Chemical Analysis Report

CEN-DIST-2021-09-03-02

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

Event Description: **Ingram and Johns Lake Outlet**
Request ID: **RQ-2021-08-30-47**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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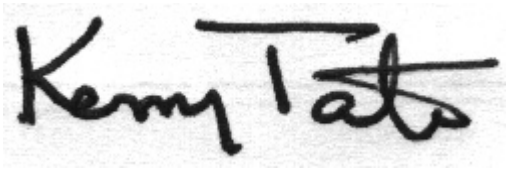
Date Certified: 28-SEP-2021 10:47



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: Johns Lake @ Conservation Area Dock **Collection Date/Time: 09/02/2021 11:15**

Field ID: G1CE0111 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2273538	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P403388	
	EPA 300.0 Rev. 2.1	Chloride	35		mg Cl/L	P403561	
		Sulfate	16		mg SO4/L	P403562	
	SM 2120 B-2011	Color (true)	140		PCU	P403371	
	SM 2320 B-2011	Total Alkalinity	48		mg CaCO3/L	P403580	
	SM 2540 C-2011	TDS	163		mg/L	P403667	
	SM 2540 D-2011	TSS	2	I	mg/L	P403668	
	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P403582	
2273539	EPA 350.1 Rev. 2.0	Ammonia-N	0.062		mg N/L	P403424	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P403511	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P403444	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P403466	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P403550	
2273540	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.077		mg P/L	P403376	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample. Batch relative percent difference is unavailable because of analytical difficulties.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P403388

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403561

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403562

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403424

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403511

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403444

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403466

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403376

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

Reference Method: SM 2120 B-2011
Batch ID: P403371

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P403580

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

Reference Method: SM 2540 C-2011
Batch ID: P403667

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P403668

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P403582

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P403550

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: P403561

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403562

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403424

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403511

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403444

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403466

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: P403376

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

Reference Method: SM 2120 B-2011
Batch ID: P403371

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P403580

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: P403582

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P403550

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403561

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273474	Chloride	98.6		P	90 - 110
2273816	Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273474	Sulfate	97.7		P	90 - 110
2273816	Sulfate	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273519	NO2NO3-N	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273475	Total-P	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273523	O-Phosphate-P	97.9	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P403582

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273455	Fluoride	99.0	101	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P403550

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273534	Organic Carbon	95.8	97.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P403388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273487	Turbidity	7.00	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273474	Chloride	0.375	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273474	Sulfate	1.01	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403424

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273539	Ammonia-N	0.363	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273519	NO2NO3-N	0.971	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273475	Total-P	0.218	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273523	O-Phosphate-P	1.11	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P403371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273357	Color (true)	1.89	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P403580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273455	Total Alkalinity	1.27	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P403667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273455	TDS	3.75	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P403582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273455	Fluoride	1.42	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P403550

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273534	Organic Carbon	1.02	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: A107643
Included Lab Sample IDs: 2273538

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.9	97.2	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A107645
Included Lab Sample IDs: 2273540

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	99.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A107651
Included Lab Sample IDs: 2273538

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A107663
Included Lab Sample IDs: 2273539

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	99.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A107671
Included Lab Sample IDs: 2273539

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A107690
Included Lab Sample IDs: 2273538

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	101	P/P	90 - 110
Sulfate	99.6	101	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A107704
Included Lab Sample IDs: 2273539

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.7	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A107725
Included Lab Sample IDs: 2273539

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.6	99.6	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-2011
Run ID: A107726
Included Lab Sample IDs: 2273538

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

Reference Method: SM 4500 F-C-2011
Run ID: A107726
Included Lab Sample IDs: 2273538

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A107739
Included Lab Sample IDs: 2273539

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	104	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					7.00	
EPA 300.0 Rev. 2.1	Chloride	98.0	98.6	99.4		0.375	
	Sulfate	98.4	97.7	99.0		1.01	
EPA 350.1 Rev. 2.0	Ammonia-N	98.0					0.363
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103					
EPA 353.2 Rev. 2.0	NO2NO3-N	103	104	102			0.971
EPA 365.1 Rev. 2.0	Total-P	108	105	106			0.218
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	97.9	99.4			1.11
SM 2120 B-2011	Color (true)	99.4				1.89	
SM 2320 B-2011	Total Alkalinity	102				1.27	
SM 2540 C-2011	TDS					3.75	
SM 4500 F-C-2011	Fluoride	97.4	99.0	101			1.42
SM 5310 B-2011	Organic Carbon	95.4	95.8	97.4			1.02

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2273538
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2273538
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2273538
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2273539
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2273539
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2273539
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2273539
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2273540
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2273538
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2273538
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2273538
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2273538
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2273538
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2273539

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	09/03/2021			09/03/2021 17:37	Blanca Fach	2273538
EPA 300.0 Rev. 2.1	09/03/2021			09/09/2021 16:04	Roberta Tatti	2273538
EPA 350.1 Rev. 2.0	09/03/2021			09/07/2021 14:22	Ping Hua	2273539
EPA 351.2 Rev. 2.0	09/03/2021	09/09/2021 12:30	Benjamin T. Nordmann	09/10/2021 12:17	Virginia P. Brown	2273539
EPA 353.2 Rev. 2.0	09/03/2021			09/08/2021 09:47	Beverly Y. Sanders	2273539
EPA 365.1 Rev. 2.0	09/03/2021	09/08/2021 14:30	Simonne.V. Calhoun	09/09/2021 11:01	Shengyu Ding	2273539
EPA 365.1 Rev. 2.0 dissolved	09/03/2021			09/03/2021 16:37	James L Waggerby	2273540
SM 2120 B-2011	09/03/2021			09/03/2021 16:20	Benjamin T. Nordmann	2273538
SM 2320 B-2011	09/03/2021			09/09/2021 19:34	Dale L. Simmons	2273538
SM 2540 C-2011	09/03/2021			09/08/2021 13:06	Yijie Li	2273538
SM 2540 D-2011	09/03/2021			09/08/2021 13:06	Yijie Li	2273538
SM 4500 F-C-2011	09/03/2021			09/09/2021 19:34	Dale L. Simmons	2273538
SM 5310 B-2011	09/03/2021			09/09/2021 10:07	Madeline Gruver	2273539