

Chemical Analysis Report

CEN-DIST-2019-11-27-01

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

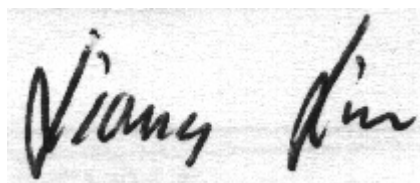
Event Description: **SRJ ab Lk Jesup + HA**
Request ID: **RQ-2019-11-25-31**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 12-DEC-2019 14:04

A handwritten signature in black ink, appearing to read "Liang Lin", 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: SJR @ 950m NE of Lemon Bluff Boat Ramp

Collection Date/Time: 11/26/2019 10:12

Field ID: G2CE0202

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2139593	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P375058	
	EPA 300.0 Rev. 2.1	Chloride	210		mg Cl/L	P375405	
		Sulfate	37		mg SO4/L	P375409	
		Color (true)	260		PCU	P374981	
	SM 2320 B-97	Total Alkalinity	58		mg CaCO3/L	P375318	
	SM 2540 C-97	TDS	466		mg/L	P375552	
	SM 2540 D-97	TSS	2	I	mg/L	P375553	
	SM 4500 F-C-97	Fluoride	0.097	I	mg F/L	P375321	
2139594	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P375391	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P375138	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P375020	
	EPA 365.1 Rev. 2.0	Total-P	0.066		mg P/L	P375273	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P375085	
2139595	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.049		mg P/L	P374970	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples and batch relative percent difference are unavailable because of high analyte concentration in the QC sample.

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-97: 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: P375058

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375405

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375409

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375391

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375138

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375020

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375273

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374970

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

Reference Method: SM 2120 B
Batch ID: P374981

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P375318

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

Reference Method: SM 2540 C-97
Batch ID: P375552

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P375553

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P375321

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P375085

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: P375405

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375409

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375391

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375138

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	106		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375020

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375273

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374970

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.3		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P374981

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

Reference Method: SM 2320 B-97
Batch ID: P375318

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P375321

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P375085

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375405

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139553	Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375409

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139384	Sulfate	98.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375391

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139691	Ammonia-N	99.4	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139555	Kjeldahl Nitrogen	104	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139551	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139594	Total-P	99.7	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139552	O-Phosphate-P	97.5	97.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P375321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140200	Fluoride	97.6	97.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P375085

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139444	Organic Carbon	99.6	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P375058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139550	Turbidity	5.08	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139384	Sulfate	0.450	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139691	Ammonia-N	2.47	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139555	Kjeldahl Nitrogen	2.87	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139551	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139594	Total-P	1.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139552	O-Phosphate-P	0.0947	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P374981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139553	Color (true)	3.05	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P375318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140200	Total Alkalinity	0.0339	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P375552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139550	TDS	4.20	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P375321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140200	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P375085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139444	Organic Carbon	0.355	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: A96014

Included Lab Sample IDs: 2139595

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	93.2	92.1	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A96017

Included Lab Sample IDs: 2139593

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A96040

Included Lab Sample IDs: 2139594

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A96047

Included Lab Sample IDs: 2139593

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A96056

Included Lab Sample IDs: 2139594

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96087

Included Lab Sample IDs: 2139593

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96111

Included Lab Sample IDs: 2139594

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A96148

Included Lab Sample IDs: 2139593

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	108	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A96148

Included Lab Sample IDs: 2139593

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96170

Included Lab Sample IDs: 2139594

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96177

Included Lab Sample IDs: 2139594

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	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					5.08	
EPA 300.0 Rev. 2.1	Chloride	102	99.2				
	Sulfate	101	98.8			0.450	
EPA 350.1 Rev. 2.0	Ammonia-N	99.1	99.4	102			2.47
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	104	108			2.87
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	104	104			0.0
EPA 365.1 Rev. 2.0	Total-P	101	99.7	101			1.45
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	97.5	97.6			0.0947
SM 2120 B	Color (true)	100				3.05	
SM 2320 B-97	Total Alkalinity	103				0.0339	
SM 2540 C-97	TDS					4.20	
SM 4500 F-C-97	Fluoride	96.2	97.6	97.6			0.0
SM 5310 B-00	Organic Carbon	101	99.6	100			0.355

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2139593
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2139593
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2139593
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2139594
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2139594
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2139594
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2139594
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2139595
SM 2120 B / E31780	True Color measured at 450 nm	2139593
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2139593
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2139593
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2139593
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2139593
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2139594

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	11/27/2019			11/27/2019 15:10	Yen Ta	2139593
EPA 300.0 Rev. 2.1	11/27/2019			12/07/2019 02:21	Jhamieka S. Greenwood	2139593
EPA 350.1 Rev. 2.0	11/27/2019			12/04/2019 12:23	Ping Hua	2139594
EPA 351.2 Rev. 2.0	11/27/2019	12/03/2019 12:55	Sima Feizi	12/04/2019 15:51	Jhamieka S. Greenwood	2139594
EPA 353.2 Rev. 2.0	11/27/2019			12/02/2019 11:08	Beverly Y. Sanders	2139594
EPA 365.1 Rev. 2.0	11/27/2019	12/05/2019 17:50	Lipi Saha	12/06/2019 18:46	Julia Storbeck	2139594
EPA 365.1 Rev. 2.0 dissolved	11/27/2019			11/27/2019 15:50	Samantha Davila	2139595
SM 2120 B	11/27/2019			11/27/2019 17:21	Julia Storbeck	2139593
SM 2320 B-97	11/27/2019			12/06/2019 04:02	Dale L. Simmons	2139593
SM 2540 C-97	11/27/2019			12/02/2019 13:01	Yijie Li	2139593
SM 2540 D-97	11/27/2019			12/02/2019 13:01	Yijie Li	2139593
SM 4500 F-C-97	11/27/2019			12/06/2019 04:02	Dale L. Simmons	2139593
SM 5310 B-00	11/27/2019			12/02/2019 20:09	Lauren Lees	2139594