

Chemical Analysis Report

CEN-DIST-2020-07-22-01

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

Event Description: **Asher**
Request ID: **RQ-2020-07-20-74**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 10-AUG-2020 11:33



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 Asher @ Center of Lake

Collection Date/Time: 07/21/2020 10:02

Field ID: G2CE0130

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2184605	EPA 180.1 Rev. 2.0	Turbidity	6.8		NTU	P385058	
	EPA 300.0 Rev. 2.1	Chloride	21	A	mg Cl/L	P385318	
		Sulfate	7.5	A	mg SO4/L	P385322	
	SM 2120 B-2011	Color (true)	40		PCU	P385029	
	SM 2320 B-2011	Total Alkalinity	34		mg CaCO3/L	P385103	
	SM 2540 C-2011	TDS	104		mg/L	P385595	
	SM 2540 D-2011	TSS	7	I	mg/L	P385590	
	SM 4500 F-C-2011	Fluoride	0.044	I	mg F/L	P385106	
2184606	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P385143	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P385056	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P385049	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P385235	
	SM 5310 B-2011	Organic Carbon	9.0		mg C/L	P385262	
2184607	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P385013	

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: P385058

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385318

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385322

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385143

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385056

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385049

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385235

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385013

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

Reference Method: SM 2120 B-2011
Batch ID: P385029

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P385103

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

Reference Method: SM 2540 C-2011
Batch ID: P385595

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P385590

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P385106

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P385262

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: P385318

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385322

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385143

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385056

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385049

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385235

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385013

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.2		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P385029

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

Reference Method: SM 2320 B-2011
Batch ID: P385103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P385106

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P385262

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184605	Chloride	99.2		P	90 - 110
2184710	Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184605	Sulfate	96.5		P	90 - 110
2184710	Sulfate	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184564	Ammonia-N	100	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184564	Kjeldahl Nitrogen	99.0	95.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184612	NO2NO3-N	97.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385235

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184557	Total-P	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385013

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184565	O-Phosphate-P	96.6	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P385106

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184563	Fluoride	107	106	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P385262

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184625	Organic Carbon	93.0	94.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P385058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184801	Turbidity	3.51	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184605	Chloride	0.724	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184605	Sulfate	0.692	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184564	Ammonia-N	0.865	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184564	Kjeldahl Nitrogen	2.94	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184612	NO2NO3-N	0.512	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184557	Total-P	1.56	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184565	O-Phosphate-P	0.682	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
 Batch ID: P385029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184563	Color (true)	9.86	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P385103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184563	Total Alkalinity	1.17	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
 Batch ID: P385595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184563	TDS	0.784	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P385106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184563	Fluoride	0.464	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
 Batch ID: P385262

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184625	Organic Carbon	0.813	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: A100021

Included Lab Sample IDs: 2184607

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.6	97.0	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A100026

Included Lab Sample IDs: 2184605

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A100035

Included Lab Sample IDs: 2184606

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A100038

Included Lab Sample IDs: 2184605

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

Reference Method: SM 2320 B-2011

Run ID: A100054

Included Lab Sample IDs: 2184605

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.9	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A100054

Included Lab Sample IDs: 2184605

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A100064

Included Lab Sample IDs: 2184606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.5	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A100073

Included Lab Sample IDs: 2184606

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A100127

Included Lab Sample IDs: 2184606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	96.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A100152

Included Lab Sample IDs: 2184605

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Sulfate	101	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A100186

Included Lab Sample IDs: 2184606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.8	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					3.51	
EPA 300.0 Rev. 2.1	Chloride	100	99.2	99.7		0.724	
	Sulfate	98.8	96.5	98.2		0.692	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	100	98.8			0.865
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	99.0	95.5			2.94
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	97.5	98.0			0.512
EPA 365.1 Rev. 2.0	Total-P	102	104	106			1.56
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.2	96.6	97.3			0.682
SM 2120 B-2011	Color (true)	101				9.86	
SM 2320 B-2011	Total Alkalinity	100				1.17	
SM 2540 C-2011	TDS					0.784	
SM 4500 F-C-2011	Fluoride	100	107	106			0.464
SM 5310 B-2011	Organic Carbon	97.0	93.0	94.5			0.813

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2184605
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2184605
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2184605
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2184606
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2184606
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2184606
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2184606
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2184607
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2184605
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2184605
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2184605
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2184605
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2184605
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2184606

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	07/22/2020			07/22/2020 16:45	Blanca Fach	2184605
EPA 300.0 Rev. 2.1	07/22/2020			07/29/2020 02:17	Julia Storbeck	2184605
EPA 350.1 Rev. 2.0	07/22/2020			07/25/2020 12:43	Ping Hua	2184606
EPA 351.2 Rev. 2.0	07/22/2020	07/23/2020 10:20	Sima Feizi	07/24/2020 14:02	Jhamieka S. Greenwood	2184606
EPA 353.2 Rev. 2.0	07/22/2020			07/23/2020 09:21	Beverly Y. Sanders	2184606
EPA 365.1 Rev. 2.0	07/22/2020	07/28/2020 10:00	Lipi Saha	07/30/2020 12:59	Benjamin T. Nordmann	2184606
EPA 365.1 Rev. 2.0 dissolved	07/22/2020			07/22/2020 14:47	Jhamieka S. Greenwood	2184607
SM 2120 B-2011	07/22/2020			07/22/2020 16:21	Benjamin T. Nordmann	2184605
SM 2320 B-2011	07/22/2020			07/23/2020 22:00	Dale L. Simmons	2184605
SM 2540 C-2011	07/22/2020			07/27/2020 14:36	Yijie Li	2184605
SM 2540 D-2011	07/22/2020			07/27/2020 14:36	Yijie Li	2184605
SM 4500 F-C-2011	07/22/2020			07/23/2020 22:00	Dale L. Simmons	2184605
SM 5310 B-2011	07/22/2020			07/28/2020 01:31	David Boose	2184606