

Chemical Analysis Report

SW-DIST-2021-06-15-01

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: Liang Lin, Environmental Administrator

Date Certified: 09-JUL-2021 14:31

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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: Crystal Lake @ Center

Collection Date/Time: 06/14/2021 11:20

Field ID: G3SW0076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2255006	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P399733	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P399908	
		Sulfate	5.9		mg SO4/L	P399910	
	SM 2120 B-2011	Color (true)	20		PCU	P399727	
	SM 2320 B-2011	Total Alkalinity	53		mg CaCO3/L	P399965	
	SM 2540 C-2011	TDS	97		mg/L	P400230	
	SM 2540 D-2011	TSS	5	I	mg/L	P400045	
	SM 4500 F-C-2011	Fluoride	0.25		mg F/L	P399969	MS
2255007	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P400177	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P399934	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P399763	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P400186	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P400250	
2255008	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P399724	

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: P399733

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399908

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399910

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400177

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399934

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399763

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400186

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399724

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

Reference Method: SM 2120 B-2011
Batch ID: P399727

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P399965

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

Reference Method: SM 2540 C-2011
Batch ID: P400230

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P400045

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P399969

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P400250

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: P399908

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399910

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400177

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399934

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399763

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: P400186

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399724

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

Reference Method: SM 2120 B-2011
Batch ID: P399727

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.9		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P399965

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P399969

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

Reference Method: SM 5310 B-2011
Batch ID: P400250

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254844	Chloride	97.4		P	90 - 110
2255034	Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254844	Sulfate	98.1		P	90 - 110
2255034	Sulfate	96.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255013	Ammonia-N	94.8	96.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399934

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254876	Kjeldahl Nitrogen	96.7	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399763

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254876	NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254971	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399724

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254900	O-Phosphate-P	100	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P399969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255065	Fluoride	108	107	F/F	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P400250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254932	Organic Carbon	93.9	95.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P399733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254928	Turbidity	4.95	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254844	Chloride	0.164	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254844	Sulfate	1.13	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255013	Ammonia-N	1.53	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399934

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254876	Kjeldahl Nitrogen	0.864	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254876	NO2NO3-N	0.509	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254971	Total-P	0.131	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254900	O-Phosphate-P	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P399727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254970	Color (true)	0.450	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P399965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255065	Total Alkalinity	0.0720	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P400230

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254930	TDS	6.57	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P399969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255065	Fluoride	0.462	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P400250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254932	Organic Carbon	0.935	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: A106081

Included Lab Sample IDs: 2255008

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	98.2	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A106082

Included Lab Sample IDs: 2255006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	99.6	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A106084

Included Lab Sample IDs: 2255006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106098

Included Lab Sample IDs: 2255007

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A106105

Included Lab Sample IDs: 2255006

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

Reference Method: SM 2320 B-2011

Run ID: A106182

Included Lab Sample IDs: 2255006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	96.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A106182

Included Lab Sample IDs: 2255006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A106212

Included Lab Sample IDs: 2255007

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.7	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106261

Included Lab Sample IDs: 2255007

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.5	98.7	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A106304

Included Lab Sample IDs: 2255007

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.1	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A106366

Included Lab Sample IDs: 2255007

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	95.0	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				4.95	
EPA 300.0 Rev. 2.1	Chloride	99.4	97.4	98.8	0.164	
	Sulfate	95.9	98.1	96.9	1.13	
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	94.8	96.4		1.53
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.4	96.7	98.2		0.864
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	98.5	98.0		0.509
EPA 365.1 Rev. 2.0	Total-P	104	105	105		0.131
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	100	100		0.0
SM 2120 B-2011	Color (true)	97.9			0.450	
SM 2320 B-2011	Total Alkalinity	101			0.0720	
SM 2540 C-2011	TDS				6.57	
SM 4500 F-C-2011	Fluoride	101	108	107		0.462
SM 5310 B-2011	Organic Carbon	96.2	93.9	95.2		0.935

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2255006
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2255006
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2255006
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2255007
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2255007
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2255007
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2255007
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2255008
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2255006
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2255006
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2255006
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2255006
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2255006
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2255007

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	06/15/2021			06/15/2021 15:51	Sarah A Nixon	2255006
EPA 300.0 Rev. 2.1	06/15/2021			06/17/2021 22:45	Lipi Saha	2255006
EPA 350.1 Rev. 2.0	06/15/2021			06/24/2021 13:48	Roberta Tatti	2255007
EPA 351.2 Rev. 2.0	06/15/2021	06/18/2021 14:20	Benjamin T. Nordmann	06/21/2021 12:54	Letuzia M De Oliveira	2255007
EPA 353.2 Rev. 2.0	06/15/2021			06/16/2021 09:21	Beverly Y. Sanders	2255007
EPA 365.1 Rev. 2.0	06/15/2021	06/24/2021 16:53	Madeline Gruver	06/30/2021 10:03	Shengyu Ding	2255007
EPA 365.1 Rev. 2.0 dissolved	06/15/2021			06/15/2021 15:28	Ping Hua	2255008
SM 2120 B-2011	06/15/2021			06/15/2021 16:37	Sarah A Nixon	2255006
SM 2320 B-2011	06/15/2021			06/19/2021 07:33	Dale L. Simmons	2255006
SM 2540 C-2011	06/15/2021			06/18/2021 15:41	Yijie Li	2255006
SM 2540 D-2011	06/15/2021			06/18/2021 15:41	Yijie Li	2255006
SM 4500 F-C-2011	06/15/2021			06/19/2021 07:33	Dale L. Simmons	2255006
SM 5310 B-2011	06/15/2021			06/24/2021 02:21	Madeline Gruver	2255007