

Chemical Analysis Report

SW-DIST-2020-09-25-03

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

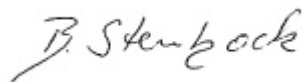
Event Description: **Lakes Scott and Gordon**
Request ID: **RQ-2020-09-14-08**
Customer: **SW-DIST**
Project ID: **SMP**

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Date Certified: 14-OCT-2020 15:31



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 Gordon - Center

Collection Date/Time: 09/24/2020 12:15

Field ID: G3SW0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2198189	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P387873	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P388092	
		Sulfate	5.5		mg SO4/L	P388096	
	SM 2120 B-2011	Color (true)	13		PCU	P387875	
	SM 2320 B-2011	Total Alkalinity	41		mg CaCO3/L	P388086	
	SM 2540 C-2011	TDS	60		mg/L	P388198	
	SM 2540 D-2011	TSS	2	I	mg/L	P388201	
	SM 4500 F-C-2011	Fluoride	0.078	I	mg F/L	P388089	
2198190	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P387893	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P387979	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P387913	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P388276	MS
	SM 5310 B-2011	Organic Carbon	4.1		mg C/L	P387983	
2198191	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P387881	

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: P387873

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388092

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388096

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387893

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387979

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387913

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388276

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387881

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

Reference Method: SM 2120 B-2011
Batch ID: P387875

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P388086

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

Reference Method: SM 2540 C-2011
Batch ID: P388198

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P388201

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P388089

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P387983

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: P388092

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388096

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387893

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387979

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387913

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388276

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387881

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

Reference Method: SM 2120 B-2011
Batch ID: P387875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.9		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P388086

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.8		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P388089

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P387983

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197720	Chloride	103		P	90 - 110
2197931	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388096

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197720	Sulfate	98.9		P	90 - 110
2197931	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387893

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2198190	Ammonia-N	100	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387979

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2198099	Kjeldahl Nitrogen	99.2	88.0	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2198190	NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2198162	Total-P	110	109	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2198233	O-Phosphate-P	99.7	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P388089

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2198744	Fluoride	97.8	96.1	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P387983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2198168	Organic Carbon	98.4	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P387873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2198231	Turbidity	0.733	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197720	Chloride	0.719	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388096

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197720	Sulfate	0.320	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387893

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2198190	Ammonia-N	1.89	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2198099	Kjeldahl Nitrogen	8.13	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2198190	NO2NO3-N	0.506	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2198162	Total-P	0.649	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2198233	O-Phosphate-P	0.100	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
 Batch ID: P387875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2198098	Color (true)	2.53	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P388086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2198744	Total Alkalinity	1.35	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
 Batch ID: P388198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2198167	TDS	1.35	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P388089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2198744	Fluoride	1.42	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
 Batch ID: P387983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2198168	Organic Carbon	0.927	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: A101205

Included Lab Sample IDs: 2198189

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A101207

Included Lab Sample IDs: 2198189

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	102	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A101209

Included Lab Sample IDs: 2198191

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A101212

Included Lab Sample IDs: 2198190

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A101223

Included Lab Sample IDs: 2198190

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

Reference Method: SM 5310 B-2011

Run ID: A101262

Included Lab Sample IDs: 2198190

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A101281

Included Lab Sample IDs: 2198189

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	107	107	P/P	90 - 110
Sulfate	105	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A101288

Included Lab Sample IDs: 2198190

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.3	95.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A101307

Included Lab Sample IDs: 2198189

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A101307

Included Lab Sample IDs: 2198189

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101428

Included Lab Sample IDs: 2198190

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.5	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					0.733	
EPA 300.0 Rev. 2.1	Chloride	105	103	103		0.719	
	Sulfate	103	98.9	100		0.320	
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	100	98.4			1.89
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	92.5	99.2	88.0			8.13
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.0	99.0	98.5			0.506
EPA 365.1 Rev. 2.0	Total-P	103	110	109			0.649
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.7	99.6			0.100
SM 2120 B-2011	Color (true)	98.9				2.53	
SM 2320 B-2011	Total Alkalinity	98.8				1.35	
SM 2540 C-2011	TDS					1.35	
SM 4500 F-C-2011	Fluoride	98.2	97.8	96.1			1.42
SM 5310 B-2011	Organic Carbon	101	98.4	100			0.927

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2198189
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2198189
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2198189
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2198190
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2198190
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2198190
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2198190
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2198191
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2198189
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2198189
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2198189
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2198189
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2198189
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2198190

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	09/25/2020			09/25/2020 14:41	Yen Ta	2198189
EPA 300.0 Rev. 2.1	09/25/2020			09/30/2020 23:45	Lipi Saha	2198189
EPA 350.1 Rev. 2.0	09/25/2020			09/27/2020 10:41	Ping Hua	2198190
EPA 351.2 Rev. 2.0	09/25/2020	09/29/2020 15:45	David Boose	09/30/2020 12:56	Elliott Rodriguez	2198190
EPA 353.2 Rev. 2.0	09/25/2020			09/28/2020 09:52	Beverly Y. Sanders	2198190
EPA 365.1 Rev. 2.0	09/25/2020	10/06/2020 12:50	Yen Ta	10/08/2020 11:54	Lipi Saha	2198190
EPA 365.1 Rev. 2.0 dissolved	09/25/2020			09/25/2020 17:19	Julia Storbeck	2198191
SM 2120 B-2011	09/25/2020			09/25/2020 15:50	Benjamin T. Nordmann	2198189
SM 2320 B-2011	09/25/2020			09/30/2020 19:39	Dale L. Simmons	2198189
SM 2540 C-2011	09/25/2020			09/28/2020 15:25	Yijie Li	2198189
SM 2540 D-2011	09/25/2020			09/28/2020 15:25	Yijie Li	2198189
SM 4500 F-C-2011	09/25/2020			09/30/2020 19:39	Dale L. Simmons	2198189
SM 5310 B-2011	09/25/2020			09/29/2020 10:25	David Boose	2198190