

Chemical Analysis Report

CEN-DIST-2020-06-10-01

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

Event Description: **Little Creek X2 / Lk Kiss (Mid Drain)**

Request ID: **RQ-2020-03-16-25**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

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Date Certified: 25-JUN-2020 10:28



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: 06/09/2020 11:29

Field ID: G3CE0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2175536	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P383044	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P383190	
		Sulfate	6.1		mg SO4/L	P383194	
	SM 2120 B-2011	Color (true)	580		PCU	P383048	
	SM 2320 B-2011	Total Alkalinity	1.5	I	mg CaCO3/L	P383113	
	SM 2540 C-2011	TDS	138		mg/L	P383514	
	SM 2540 D-2011	TSS	2	I	mg/L	P383448	
	SM 4500 F-C-2011	Fluoride	0.047	I	mg F/L	P383116	
2175537	EPA 350.1 Rev. 2.0	Ammonia-N	0.40		mg N/L	P383171	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.7		mg N/L	P383361	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P383063	
	EPA 365.1 Rev. 2.0	Total-P	1.2		mg P/L	P383228	
	SM 5310 B-2011	Organic Carbon	54		mg C/L	P383118	
2175538	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	1.2		mg P/L	P383065	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383044

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383190

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383194

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383171

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383361

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383063

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383228

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383065

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

Reference Method: SM 2120 B-2011
Batch ID: P383048

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P383113

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

Reference Method: SM 2540 C-2011
Batch ID: P383514

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P383448

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P383116

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P383118

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: P383190

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383194

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383171

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383361

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383063

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383228

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383065

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

Reference Method: SM 2120 B-2011
Batch ID: P383048

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

Reference Method: SM 2320 B-2011
Batch ID: P383113

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.5		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P383116

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P383118

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2175227	Chloride	101		P	90 - 110
2175387	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383194

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2175227	Sulfate	101		P	90 - 110
2175387	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2175433	Ammonia-N	98.9	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383361

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176091	Kjeldahl Nitrogen	97.7	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2175388	NO2NO3-N	98.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2175457	O-Phosphate-P	95.9	96.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P383116

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2175565	Fluoride	102	99.8	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P383118

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2175555	Organic Carbon	103	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2175510	Turbidity	3.57	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2175387	Chloride	0.127	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383194

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2175387	Sulfate	0.168	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2175433	Ammonia-N	1.31	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176091	Kjeldahl Nitrogen	1.69	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2175388	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2175537	Total-P	1.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2175457	O-Phosphate-P	0.202	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P383048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2175432	Color (true)	0.732	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P383113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2175565	Total Alkalinity	0.256	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P383514

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2175545	TDS	5.96	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P383116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2175565	Fluoride	1.38	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P383118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2175555	Organic Carbon	0.203	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A99250

Included Lab Sample IDs: 2175536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A99251

Included Lab Sample IDs: 2175536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.6	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A99259

Included Lab Sample IDs: 2175537

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A99260

Included Lab Sample IDs: 2175538

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	99.5	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A99280

Included Lab Sample IDs: 2175536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.8	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A99280

Included Lab Sample IDs: 2175536

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

Reference Method: SM 5310 B-2011

Run ID: A99281

Included Lab Sample IDs: 2175537

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A99295

Included Lab Sample IDs: 2175536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.0	99.2	P/P	90 - 110
Sulfate	99.6	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A99309

Included Lab Sample IDs: 2175537

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A99410

Included Lab Sample IDs: 2175537

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A99420

Included Lab Sample IDs: 2175537

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					3.57	
EPA 300.0 Rev. 2.1	Chloride	99.1	103	101		0.127	
	Sulfate	102	103	101		0.168	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	98.9	100			1.31
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.5	97.7	100			1.69
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	97.5	98.0	98.0			0.0
EPA 365.1 Rev. 2.0	Total-P	106					1.05
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.8	95.9	96.3			0.202
SM 2120 B-2011	Color (true)	99.4				0.732	
SM 2320 B-2011	Total Alkalinity	99.5				0.256	
SM 2540 C-2011	TDS					5.96	
SM 4500 F-C-2011	Fluoride	101	102	99.8			1.38
SM 5310 B-2011	Organic Carbon	105	103	102			0.203

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2175536
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2175536
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2175536
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2175537
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2175537
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2175537
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2175537
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2175538
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2175536
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2175536
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2175536
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2175536
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2175536
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2175537

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	06/10/2020			06/10/2020 15:06	Yen Ta	2175536
EPA 300.0 Rev. 2.1	06/10/2020			06/13/2020 00:10	Elliott Rodriguez	2175536
EPA 350.1 Rev. 2.0	06/10/2020			06/13/2020 16:50	Ping Hua	2175537
EPA 351.2 Rev. 2.0	06/10/2020	06/18/2020 09:50	Sima Feizi	06/19/2020 09:13	Jhamieka S. Greenwood	2175537
EPA 353.2 Rev. 2.0	06/10/2020			06/11/2020 08:31	Beverly Y. Sanders	2175537
EPA 365.1 Rev. 2.0	06/10/2020	06/15/2020 15:28	Yen Ta	06/18/2020 09:51	Lipi Saha	2175537
EPA 365.1 Rev. 2.0 dissolved	06/10/2020			06/11/2020 10:50	Samantha Davila	2175538
SM 2120 B-2011	06/10/2020			06/10/2020 16:24	Blanca Fach	2175536
SM 2320 B-2011	06/10/2020			06/11/2020 20:48	Dale L. Simmons	2175536
SM 2540 C-2011	06/10/2020			06/12/2020 15:15	Yijie Li	2175536
SM 2540 D-2011	06/10/2020			06/12/2020 15:15	Yijie Li	2175536
SM 4500 F-C-2011	06/10/2020			06/11/2020 20:48	Dale L. Simmons	2175536
SM 5310 B-2011	06/10/2020			06/11/2020 18:46	David Boose	2175537