Chemical Analysis Report

SW-DIST-2021-06-16-01

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

Event Description: **Little Wilson**
Request ID: **RQ-2021-06-14-61**
Customer: **SW-DIST**
Project ID: **SMP**

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FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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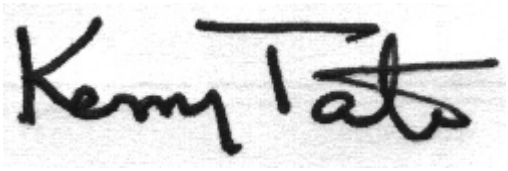
Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 12-JUL-2021 10:10



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: Little Lake Wilson Center **Collection Date/Time: 06/15/2021 12:45**

Field ID: G1SW0006 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2255387	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P399811	
	EPA 300.0 Rev. 2.1	Chloride	69		mg Cl/L	P399976	
		Sulfate	1.7		mg SO4/L	P399979	
	SM 2120 B-2011	Color (true)	32		PCU	P399814	
	SM 2320 B-2011	Total Alkalinity	70	AJ	mg CaCO3/L	P400153	LCS
	SM 2540 C-2011	TDS	215		mg/L	P400232	
	SM 2540 D-2011	TSS	3	I	mg/L	P400047	
	SM 4500 F-C-2011	Fluoride	0.076	I	mg F/L	P400621	
2255388	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P400288	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P399936	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P399868	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P400214	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P400251	
2255389	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P399787	

Ref. Method and Comment:
SM 2320 B-2011: Refer to the Lab Analysis Report for an explanation of QC Codes.
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 relative percent difference is unavailable because of analytical difficulties.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P399811

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399976

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399979

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400288

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399936

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399868

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400214

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399787

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

Reference Method: SM 2120 B-2011
Batch ID: P399814

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P400153

Component	Result	Code	Units
Total Alkalinity	0.72	I	mg CaCO3/L

Reference Method: SM 2540 C-2011
Batch ID: P400232

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P400047

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P400621

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P400251

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: P399976

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399979

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400288

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399936

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	108		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399868

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400214

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: P399787

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

Reference Method: SM 2120 B-2011
Batch ID: P399814

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P400153

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	107		F	94 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P400621

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

Reference Method: SM 5310 B-2011
Batch ID: P400251

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255302	Chloride	98.2		P	90 - 110
2255489	Chloride	94.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399979

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255302	Sulfate	97.2		P	90 - 110
2255489	Sulfate	95.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255303	Ammonia-N	97.4	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399936

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255110	Kjeldahl Nitrogen	103		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399868

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255343	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255388	Total-P	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255304	O-Phosphate-P	96.8	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P400621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2257021	Fluoride	103	103	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P400251

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255306	Organic Carbon	96.3	96.3	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P399811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255107	Turbidity	2.43	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255489	Chloride	0.298	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255489	Sulfate	4.28	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255303	Ammonia-N	0.577	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255343	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255388	Total-P	0.675	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255304	O-Phosphate-P	1.54	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P399814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255342	Color (true)	3.46	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P400153

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255387	Total Alkalinity	0.495	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P400232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255342	TDS	8.96	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P400621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257021	Fluoride	0.469	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P400251

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255306	Organic Carbon	0.0473	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A106105
Included Lab Sample IDs: 2255387

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: EPA 365.1 Rev. 2.0 dissolved
Run ID: A106113
Included Lab Sample IDs: 2255389

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.4	96.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A106120
Included Lab Sample IDs: 2255387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: SM 2120 B-2011
Run ID: A106121
Included Lab Sample IDs: 2255387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A106142
Included Lab Sample IDs: 2255388

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A106244
Included Lab Sample IDs: 2255388

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.2	94.9	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A106248
Included Lab Sample IDs: 2255387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	106	102	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A106304
Included Lab Sample IDs: 2255388

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.3	97.4	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A106327
Included Lab Sample IDs: 2255388

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A106349
Included Lab Sample IDs: 2255388

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A106477
Included Lab Sample IDs: 2255387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	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		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					2.43	
EPA 300.0 Rev. 2.1	Chloride	98.6	94.9	98.2		0.298	
	Sulfate	98.2	95.2	97.2		4.28	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	97.4	98.0			0.577
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	103				
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	105	108	108			0.675
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	96.8	98.3			1.54
SM 2120 B-2011	Color (true)	101				3.46	
SM 2320 B-2011	Total Alkalinity	107				0.495	
SM 2540 C-2011	TDS					8.96	
SM 4500 F-C-2011	Fluoride	101	103	103			0.469
SM 5310 B-2011	Organic Carbon	97.6	96.3	96.3			0.0473

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2255387
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2255387
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2255387
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2255388
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2255388
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2255388
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2255388
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2255389
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2255387
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2255387
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2255387
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2255387
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2255387
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2255388

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	06/16/2021			06/16/2021 15:55	Sarah A Nixon	2255387
EPA 300.0 Rev. 2.1	06/16/2021			06/18/2021 18:18	Lipi Saha	2255387
EPA 350.1 Rev. 2.0	06/16/2021			06/28/2021 13:49	Ping Hua	2255388
EPA 351.2 Rev. 2.0	06/16/2021	06/18/2021 14:20	Benjamin T. Nordmann	06/23/2021 16:06	Letuzia M De Oliveira	2255388
EPA 353.2 Rev. 2.0	06/16/2021			06/17/2021 10:38	Beverly Y. Sanders	2255388
EPA 365.1 Rev. 2.0	06/16/2021	06/25/2021 12:24	Madeline Gruver	06/29/2021 14:43	Shengyu Ding	2255388
EPA 365.1 Rev. 2.0 dissolved	06/16/2021			06/16/2021 11:55	Ping Hua	2255389
SM 2120 B-2011	06/16/2021			06/16/2021 16:49	Madeline Gruver	2255387
SM 2320 B-2011	06/16/2021			06/23/2021 19:13	Patrick M. Roche	2255387
SM 2540 C-2011	06/16/2021			06/18/2021 15:41	Yijie Li	2255387
SM 2540 D-2011	06/16/2021			06/18/2021 15:41	Yijie Li	2255387
SM 4500 F-C-2011	06/16/2021			07/07/2021 07:06	Patrick M. Roche	2255387
SM 5310 B-2011	06/16/2021			06/24/2021 08:46	Madeline Gruver	2255388