Chemical Analysis Report

CEN-DIST-2021-06-10-01

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

Event Description: **Lurna/Jane**
Request ID: **RQ-2021-06-07-71**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
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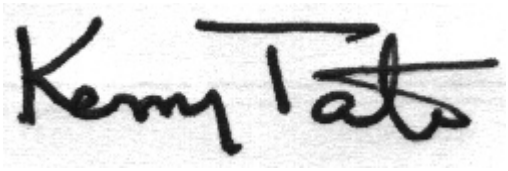
Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 02-JUL-2021 10:07



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 Jane @ Center **Collection Date/Time: 06/09/2021 12:20**

Field ID: G4CE0152 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2254398	EPA 180.1 Rev. 2.0	Turbidity	7.6		NTU	P399530	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P399825	
		Sulfate	9.1		mg SO4/L	P399827	
	SM 2120 B-2011	Color (true)	38		PCU	P399533	
	SM 2320 B-2011	Total Alkalinity	54	J	mg CaCO3/L	P400074	LCS
	SM 2540 C-2011	TDS	131		mg/L	P400003	
	SM 2540 D-2011	TSS	12		mg/L	P399856	
	SM 4500 F-C-2011	Fluoride	0.13		mg F/L	P399739	
2254399	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P399990	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P399715	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P399692	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P400124	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P400167	
2254400	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P399512	

Ref. Method and Comment:
SM 2320 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. 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 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: P399530

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399825

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399827

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399990

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399715

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399692

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400124

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399512

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

Reference Method: SM 2120 B-2011
Batch ID: P399533

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P400074

Component	Result	Code	Units
Total Alkalinity	0.73	I	mg CaCO3/L

Reference Method: SM 2540 C-2011
Batch ID: P400003

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P399856

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P399739

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P400167

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: P399825

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399827

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399990

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: P399715

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.7		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399692

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400124

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399512

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

Reference Method: SM 2120 B-2011
Batch ID: P399533

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

Reference Method: SM 2320 B-2011
Batch ID: P400074

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P399739

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P400167

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.3		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254247	Chloride	100		P	90 - 110
2254404	Chloride	92.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254247	Sulfate	100		P	90 - 110
2254404	Sulfate	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254344	Ammonia-N	98.0	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254350	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254350	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254249	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P399739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254134	Fluoride	102	102	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P400167

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254351	Organic Carbon	96.2	104	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P399530

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254272	Turbidity	5.11	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254247	Chloride	1.15	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254247	Sulfate	1.08	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254344	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254378	Kjeldahl Nitrogen	5.32	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254350	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254350	Total-P	1.25	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254249	O-Phosphate-P	0.797	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P399533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254404	Color (true)	0.400	Sample	P	0 - 20

Reference Method: SM 2540 C-2011
Batch ID: P400003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254349	TDS	4.72	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P399739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254134	Fluoride	0.479	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P400167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254351	Organic Carbon	3.88	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: A105989
Included Lab Sample IDs: 2254400

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A105999
Included Lab Sample IDs: 2254398

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: A106000
Included Lab Sample IDs: 2254398

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A106065
Included Lab Sample IDs: 2254399

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

Reference Method: SM 4500 F-C-2011
Run ID: A106087
Included Lab Sample IDs: 2254398

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A106105
Included Lab Sample IDs: 2254398

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A106117
Included Lab Sample IDs: 2254399

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	90.6	94.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A106195
Included Lab Sample IDs: 2254399

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	99.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-2011
Run ID: A106227
Included Lab Sample IDs: 2254398

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A106255
Included Lab Sample IDs: 2254399

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.9	98.6	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A106258
Included Lab Sample IDs: 2254399

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	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		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					5.11	
EPA 300.0 Rev. 2.1	Chloride	100	100	92.7		1.15	
	Sulfate	99.4	100	95.4		1.08	
EPA 350.1 Rev. 2.0	Ammonia-N	101	98.0	98.0			0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	92.7					5.32
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	100	100			0.0
EPA 365.1 Rev. 2.0	Total-P	99.0	102	103			1.25
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	100	101			0.797
SM 2120 B-2011	Color (true)	101				0.400	
SM 2320 B-2011	Total Alkalinity	106					
SM 2540 C-2011	TDS					4.72	
SM 4500 F-C-2011	Fluoride	102	102	102			0.479
SM 5310 B-2011	Organic Carbon	97.3	96.2	104			3.88

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2254398
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2254398
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2254398
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2254399
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2254399
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2254399
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2254399
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2254400
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2254398
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2254398
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2254398
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2254398
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2254398
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2254399

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	06/10/2021			06/10/2021 14:54	Sarah A Nixon	2254398
EPA 300.0 Rev. 2.1	06/10/2021			06/17/2021 01:22	Lipi Saha	2254398
EPA 350.1 Rev. 2.0	06/10/2021			06/21/2021 12:22	Ping Hua	2254399
EPA 351.2 Rev. 2.0	06/10/2021	06/15/2021 14:18	Benjamin T. Nordmann	06/16/2021 11:48	Virginia P. Brown	2254399
EPA 353.2 Rev. 2.0	06/10/2021			06/15/2021 10:09	Beverly Y. Sanders	2254399
EPA 365.1 Rev. 2.0	06/10/2021	06/23/2021 13:50	Shengyu Ding	06/24/2021 12:34	Shengyu Ding	2254399
EPA 365.1 Rev. 2.0 dissolved	06/10/2021			06/10/2021 13:51	Ping Hua	2254400
SM 2120 B-2011	06/10/2021			06/10/2021 16:30	Madeline Gruver	2254398
SM 2320 B-2011	06/10/2021			06/22/2021 19:56	Patrick M. Roche	2254398
SM 2540 C-2011	06/10/2021			06/15/2021 14:12	Yijie Li	2254398
SM 2540 D-2011	06/10/2021			06/15/2021 14:12	Yijie Li	2254398
SM 4500 F-C-2011	06/10/2021			06/15/2021 19:00	Dale L. Simmons	2254398
SM 5310 B-2011	06/10/2021			06/22/2021 20:54	Madeline Gruver	2254399