Chemical Analysis Report

CEN-DIST-2020-07-17-02

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

Event Description: **Park + Gem**
Request ID: **RQ-2020-07-20-67**
Customer: **CEN-DIST**
Project ID: **SMP**

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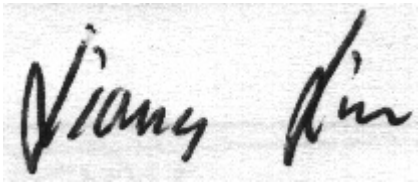
Date Certified: 05-AUG-2020 12:48



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 Park at Center **Collection Date/Time: 07/16/2020 10:10**

Field ID: G2CE0009 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2184092	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P384798	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P385316	
		Sulfate	24		mg SO4/L	P385320	
	SM 2120 B-2011	Color (true)	13	A	PCU	P384811	
	SM 2320 B-2011	Total Alkalinity	55		mg CaCO3/L	P385002	
	SM 2540 C-2011	TDS	114		mg/L	P385458	
	SM 2540 D-2011	TSS	2	I	mg/L	P385464	
	SM 4500 F-C-2011	Fluoride	0.058	I	mg F/L	P385005	
2184093	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P384829	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P384940	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P384918	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P385037	MS
	SM 5310 B-2011	Organic Carbon	5.9		mg C/L	P385190	
2184094	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P384834	

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: P384798

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385316

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385320

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384829

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384940

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384918

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385037

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384834

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

Reference Method: SM 2120 B-2011
Batch ID: P384811

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P385002

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-2011
Batch ID: P385458

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P385464

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P385005

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P385190

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: P385316

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384829

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384940

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: P384918

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385037

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384834

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

Reference Method: SM 2120 B-2011
Batch ID: P384811

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	105		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P385002

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P385005

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P385190

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184037	Chloride	95.3		P	90 - 110
2184057	Chloride	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184037	Sulfate	92.5		P	90 - 110
2184057	Sulfate	96.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184068	Ammonia-N	103	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384940

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184168	Kjeldahl Nitrogen	105	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384918

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184093	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184050	Total-P	110	109	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384834

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184071	O-Phosphate-P	99.9	99.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P385005

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2183933	Fluoride	98.1	100	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P385190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184059	Organic Carbon	96.0	97.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P384798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184102	Turbidity	4.01	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184037	Chloride	0.472	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184037	Sulfate	0.0571	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184068	Ammonia-N	2.78	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184168	Kjeldahl Nitrogen	1.34	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184093	NO2NO3-N	0.995	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184050	Total-P	0.824	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184071	O-Phosphate-P	0.602	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P384811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184092	Color (true)	2.34	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P385002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183933	Total Alkalinity	1.47	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P385458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184048	TDS	5.24	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P385005

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2183933	Fluoride	1.38	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P385190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184059	Organic Carbon	1.45	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-2011
Run ID: A100019
Included Lab Sample IDs: 2184092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A100019
Included Lab Sample IDs: 2184092

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100044
Included Lab Sample IDs: 2184093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A100083
Included Lab Sample IDs: 2184093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	98.5	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A100098
Included Lab Sample IDs: 2184093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.9	93.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A100152
Included Lab Sample IDs: 2184092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.7	101	P/P	90 - 110
Sulfate	98.9	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A99945
Included Lab Sample IDs: 2184092

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

Reference Method: SM 2120 B-2011
Run ID: A99949
Included Lab Sample IDs: 2184092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	105	106	P/P	90 - 115

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A99955
Included Lab Sample IDs: 2184093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A99958
Included Lab Sample IDs: 2184094

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.7	95.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A99985
Included Lab Sample IDs: 2184093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	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					4.01	
EPA 300.0 Rev. 2.1	Chloride	98.3	95.3	97.9		0.472	
	Sulfate	96.4	92.5	96.1		0.0571	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	103	100			2.78
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.4	105	103			1.34
EPA 353.2 Rev. 2.0	NO2NO3-N	101	101	100			0.995
EPA 365.1 Rev. 2.0	Total-P	108	110	109			0.824
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.9	99.3			0.602
SM 2120 B-2011	Color (true)	105				2.34	
SM 2320 B-2011	Total Alkalinity	103				1.47	
SM 2540 C-2011	TDS					5.24	
SM 4500 F-C-2011	Fluoride	103	98.1	100			1.38
SM 5310 B-2011	Organic Carbon	97.4	96.0	97.4			1.45

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2184092
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2184092
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2184092
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2184093
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2184093
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2184093
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2184093
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2184094
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2184092
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2184092
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2184092
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2184092
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2184092
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2184093

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	07/17/2020			07/17/2020 15:49	Yen Ta	2184092
EPA 300.0 Rev. 2.1	07/17/2020			07/28/2020 18:14	Julia Storbeck	2184092
EPA 350.1 Rev. 2.0	07/17/2020			07/19/2020 12:57	Ping Hua	2184093
EPA 351.2 Rev. 2.0	07/17/2020	07/21/2020 15:00	Sima Feizi	07/23/2020 12:57	Jhamieka S. Greenwood	2184093
EPA 353.2 Rev. 2.0	07/17/2020			07/21/2020 10:15	Beverly Y. Sanders	2184093
EPA 365.1 Rev. 2.0	07/17/2020	07/23/2020 10:00	Lipi Saha	07/27/2020 09:08	Lipi Saha	2184093
EPA 365.1 Rev. 2.0 dissolved	07/17/2020			07/17/2020 19:03	Virginia P. Brown	2184094
SM 2120 B-2011	07/17/2020			07/17/2020 16:55	Benjamin T. Nordmann	2184092
SM 2320 B-2011	07/17/2020			07/22/2020 06:22	Dale L. Simmons	2184092
SM 2540 C-2011	07/17/2020			07/22/2020 14:56	Yijie Li	2184092
SM 2540 D-2011	07/17/2020			07/22/2020 14:56	Yijie Li	2184092
SM 4500 F-C-2011	07/17/2020			07/22/2020 06:22	Dale L. Simmons	2184092
SM 5310 B-2011	07/17/2020			07/24/2020 19:23	David Boose	2184093