

Chemical Analysis Report

SW-DIST-2020-10-16-01

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

Event Description: **Lakes Scott and Gordon**
Request ID: **RQ-2020-10-12-05**
Customer: **SW-DIST**
Project ID: **SMP**

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Date Certified: 06-NOV-2020 08:52



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: 10/15/2020 10:55

Field ID: G3SW0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2202889	EPA 180.1 Rev. 2.0	Turbidity	0.45		NTU	P388814	
	EPA 300.0 Rev. 2.1	Chloride	9.8		mg Cl/L	P389333	
		Sulfate	5.6		mg SO4/L	P389336	
	SM 2120 B-2011	Color (true)	14		PCU	P388797	
	SM 2320 B-2011	Total Alkalinity	42		mg CaCO3/L	P389112	
	SM 2540 C-2011	TDS	63		mg/L	P389379	
	SM 2540 D-2011	TSS	2	U	mg/L	P389307	
	SM 4500 F-C-2011	Fluoride	0.074	I	mg F/L	P389117	
2202890	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P388848	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P389090	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P388933	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P389172	
	SM 5310 B-2011	Organic Carbon	3.5		mg C/L	P388948	
2202891	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P388821	

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: P388814

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389333

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389336

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388848

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389090

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388933

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389172

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388821

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

Reference Method: SM 2120 B-2011
Batch ID: P388797

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P389112

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

Reference Method: SM 2540 C-2011
Batch ID: P389379

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P389307

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P389117

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P388948

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: P389333

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389336

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388848

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389090

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388933

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389172

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: P388821

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

Reference Method: SM 2120 B-2011
Batch ID: P388797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P389112

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.7		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P389117

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P388948

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202412	Chloride	103		P	90 - 110
2202832	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202412	Sulfate	103		P	90 - 110
2202832	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388848

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202927	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389090

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202890	Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388933

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202874	NO2NO3-N	99.8	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202833	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202796	O-Phosphate-P	97.9	97.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P389117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202774	Fluoride	99.1	103	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P388948

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202890	Organic Carbon	94.1	95.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P388814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202800	Turbidity	2.74	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202412	Chloride	0.105	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202412	Sulfate	0.161	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202927	Ammonia-N	1.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202890	Kjeldahl Nitrogen	0.865	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202874	NO2NO3-N	1.33	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202833	Total-P	0.0902	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202796	O-Phosphate-P	0.466	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
 Batch ID: P388797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202775	Color (true)	0.0556	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P389112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202774	Total Alkalinity	0.527	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
 Batch ID: P389379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202794	TDS	1.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P389117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202774	Fluoride	0.928	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
 Batch ID: P388948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202890	Organic Carbon	1.07	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B-2011

Run ID: A101564

Included Lab Sample IDs: 2202889

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A101567

Included Lab Sample IDs: 2202889

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A101569

Included Lab Sample IDs: 2202891

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A101575

Included Lab Sample IDs: 2202890

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A101626

Included Lab Sample IDs: 2202890

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

Reference Method: SM 5310 B-2011

Run ID: A101631

Included Lab Sample IDs: 2202890

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	94.6	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A101694

Included Lab Sample IDs: 2202889

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.7	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A101694

Included Lab Sample IDs: 2202889

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A101723

Included Lab Sample IDs: 2202890

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101787

Included Lab Sample IDs: 2202890

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	93.8	94.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A101798

Included Lab Sample IDs: 2202889

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					2.74	
EPA 300.0 Rev. 2.1	Chloride	102	103	102		0.105	
	Sulfate	103	103	103		0.161	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	102			1.01
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	103	104			0.865
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	99.8	98.3			1.33
EPA 365.1 Rev. 2.0	Total-P	106	107	107			0.0902
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.6	97.9	97.4			0.466
SM 2120 B-2011	Color (true)	99.9				0.0556	
SM 2320 B-2011	Total Alkalinity	99.7				0.527	
SM 2540 C-2011	TDS					1.90	
SM 4500 F-C-2011	Fluoride	98.3	99.1	103			0.928
SM 5310 B-2011	Organic Carbon	94.8	94.1	95.3			1.07

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2202889
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2202889
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2202889
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2202890
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2202890
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2202890
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2202890
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2202891
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2202889
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2202889
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2202889
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2202889
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2202889
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2202890

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	10/16/2020			10/16/2020 15:33	Yen Ta	2202889
EPA 300.0 Rev. 2.1	10/16/2020			10/27/2020 11:46	Lipi Saha	2202889
EPA 350.1 Rev. 2.0	10/16/2020			10/18/2020 13:29	Ping Hua	2202890
EPA 351.2 Rev. 2.0	10/16/2020	10/22/2020 13:36	David Boose	10/23/2020 12:06	Elliott Rodriguez	2202890
EPA 353.2 Rev. 2.0	10/16/2020			10/20/2020 10:26	Beverly Y. Sanders	2202890
EPA 365.1 Rev. 2.0	10/16/2020	10/23/2020 15:15	Shengyu Wang	10/27/2020 10:10	Shengyu Wang	2202890
EPA 365.1 Rev. 2.0 dissolved	10/16/2020			10/16/2020 15:54	Samantha Davila	2202891
SM 2120 B-2011	10/16/2020			10/16/2020 13:08	Blanca Fach	2202889
SM 2320 B-2011	10/16/2020			10/22/2020 04:52	Samantha Davila	2202889
SM 2540 C-2011	10/16/2020			10/21/2020 15:19	Yijie Li	2202889
SM 2540 D-2011	10/16/2020			10/21/2020 15:19	Yijie Li	2202889
SM 4500 F-C-2011	10/16/2020			10/22/2020 04:52	Samantha Davila	2202889
SM 5310 B-2011	10/16/2020			10/20/2020 04:56	Lauren Lees	2202890