Chemical Analysis Report

NW-DIST-2020-03-19-01

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

Event Description: **Mullet Creek Contionuious**
Request ID: **RQ-2020-03-16-19**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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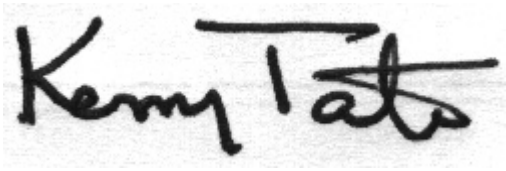
Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 09-APR-2020 09:25



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: Mouth of Mullet Creek @ Hwy 20 **Collection Date/Time: 03/18/2020 11:08**

Field ID: G3NW0317 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2166911	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P381001	
	EPA 300.0 Rev. 2.1	Bromide	0.022	I	mg Br/L	P381200	
	SM 2320 B-2011	Total Alkalinity	3.9		mg CaCO3/L	P381413	
	SM 2540 D-2011	TSS	3	I	mg/L	P381253	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381456	
2166912	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P381238	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P381285	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P381545	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P381337	
	SM 5310 B-2011	Organic Carbon	2.8		mg C/L	P381090	
2166913	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P381026	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P381001

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381200

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381238

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381285

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381545

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381337

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P381026

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

Reference Method: SM 2320 B-2011
Batch ID: P381413

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

Reference Method: SM 2540 D-2011
Batch ID: P381253

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P381456

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P381090

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: P381200

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381238

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381285

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381545

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381337

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P381026

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

Reference Method: SM 2320 B-2011
Batch ID: P381413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P381456

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	92 - 104

Reference Method: SM 5310 B-2011
Batch ID: P381090

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166022	Bromide	100	101	P/P	90 - 110
2166911	Bromide	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166912	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381285

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166921	Kjeldahl Nitrogen	98.0	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381545

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166783	NO2NO3-N	98.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381337

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166783	Total-P	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P381026

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166913	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P381456

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166472	Fluoride	98.9	99.5	P/P	91 - 105

Reference Method: SM 5310 B-2011
Batch ID: P381090

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166912	Organic Carbon	101	102	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P381001

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166886	Turbidity	2.81	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166022	Bromide	0.551	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166912	Ammonia-N	0.0220	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381285

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166921	Kjeldahl Nitrogen	3.08	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166783	NO2NO3-N	1.51	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166783	Total-P	0.0706	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P381026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166913	O-Phosphate-P	0.176	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P381413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166937	Total Alkalinity	0.0452	Sample	P	0 - 3.3

Quality Assurance Report
Precision

Reference Method: SM 2540 D-2011
Batch ID: P381253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167027	TSS	6.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P381456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166472	Fluoride	0.533	Spike	P	0 - 2.0

Reference Method: SM 5310 B-2011
Batch ID: P381090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166912	Organic Carbon	1.12	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: A98316
Included Lab Sample IDs: 2166911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A98329
Included Lab Sample IDs: 2166913

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

Reference Method: SM 5310 B-2011
Run ID: A98371
Included Lab Sample IDs: 2166912

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A98406
Included Lab Sample IDs: 2166911

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A98413
Included Lab Sample IDs: 2166912

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A98451
Included Lab Sample IDs: 2166912

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.6	94.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A98480
Included Lab Sample IDs: 2166912

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.5	97.5	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A98490
Included Lab Sample IDs: 2166911

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-2011
Run ID: A98495
Included Lab Sample IDs: 2166911

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A98517
Included Lab Sample IDs: 2166912

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	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						2.81	
EPA 300.0 Rev. 2.1	Bromide	104	100	101	100			0.551
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	100	100				0.0220
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.0	98.0	103				3.08
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	98.5	100				1.51
EPA 365.1 Rev. 2.0	Total-P	104	106	106				0.0706
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	101	102				0.176
SM 2320 B-2011	Total Alkalinity	104					0.0452	
SM 2540 D-2011	TSS						6.06	
SM 4500 F-C-2011	Fluoride	95.9	98.9	99.5				0.533
SM 5310 B-2011	Organic Carbon	102	101	102				1.12

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2166911
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2166911
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2166912
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2166912
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2166912
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2166912
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2166913
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2166911
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2166911
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2166911
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2166912

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	03/19/2020			03/19/2020 17:42	Julia Storbeck	2166911
EPA 300.0 Rev. 2.1	03/19/2020			03/23/2020 21:45	Elliott Rodriguez	2166911
EPA 350.1 Rev. 2.0	03/19/2020			03/24/2020 18:27	Ping Hua	2166912
EPA 351.2 Rev. 2.0	03/19/2020	03/25/2020 10:40	Sima Feizi	03/26/2020 09:09	Jhamieka S. Greenwood	2166912
EPA 353.2 Rev. 2.0	03/19/2020			03/30/2020 16:55	Lauren Lees	2166912
EPA 365.1 Rev. 2.0	03/19/2020	03/26/2020 12:10	Lipi Saha	03/27/2020 10:55	Lipi Saha	2166912
EPA 365.1 Rev. 2.0 dissolved	03/19/2020			03/19/2020 15:42	Carlos Miranda	2166913
SM 2320 B-2011	03/19/2020			03/27/2020 11:41	Dale L. Simmons	2166911
SM 2540 D-2011	03/19/2020			03/23/2020 15:22	Yijie Li	2166911
SM 4500 F-C-2011	03/19/2020			03/28/2020 01:43	Dale L. Simmons	2166911
SM 5310 B-2011	03/19/2020			03/21/2020 00:31	Lauren Lees	2166912