

Chemical Analysis Report

CEN-DIST-2021-09-21-01

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

Event Description: **Alma and Salt x2 + Pest Blank**
Request ID: **RQ-2021-09-20-28**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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3319 Maguire Blvd., Suite 232
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Date Certified: 12-OCT-2021 13:14



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 Alma NW of Center

Collection Date/Time: 09/20/2021 11:13

Field ID: G2CE0237

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2277043	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P404017	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P404086	
		Sulfate	0.20	U	mg SO4/L	P404089	
	SM 2120 B-2011	Color (true)	120		PCU	P403991	
	SM 2320 B-2011	Total Alkalinity	24		mg CaCO3/L	P404101	
	SM 2540 C-2011	TDS	80		mg/L	P404556	
	SM 2540 D-2011	TSS	2	U	mg/L	P404548	
	SM 4500 F-C-2011	Fluoride	0.041	I	mg F/L	P404106	
2277044	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P404121	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P404037	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P404041	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P404051	
	SM 5310 B-2011	Organic Carbon	21		mg C/L	P404200	
2277045	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P404008	

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: P404017

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404086

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404089

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404121

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404037

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404041

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404051

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404008

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

Reference Method: SM 2120 B-2011
Batch ID: P403991

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P404101

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

Reference Method: SM 2540 C-2011
Batch ID: P404556

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P404548

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P404106

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P404200

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: P404086

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404089

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404121

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: P404037

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404041

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: P404051

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.7		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P403991

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

Reference Method: SM 2320 B-2011
Batch ID: P404101

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P404106

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P404200

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276465	Chloride	98.7		P	90 - 110
2276741	Chloride	96.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404089

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276465	Sulfate	98.4		P	90 - 110
2276741	Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276888	Ammonia-N	96.4	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276976	Kjeldahl Nitrogen	93.0	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276888	NO2NO3-N	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404051

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276889	Total-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2277075	O-Phosphate-P	99.4	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P404106

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276975	Fluoride	94.8	96.3	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P404200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276976	Organic Carbon	98.4	98.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276887	Turbidity	4.79	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276465	Chloride	0.574	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276465	Sulfate	1.07	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276888	Ammonia-N	0.709	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276976	Kjeldahl Nitrogen	2.73	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276888	NO2NO3-N	0.477	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276889	Total-P	0.304	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2277075	O-Phosphate-P	0.402	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P403991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276975	Color (true)	1.16	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P404101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276975	Total Alkalinity	0.298	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P404556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276887	TDS	1.77	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P404106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276975	Fluoride	1.40	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P404200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276976	Organic Carbon	0.270	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B-2011

Run ID: A107910

Included Lab Sample IDs: 2277043

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A107913

Included Lab Sample IDs: 2277045

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	99.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A107915

Included Lab Sample IDs: 2277043

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107927

Included Lab Sample IDs: 2277044

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A107953

Included Lab Sample IDs: 2277043

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

Reference Method: SM 2320 B-2011

Run ID: A107959

Included Lab Sample IDs: 2277043

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: A107959

Included Lab Sample IDs: 2277043

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107960

Included Lab Sample IDs: 2277044

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107961

Included Lab Sample IDs: 2277044

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107967

Included Lab Sample IDs: 2277044

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

Reference Method: SM 5310 B-2011

Run ID: A107995

Included Lab Sample IDs: 2277044

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	97.8	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	MS
EPA 180.1 Rev. 2.0	Turbidity				4.79	
EPA 300.0 Rev. 2.1	Chloride	98.5	98.7	96.9	0.574	
	Sulfate	99.0	98.4	97.3	1.07	
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	96.4	97.2		0.709
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	93.0	97.2		2.73
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	105	104		0.477
EPA 365.1 Rev. 2.0	Total-P	103	103	103		0.304
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	99.4	99.8		0.402
SM 2120 B-2011	Color (true)	101			1.16	
SM 2320 B-2011	Total Alkalinity	102			0.298	
SM 2540 C-2011	TDS				1.77	
SM 4500 F-C-2011	Fluoride	98.6	94.8	96.3		1.40
SM 5310 B-2011	Organic Carbon	98.9	98.4	98.8		0.270

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2277043
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2277043
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2277043
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2277044
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2277044
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2277044
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2277044
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2277045
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2277043
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2277043
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2277043
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2277043
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2277043
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2277044

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	09/21/2021			09/21/2021 15:59	Khloe J Berg	2277043
EPA 300.0 Rev. 2.1	09/21/2021			09/22/2021 22:29	Roberta Tatti	2277043
EPA 350.1 Rev. 2.0	09/21/2021			09/23/2021 13:03	Ping Hua	2277044
EPA 351.2 Rev. 2.0	09/21/2021	09/22/2021 11:21	Benjamin T. Nordmann	09/23/2021 11:31	Alexandra J Mattheus	2277044
EPA 353.2 Rev. 2.0	09/21/2021			09/22/2021 10:11	Beverly Y. Sanders	2277044
EPA 365.1 Rev. 2.0	09/21/2021	09/22/2021 13:13	Simonne.V. Calhoun	09/23/2021 14:48	Sarah A Nixon	2277044
EPA 365.1 Rev. 2.0 dissolved	09/21/2021			09/21/2021 15:05	James L Waggerby	2277045
SM 2120 B-2011	09/21/2021			09/21/2021 14:28	Benjamin T. Nordmann	2277043
SM 2320 B-2011	09/21/2021			09/22/2021 19:49	Dale L. Simmons	2277043
SM 2540 C-2011	09/21/2021			09/23/2021 14:25	Yijie Li	2277043
SM 2540 D-2011	09/21/2021			09/23/2021 14:36	Yijie Li	2277043
SM 4500 F-C-2011	09/21/2021			09/22/2021 19:49	Dale L. Simmons	2277043
SM 5310 B-2011	09/21/2021			09/24/2021 19:51	Khloe J Berg	2277044