

Chemical Analysis Report

CEN-DIST-2021-08-27-01

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

Event Description: **WBIDs 2981A, 2962, 2363C + Marine Nutrient Blank**
Request ID: **RQ-2021-08-23-29**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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3319 Maguire Blvd., Suite 232
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Date Certified: 22-SEP-2021 14:43



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 Jesup just S of SR 46

Collection Date/Time: 08/26/2021 10:45

Field ID: G2CE0238

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2272386	EPA 180.1 Rev. 2.0	Turbidity	9.9		NTU	P403098	
	EPA 300.0 Rev. 2.1	Chloride	180		mg Cl/L	P403342	
		Sulfate	32		mg SO4/L	P403343	
		Color (true)	120		PCU	P403099	
	SM 2320 B-2011	Total Alkalinity	67		mg CaCO3/L	P403167	
	SM 2540 C-2011	TDS	469		mg/L	P403402	
	SM 2540 D-2011	TSS	21		mg/L	P403395	
	SM 4500 F-C-2011	Fluoride	0.11		mg F/L	P403169	
2272387	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P403210	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.1		mg N/L	P403315	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P403294	
	EPA 365.1 Rev. 2.0	Total-P	0.097		mg P/L	P403170	
	SM 5310 B-2011	Organic Carbon	20		mg C/L	P403345	
2272388	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P403090	

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: P403098

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403342

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403343

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403210

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403315

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403294

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403170

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403090

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

Reference Method: SM 2120 B-2011
Batch ID: P403099

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P403167

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

Reference Method: SM 2540 C-2011
Batch ID: P403402

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P403395

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P403169

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P403345

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: P403342

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403343

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403210

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403315

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403294

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403170

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: P403090

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.2		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P403099

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

Reference Method: SM 2320 B-2011
Batch ID: P403167

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	94 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P403169

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P403345

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272141	Chloride	96.4		P	90 - 110
2272229	Chloride	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403343

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272141	Sulfate	96.7		P	90 - 110
2272229	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272419	Ammonia-N	95.0	94.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403315

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272394	Kjeldahl Nitrogen	110	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403294

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272687	NO2NO3-N	97.4	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403170

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272387	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403090

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272388	O-Phosphate-P	93.9	95.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P403169

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272393	Fluoride	98.4	98.4	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P403345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272233	Organic Carbon	96.2	98.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P403098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272376	Turbidity	0.242	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272141	Chloride	0.610	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403343

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272141	Sulfate	1.14	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272419	Ammonia-N	0.181	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272394	Kjeldahl Nitrogen	2.04	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403294

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272687	NO2NO3-N	0.990	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272387	Total-P	0.134	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272388	O-Phosphate-P	1.90	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P403099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272313	Color (true)	0.296	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P403167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272393	Total Alkalinity	0.0994	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P403402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272232	TDS	5.88	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P403169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272393	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P403345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272233	Organic Carbon	1.58	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: A107515

Included Lab Sample IDs: 2272388

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A107517

Included Lab Sample IDs: 2272386

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

Reference Method: SM 2120 B-2011

Run ID: A107518

Included Lab Sample IDs: 2272386

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

Reference Method: SM 2320 B-2011

Run ID: A107559

Included Lab Sample IDs: 2272386

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

Reference Method: SM 4500 F-C-2011

Run ID: A107559

Included Lab Sample IDs: 2272386

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107569

Included Lab Sample IDs: 2272387

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107594

Included Lab Sample IDs: 2272387

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107613

Included Lab Sample IDs: 2272387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A107634

Included Lab Sample IDs: 2272386

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

Reference Method: SM 5310 B-2011

Run ID: A107635

Included Lab Sample IDs: 2272387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107640

Included Lab Sample IDs: 2272387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	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					0.242	
EPA 300.0 Rev. 2.1	Chloride	100	96.4	97.9		0.610	
	Sulfate	99.9	96.7	100		1.14	
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	95.0	94.8			0.181
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	110	106			2.04
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.0	97.4	96.4			0.990
EPA 365.1 Rev. 2.0	Total-P	107	107	107			0.134
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	93.9	95.7			1.90
SM 2120 B-2011	Color (true)	100				0.296	
SM 2320 B-2011	Total Alkalinity	103				0.0994	
SM 2540 C-2011	TDS					5.88	
SM 4500 F-C-2011	Fluoride	99.0	98.4	98.4			0.0
SM 5310 B-2011	Organic Carbon	99.2	96.2	98.8			1.58

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2272386
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2272386
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2272386
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2272387
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2272387
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2272387
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2272387
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2272388
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2272386
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2272386
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2272386
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2272386
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2272386
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2272387

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	08/27/2021			08/27/2021 15:00	Sarah A Nixon	2272386
EPA 300.0 Rev. 2.1	08/27/2021			09/02/2021 20:42	Roberta Tatti	2272386
EPA 350.1 Rev. 2.0	08/27/2021			08/31/2021 12:32	Ping Hua	2272387
EPA 351.2 Rev. 2.0	08/27/2021	09/02/2021 13:17	Benjamin T. Nordmann	09/03/2021 12:24	Alexandra J Mattheus	2272387
EPA 353.2 Rev. 2.0	08/27/2021			09/02/2021 09:27	Beverly Y. Sanders	2272387
EPA 365.1 Rev. 2.0	08/27/2021	08/31/2021 14:38	Simonne.V. Calhoun	09/01/2021 10:29	Shengyu Ding	2272387
EPA 365.1 Rev. 2.0 dissolved	08/27/2021			08/27/2021 14:46	James L Waggerby	2272388
SM 2120 B-2011	08/27/2021			08/27/2021 15:48	Sarah A Nixon	2272386
SM 2320 B-2011	08/27/2021			08/30/2021 18:29	Dale L. Simmons	2272386
SM 2540 C-2011	08/27/2021			08/30/2021 15:46	Yijie Li	2272386
SM 2540 D-2011	08/27/2021			08/30/2021 14:36	Yijie Li	2272386
SM 4500 F-C-2011	08/27/2021			08/30/2021 18:29	Dale L. Simmons	2272386
SM 5310 B-2011	08/27/2021			09/02/2021 06:50	Touraj Touran	2272387