

Chemical Analysis Report

CEN-DIST-2019-12-11-01

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

Event Description: **SJR Winder + HA**
Request ID: **RQ-2019-12-09-49**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 30-DEC-2019 09:03

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray 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: Cow Creek at Osteen-Maytown road

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

Field ID: G2CE0086

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2142372	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P375709	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P376309	
		Sulfate	0.20	U	mg SO4/L	P376311	
	SM 2120 B	Color (true)	610		PCU	P375647	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P375874	
	SM 2540 C-97	TDS	128		mg/L	P376315	
	SM 2540 D-97	TSS	2	I	mg/L	P376323	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P375878	
2142373	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P375973	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P375761	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P375687	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P375823	
	SM 5310 B-00	Organic Carbon	56		mg C/L	P375833	
2142374	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P375641	

Ref. Method and Comment:

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: P375709

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376309

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376311

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375973

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375761

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375687

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375823

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375641

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

Reference Method: SM 2120 B
Batch ID: P375647

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P375874

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

Reference Method: SM 2540 C-97
Batch ID: P376315

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P376323

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P375878

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P375833

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: P376309

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376311

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375973

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: P375761

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375687

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: P375823

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: P375641

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

Reference Method: SM 2120 B
Batch ID: P375647

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P375874

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P375878

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P375833

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376309

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141674	Chloride	101		P	90 - 110
2142372	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376311

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141674	Sulfate	102		P	90 - 110
2142372	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2142366	Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2142642	Kjeldahl Nitrogen	94.5	94.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2142296	NO2NO3-N	98.5	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375823

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141647	Total-P	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375641

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2142297	O-Phosphate-P	95.8	96.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P375878

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2142100	Fluoride	99.6	98.3	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P375833

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2142318	Organic Carbon	100	99.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P375709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142360	Turbidity	2.02	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141674	Chloride	0.0118	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141674	Sulfate	0.436	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142366	Ammonia-N	1.38	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142642	Kjeldahl Nitrogen	0.0924	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142296	NO2NO3-N	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141647	Total-P	0.562	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375641

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142297	O-Phosphate-P	0.573	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P375647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142317	Color (true)	1.33	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P375874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142100	Total Alkalinity	0.385	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P376315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142320	TDS	4.62	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P375878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142100	Fluoride	0.940	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P375833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142318	Organic Carbon	0.512	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: A96266

Included Lab Sample IDs: 2142374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.1	95.0	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A96270

Included Lab Sample IDs: 2142372

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: A96284

Included Lab Sample IDs: 2142373

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A96288

Included Lab Sample IDs: 2142372

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

Reference Method: SM 5310 B-00

Run ID: A96329

Included Lab Sample IDs: 2142373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.8	98.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A96352

Included Lab Sample IDs: 2142372

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

Reference Method: SM 4500 F-C-97

Run ID: A96352

Included Lab Sample IDs: 2142372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96370

Included Lab Sample IDs: 2142373

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96389

Included Lab Sample IDs: 2142373

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96409

Included Lab Sample IDs: 2142373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	99.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96533

Included Lab Sample IDs: 2142372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	102	P/P	90 - 110
Sulfate	99.8	101	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					2.02	
EPA 300.0 Rev. 2.1	Chloride	104	101	103		0.0118	
	Sulfate	104	102	103		0.436	
EPA 350.1 Rev. 2.0	Ammonia-N	101	100	102			1.38
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.9	94.5	94.4			0.0924
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	98.5	97.5			1.02
EPA 365.1 Rev. 2.0	Total-P	101	104	103			0.562
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	95.8	96.4			0.573
SM 2120 B	Color (true)	99.8				1.33	
SM 2320 B-97	Total Alkalinity	102				0.385	
SM 2540 C-97	TDS					4.62	
SM 4500 F-C-97	Fluoride	98.0	99.6	98.3			0.940
SM 5310 B-00	Organic Carbon	96.7	100	99.2			0.512

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2142372
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2142372
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2142372
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2142373
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2142373
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2142373
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2142373
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2142374
SM 2120 B / E31780	True Color measured at 450 nm	2142372
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2142372
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2142372
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2142372
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2142372
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2142373

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	12/11/2019			12/11/2019 17:15	Yen Ta	2142372
EPA 300.0 Rev. 2.1	12/11/2019			12/20/2019 18:28	Lipi Saha	2142372
EPA 350.1 Rev. 2.0	12/11/2019			12/16/2019 13:51	Ping Hua	2142373
EPA 351.2 Rev. 2.0	12/11/2019	12/13/2019 13:00	Sima Feizi	12/16/2019 14:35	Jhamieka S. Greenwood	2142373
EPA 353.2 Rev. 2.0	12/11/2019			12/12/2019 11:27	Beverly Y. Sanders	2142373
EPA 365.1 Rev. 2.0	12/11/2019	12/13/2019 14:35	Yen Ta	12/17/2019 16:00	Benjamin T. Nordmann	2142373
EPA 365.1 Rev. 2.0 dissolved	12/11/2019			12/11/2019 14:28	Samantha Davila	2142374
SM 2120 B	12/11/2019			12/11/2019 18:43	Madeline Funaro	2142372
SM 2320 B-97	12/11/2019			12/14/2019 08:31	Dale L. Simmons	2142372
SM 2540 C-97	12/11/2019			12/13/2019 16:21	Yijie Li	2142372
SM 2540 D-97	12/11/2019			12/13/2019 16:21	Yijie Li	2142372
SM 4500 F-C-97	12/11/2019			12/14/2019 08:31	Dale L. Simmons	2142372
SM 5310 B-00	12/11/2019			12/12/2019 19:58	Madeline Funaro	2142373