

Chemical Analysis Report

CEN-DIST-2021-02-25-02

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

Event Description: **Baldwin Outfall**
Request ID: **RQ-2021-02-22-52**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 19-MAR-2021 11:19



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 Baldwin outfall 145m W of Goldenrod

Collection Date/Time: 02/24/2021 12:21

Field ID: G2CE0243

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2227403	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P394233	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P394366	
		Sulfate	15		mg SO4/L	P394367	
	SM 2120 B-2011	Color (true)	33	A	PCU	P394269	
	SM 2320 B-2011	Total Alkalinity	56		mg CaCO3/L	P394513	
	SM 2540 C-2011	TDS	146		mg/L	P394603	
	SM 2540 D-2011	TSS	2	I	mg/L	P394530	
	SM 4500 F-C-2011	Fluoride	0.080	I	mg F/L	P394516	
2227404	EPA 350.1 Rev. 2.0	Ammonia-N	0.048		mg N/L	P394306	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P394263	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P394320	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P394334	
	SM 5310 B-2011	Organic Carbon	8.7		mg C/L	P394783	
2227405	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P394224	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 4500 F-C-2011: 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: P394233

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394366

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394367

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394306

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394263

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394320

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394334

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394224

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

Reference Method: SM 2120 B-2011
Batch ID: P394269

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P394513

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

Reference Method: SM 2540 C-2011
Batch ID: P394603

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P394530

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P394516

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P394783

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: P394366

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394367

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394306

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394263

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394320

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394224

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.4		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P394269

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

Reference Method: SM 2320 B-2011
Batch ID: P394513

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	93.6		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P394516

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P394783

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227381	Chloride	100	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227381	Sulfate	98.6	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394306

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227395	Ammonia-N	95.4	95.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227472	Kjeldahl Nitrogen	105	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227268	NO2NO3-N	94.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227404	Total-P	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394224

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227405	O-Phosphate-P	98.3	97.9	P/P	90 - 110

Reference Method: SM 5310 B-2011
Batch ID: P394783

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227332	Organic Carbon	93.9	93.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P394233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227445	Turbidity	1.54	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227381	Chloride	1.23	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227381	Sulfate	1.35	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227395	Ammonia-N	0.180	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227472	Kjeldahl Nitrogen	2.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227268	NO2NO3-N	0.248	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227404	Total-P	0.641	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394224

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227405	O-Phosphate-P	0.381	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P394269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227403	Color (true)	1.77	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P394513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227604	Total Alkalinity	0.101	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P394603

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226437	TDS	3.51	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P394516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227604	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P394783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227332	Organic Carbon	0.740	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: A103775

Included Lab Sample IDs: 2227405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	98.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A103778

Included Lab Sample IDs: 2227403

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	102	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A103794

Included Lab Sample IDs: 2227403

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	90 - 115

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A103810

Included Lab Sample IDs: 2227404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	96.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103820

Included Lab Sample IDs: 2227404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103830

Included Lab Sample IDs: 2227404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A103842

Included Lab Sample IDs: 2227403

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103858

Included Lab Sample IDs: 2227404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A103902

Included Lab Sample IDs: 2227403

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.2	91.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A103902

Included Lab Sample IDs: 2227403

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A104005

Included Lab Sample IDs: 2227404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	95.0	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					1.54	
EPA 300.0 Rev. 2.1	Chloride	101	100	102			1.23
	Sulfate	102	98.6	100			1.35
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	95.4	95.2			0.180
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	105	103			2.09
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	94.5				0.248
EPA 365.1 Rev. 2.0	Total-P	107	104	103			0.641
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	98.3	97.9			0.381
SM 2120 B-2011	Color (true)	101				1.77	
SM 2320 B-2011	Total Alkalinity	93.6				0.101	
SM 2540 C-2011	TDS					3.51	
SM 4500 F-C-2011	Fluoride	97.1					0.0
SM 5310 B-2011	Organic Carbon	94.6	93.9	93.0			0.740

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2227403
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2227403
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2227403
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2227404
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2227404
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2227404
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2227404
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2227405
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2227403
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2227403
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2227403
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2227403
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2227403
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2227404

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	02/25/2021			02/25/2021 15:03	Yen Ta	2227403
EPA 300.0 Rev. 2.1	02/25/2021			03/01/2021 20:09	Lipi Saha	2227403
EPA 350.1 Rev. 2.0	02/25/2021			02/28/2021 13:36	Ping Hua	2227404
EPA 351.2 Rev. 2.0	02/25/2021	02/26/2021 12:17	Yen Ta	03/01/2021 15:07	Virginia P. Brown	2227404
EPA 353.2 Rev. 2.0	02/25/2021			03/01/2021 10:02	Beverly Y. Sanders	2227404
EPA 365.1 Rev. 2.0	02/25/2021	03/02/2021 12:03	Shengyu Wang	03/03/2021 11:42	Shengyu Wang	2227404
EPA 365.1 Rev. 2.0 dissolved	02/25/2021			02/25/2021 14:42	Blanca Fach	2227405
SM 2120 B-2011	02/25/2021			02/25/2021 17:55	Benjamin T. Nordmann	2227403
SM 2320 B-2011	02/25/2021			03/04/2021 02:39	Dale L. Simmons	2227403
SM 2540 C-2011	02/25/2021			02/26/2021 14:36	Yijie Li	2227403
SM 2540 D-2011	02/25/2021			02/26/2021 14:36	Yijie Li	2227403
SM 4500 F-C-2011	02/25/2021			03/04/2021 02:39	Dale L. Simmons	2227403
SM 5310 B-2011	02/25/2021			03/11/2021 01:30	Madeline Gruver	2227404