
 Batch ID: P383781

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P383784

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P383902

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: P383969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178462	Chloride	103		P	90 - 110
2178597	Chloride	110		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P383973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178462	Sulfate	105		P	90 - 110
2178597	Sulfate	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P383768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178641	Ammonia-N	100	90.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P383880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178658	Kjeldahl Nitrogen	95.6	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P383799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178538	NO2NO3-N	98.2	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P383811

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178598	Total-P	102	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P383748

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178642	O-Phosphate-P	94.7	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
 Batch ID: P383784

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178739	Fluoride	98.9	96.4	P/P	94 - 107

Reference Method: SM 5310 B-2011
 Batch ID: P383902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178646	Organic Carbon	108	110	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178645	Turbidity	2.83	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178597	Chloride	1.37	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178641	Ammonia-N	9.71	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178658	Kjeldahl Nitrogen	4.16	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178538	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178598	Total-P	2.20	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178642	O-Phosphate-P	4.34	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P383692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178528	Color (true)	0.851	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P383781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178739	Total Alkalinity	1.61	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P383892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178594	TDS	1.01	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P383784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178739	Fluoride	1.97	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P383902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178646	Organic Carbon	1.64	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A99523

Included Lab Sample IDs: 2178640

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

Reference Method: SM 2120 B-2011

Run ID: A99525

Included Lab Sample IDs: 2178640

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.4	99.7	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A99548

Included Lab Sample IDs: 2178642

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.8	96.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A99556

Included Lab Sample IDs: 2178641

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	94.9	103	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A99560

Included Lab Sample IDs: 2178640

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

Reference Method: SM 4500 F-C-2011

Run ID: A99560

Included Lab Sample IDs: 2178640

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A99570

Included Lab Sample IDs: 2178641

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO ₂ NO ₃ -N	101	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A99616

Included Lab Sample IDs: 2178641

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A99617

Included Lab Sample IDs: 2178641

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	94.5	93.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A99625

Included Lab Sample IDs: 2178641

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.9	97.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A99640

Included Lab Sample IDs: 2178640

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Sulfate	102	102	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					2.83	
EPA 300.0 Rev. 2.1	Chloride	103	110	103		1.37	
	Sulfate	106	106	105			
EPA 350.1 Rev. 2.0	Ammonia-N	90.2	100	90.5			9.71
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.6	95.6	101			4.16
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	98.2	98.2			0.0
EPA 365.1 Rev. 2.0	Total-P	97.5	102	98.8			2.20
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	94.7	98.9			4.34
SM 2120 B-2011	Color (true)	100				0.851	
SM 2320 B-2011	Total Alkalinity	102				1.61	
SM 2540 C-2011	TDS					1.01	
SM 4500 F-C-2011	Fluoride	96.9	98.9	96.4			1.97
SM 5310 B-2011	Organic Carbon	102	108	110			1.64

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2178640
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2178640
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2178640
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2178641
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2178641
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2178641
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2178641
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2178642
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2178640
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2178640
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2178640
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2178640
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2178640
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2178641

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	06/25/2020			06/25/2020 14:42	Yen Ta	2178640
EPA 300.0 Rev. 2.1	06/25/2020			06/30/2020 11:59	Julia Storbeck	2178640
EPA 350.1 Rev. 2.0	06/25/2020			06/27/2020 16:41	Ping Hua	2178641
EPA 351.2 Rev. 2.0	06/25/2020	06/30/2020 14:30	Jhamieka S. Greenwood	07/01/2020 10:43	Jhamieka S. Greenwood	2178641
EPA 353.2 Rev. 2.0	06/25/2020			06/29/2020 09:36	Beverly Y. Sanders	2178641
EPA 365.1 Rev. 2.0	06/25/2020	06/29/2020 13:17	Yen Ta	07/01/2020 08:24	Lipi Saha	2178641
EPA 365.1 Rev. 2.0 dissolved	06/25/2020			06/25/2020 16:25	Carlos Miranda	2178642
SM 2120 B-2011	06/25/2020			06/25/2020 16:31	Madeline Gruver	2178640
SM 2320 B-2011	06/25/2020			06/26/2020 20:37	Dale L. Simmons	2178640
SM 2540 C-2011	06/25/2020			06/26/2020 21:00	Madeline Gruver	2178640
SM 2540 D-2011	06/25/2020			06/26/2020 21:42	Madeline Gruver	2178640
SM 4500 F-C-2011	06/25/2020			06/26/2020 20:37	Dale L. Simmons	2178640
SM 5310 B-2011	06/25/2020			06/30/2020 17:58	David Boose	2178641