Chemical Analysis Report

CEN-DIST-2020-07-09-01

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

Event Description: **Little Ck / Kiss Mid Drain**
Request ID: **RQ-2020-07-06-63**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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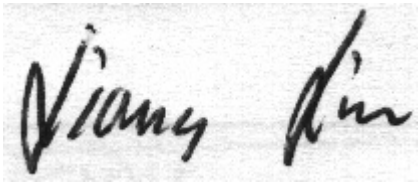
Date Certified: 29-JUL-2020 14:26



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: Bull Creek @ Upstream of 441 Bridge **Collection Date/Time: 07/08/2020 11:37**

Field ID: G3CE0009 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2181928	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P384314	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P384897	
		Sulfate	2.3		mg SO4/L	P384901	
	SM 2120 B-2011	Color (true)	660		PCU	P384322	
	SM 2320 B-2011	Total Alkalinity	1.0	I	mg CaCO3/L	P384612	
	SM 2540 C-2011	TDS	147		mg/L	P384837	
	SM 2540 D-2011	TSS	2	U	mg/L	P384576	
	SM 4500 F-C-2011	Fluoride	0.050	I	mg F/L	P384925	
2181929	EPA 350.1 Rev. 2.0	Ammonia-N	0.048		mg N/L	P384447	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P384533	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.063		mg N/L	P384500	
	EPA 365.1 Rev. 2.0	Total-P	1.1		mg P/L	P384506	
	SM 5310 B-2011	Organic Carbon	52		mg C/L	P384465	
2181930	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.97		mg P/L	P384299	

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: P384314

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384897

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384901

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384447

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384533

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384500

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P384506

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384299

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

Reference Method: SM 2120 B-2011
Batch ID: P384322

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P384612

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

Reference Method: SM 2540 C-2011
Batch ID: P384837

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P384576

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P384925

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P384465

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: P384897

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384901

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384447

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384533

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384500

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: P384506

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384299

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

Reference Method: SM 2120 B-2011
Batch ID: P384322

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

Reference Method: SM 2320 B-2011
Batch ID: P384612

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.1		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P384925

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P384465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384897

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2181746	Chloride	99.9		P	90 - 110
2181902	Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2181746	Sulfate	98.5		P	90 - 110
2181902	Sulfate	95.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384447

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2181977	Ammonia-N	99.8	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384533

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2181976	Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384500

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2181871	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P384506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2181903	Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2181754	O-Phosphate-P	94.4	95.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P384925

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2182007	Fluoride	104	105	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P384465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2181977	Organic Carbon	100	101	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P384314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2181952	Turbidity	2.93	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2181746	Chloride	0.912	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2181746	Sulfate	0.414	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2181977	Ammonia-N	1.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2181976	Kjeldahl Nitrogen	0.103	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384500

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2181871	NO2NO3-N	0.496	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P384506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2181903	Total-P	0.966	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2181754	O-Phosphate-P	0.749	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P384322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2181974	Color (true)	1.74	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P384612

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2181423	Total Alkalinity	0.0372	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P384837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2181734	TDS	1.64	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P384925

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2182007	Fluoride	0.983	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P384465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2181977	Organic Carbon	0.313	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: A99772
Included Lab Sample IDs: 2181930

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	94.8	92.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A99774
Included Lab Sample IDs: 2181928

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

Reference Method: SM 2120 B-2011
Run ID: A99775
Included Lab Sample IDs: 2181928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	104	P/P	90 - 115

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A99810
Included Lab Sample IDs: 2181929

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

Reference Method: SM 5310 B-2011
Run ID: A99817
Included Lab Sample IDs: 2181929

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A99827
Included Lab Sample IDs: 2181929

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A99868
Included Lab Sample IDs: 2181929

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	98.4	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A99877
Included Lab Sample IDs: 2181928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	103	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A99895
Included Lab Sample IDs: 2181929

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A99978
Included Lab Sample IDs: 2181928

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

Reference Method: SM 4500 F-C-2011
Run ID: A99986
Included Lab Sample IDs: 2181928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	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					2.93	
EPA 300.0 Rev. 2.1	Chloride	99.6	99.9	98.0		0.912	
	Sulfate	98.3	98.5	95.0		0.414	
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.8	102			1.58
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.9	103	104			0.103
EPA 353.2 Rev. 2.0	NO2NO3-N	100	101	100			0.496
EPA 365.1 Rev. 2.0	Total-P	105	102	101			0.966
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	94.4	95.3			0.749
SM 2120 B-2011	Color (true)	101				1.74	
SM 2320 B-2011	Total Alkalinity	99.1				0.0372	
SM 2540 C-2011	TDS					1.64	
SM 4500 F-C-2011	Fluoride	99.3	104	105			0.983
SM 5310 B-2011	Organic Carbon	99.4	100	101			0.313

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2181928
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2181928
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2181928
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2181929
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2181929
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2181929
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2181929
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2181930
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2181928
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2181928
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2181928
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2181928
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2181928
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2181929

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	07/09/2020			07/09/2020 15:38	Yen Ta	2181928
EPA 300.0 Rev. 2.1	07/09/2020			07/17/2020 05:18	Julia Storbeck	2181928
EPA 350.1 Rev. 2.0	07/09/2020			07/12/2020 13:05	Ping Hua	2181929
EPA 351.2 Rev. 2.0	07/09/2020	07/14/2020 11:20	Sima Feizi	07/15/2020 14:42	Julia Storbeck	2181929
EPA 353.2 Rev. 2.0	07/09/2020			07/13/2020 11:27	Beverly Y. Sanders	2181929
EPA 365.1 Rev. 2.0	07/09/2020	07/13/2020 14:29	Yen Ta	07/14/2020 16:36	Benjamin T. Nordmann	2181929
EPA 365.1 Rev. 2.0 dissolved	07/09/2020			07/09/2020 14:11	Samantha Davila	2181930
SM 2120 B-2011	07/09/2020			07/09/2020 16:44	Benjamin T. Nordmann	2181928
SM 2320 B-2011	07/09/2020			07/14/2020 05:45	Dale L. Simmons	2181928
SM 2540 C-2011	07/09/2020			07/10/2020 19:47	Madeline Gruver	2181928
SM 2540 D-2011	07/09/2020			07/10/2020 19:47	Madeline Gruver	2181928
SM 4500 F-C-2011	07/09/2020			07/20/2020 22:47	Samantha Davila	2181928
SM 5310 B-2011	07/09/2020			07/10/2020 15:43	David Boose	2181929