

Chemical Analysis Report

SW-DIST-2021-06-22-01

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

Event Description: **Run 14**
Request ID: **RQ-2021-06-14-50**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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Certified by: Colin Wright, Program Administrator

Date Certified: 15-JUL-2021 10:40

A handwritten signature in black ink, appearing to read "Colin Wright", is shown on a light-colored rectangular background.

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: 06/21/2021 12:25

Field ID: G3SW0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2256276	EPA 180.1 Rev. 2.0	Turbidity	0.45		NTU	P400060	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P400551	
		Sulfate	6.8		mg SO4/L	P400554	
	SM 2120 B-2011	Color (true)	12		PCU	P400067	
	SM 2320 B-2011	Total Alkalinity	44		mg CaCO3/L	P400372	
	SM 2540 C-2011	TDS	79		mg/L	P400470	
	SM 2540 D-2011	TSS	2	U	mg/L	P400243	
	SM 4500 F-C-2011	Fluoride	0.091	I	mg F/L	P400375	
2256277	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P400413	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P400320	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P400096	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P400300	
	SM 5310 B-2011	Organic Carbon	4.0		mg C/L	P400532	
2256278	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P400065	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high 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.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400060

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400551

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400554

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400413

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400320

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400096

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400300

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400065

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

Reference Method: SM 2120 B-2011
Batch ID: P400067

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P400372

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

Reference Method: SM 2540 C-2011
Batch ID: P400470

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P400243

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P400375

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P400532

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: P400551

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400554

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400320

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400096

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: P400300

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400065

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

Reference Method: SM 2120 B-2011
Batch ID: P400067

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

Reference Method: SM 2320 B-2011
Batch ID: P400372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P400375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P400532

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: P400551

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256267	Chloride	97.7		P	90 - 110
2256634	Chloride	97.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256267	Sulfate	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256269	Ammonia-N	96.4	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400096

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256239	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256283	Total-P	108	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256278	O-Phosphate-P	100	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P400375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256032	Fluoride	99.6	99.6	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P400532

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256635	Organic Carbon	95.5	96.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256135	Turbidity	1.88	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256267	Chloride	0.560	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256267	Sulfate	0.621	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256269	Ammonia-N	1.97	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256269	Kjeldahl Nitrogen	0.437	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400096

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256239	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256283	Total-P	3.82	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256278	O-Phosphate-P	1.51	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P400067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256118	Color (true)	7.99	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P400372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256032	Total Alkalinity	0.267	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P400470

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256190	TDS	1.57	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P400375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256032	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P400532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256635	Organic Carbon	0.640	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: A106220

Included Lab Sample IDs: 2256276

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A106221

Included Lab Sample IDs: 2256278

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	97.9	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A106222

Included Lab Sample IDs: 2256276

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.8	99.3	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106232

Included Lab Sample IDs: 2256277

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

Reference Method: SM 2320 B-2011

Run ID: A106363

Included Lab Sample IDs: 2256276

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.2	104	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A106363

Included Lab Sample IDs: 2256276

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A106366

Included Lab Sample IDs: 2256277

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106372

Included Lab Sample IDs: 2256277

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	98.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A106395

Included Lab Sample IDs: 2256277

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.6	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A106423

Included Lab Sample IDs: 2256276

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Sulfate	100	99.6	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A106432

Included Lab Sample IDs: 2256277

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.6	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		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				1.88	
EPA 300.0 Rev. 2.1	Chloride	101	97.7	97.8	0.560	
	Sulfate	100	98.2		0.621	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	96.4	98.8		1.97
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107				0.437
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	100	100		0.0
EPA 365.1 Rev. 2.0	Total-P	105	108	103		3.82
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.0	100	98.7		1.51
SM 2120 B-2011	Color (true)	100			7.99	
SM 2320 B-2011	Total Alkalinity	102			0.267	
SM 2540 C-2011	TDS				1.57	
SM 4500 F-C-2011	Fluoride	101	99.6	99.6		0.0
SM 5310 B-2011	Organic Carbon	94.8	95.5	96.4		0.640

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2256276
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2256276
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2256276
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2256277
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2256277
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2256277
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2256277
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2256278
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2256276
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2256276
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2256276
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2256276
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2256276
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2256277

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	06/22/2021			06/22/2021 15:04	Sarah A Nixon	2256276
EPA 300.0 Rev. 2.1	06/22/2021			07/02/2021 15:21	Lipi Saha	2256276
EPA 350.1 Rev. 2.0	06/22/2021			06/30/2021 12:39	Roberta Tatti	2256277
EPA 351.2 Rev. 2.0	06/22/2021	06/29/2021 12:54	Benjamin T. Nordmann	06/30/2021 18:22	Letuzia M De Oliveira	2256277
EPA 353.2 Rev. 2.0	06/22/2021			06/23/2021 09:23	Beverly Y. Sanders	2256277
EPA 365.1 Rev. 2.0	06/22/2021	06/28/2021 17:29	Madeline Gruver	06/30/2021 11:09	Shengyu Ding	2256277
EPA 365.1 Rev. 2.0 dissolved	06/22/2021			06/22/2021 16:03	Ping Hua	2256278
SM 2120 B-2011	06/22/2021			06/22/2021 15:52	Benjamin T. Nordmann	2256276
SM 2320 B-2011	06/22/2021			06/30/2021 00:52	Dale L. Simmons	2256276
SM 2540 C-2011	06/22/2021			06/24/2021 14:15	Yijie Li	2256276
SM 2540 D-2011	06/22/2021			06/24/2021 14:15	Yijie Li	2256276
SM 4500 F-C-2011	06/22/2021			06/30/2021 00:52	Dale L. Simmons	2256276
SM 5310 B-2011	06/22/2021			06/30/2021 21:49	Madeline Gruver	2256277