Chemical Analysis Report

CEN-DIST-2016-06-22-01

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

Event Description: **Boggy Creek+HA**
Request ID: **RQ-2016-06-20-32**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
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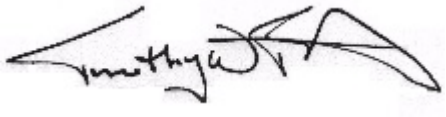
Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 13-JUL-2016 16:38



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 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: BOGGY CREEK @ 1100M SOUTH OF BOGGY CREEK RD. **Collection Date/Time: 06/21/2016 13:40**

Field ID: G4CE0127 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809967	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P306702	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P307236	
		Sulfate	4.6		mg SO4/L	P307238	
	SM 2120 B	Color (true)	130	A	PCU	P307072	
	SM 2320 B-97	Total Alkalinity	34		mg CaCO3/L	P307277	
	SM 2540 C-97	TDS	103		mg/L	P307300	
	SM 2540 D-97	TSS	2	I	mg/L	P307304	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P307284	
1809968	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P306929	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P306713	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P306940	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P306800	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P307062	
1809969	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P306676	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306702

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307236

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307238

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306929

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306713

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306940

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306800

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306676

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

Reference Method: SM 2120 B
Batch ID: P307072

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P307277

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

Reference Method: SM 2540 C-97
Batch ID: P307300

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307304

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307284

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307062

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: P307236

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307238

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306929

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306713

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: P306940

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: P306800

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306676

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

Reference Method: SM 2320 B-97
Batch ID: P307277

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P307284

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P307062

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307236

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809715	Chloride	100		P	90 - 110
1809716	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809715	Sulfate	100		P	90 - 110
1809716	Sulfate	99.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809931	Ammonia-N	97.9	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809863	Kjeldahl Nitrogen	93.3	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306940

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809933	NO2NO3-N	96.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809931	Total-P	99.5	93.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809969	O-Phosphate-P	98.7	98.9	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P307284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810672	Fluoride	98.7	98.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P307062

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809968	Organic Carbon	98.0	99.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306702

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809860	Turbidity	5.16	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307236

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809715	Chloride	0.499	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809715	Sulfate	0.922	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809931	Ammonia-N	1.31	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809863	Kjeldahl Nitrogen	5.70	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306940

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809933	NO2NO3-N	0.277	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306800

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809931	Total-P	5.86	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306676

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809969	O-Phosphate-P	0.174	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P307072

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809967	Color (true)	1.11	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P307277

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810672	Total Alkalinity	0.317	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P307300

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810018	TDS	4.74	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P307284

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810672	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P307062

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809968	Organic Carbon	0.674	Spike	P	0 - 20

Quality Assurance Report
Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A70171
Included Lab Sample IDs: 1809969

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70179
Included Lab Sample IDs: 1809967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A70182
Included Lab Sample IDs: 1809967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.9	99.0	P/P	90 - 115

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A70231
Included Lab Sample IDs: 1809968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70240
Included Lab Sample IDs: 1809968

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70249
Included Lab Sample IDs: 1809968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A70250
Included Lab Sample IDs: 1809968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A70299
Included Lab Sample IDs: 1809968

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A70313
Included Lab Sample IDs: 1809967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Sulfate	97.3	100	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A70372
Included Lab Sample IDs: 1809967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.7	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A70372
Included Lab Sample IDs: 1809967

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					5.16	
EPA 300.0 Rev. 2.1	Chloride	101	100	100		0.499	
	Sulfate	100	100	99.5		0.922	
EPA 350.1 Rev. 2.0	Ammonia-N	96.8	97.9	99.4			1.31
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.9	93.3	101			5.70
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	96.5	97.0			0.277
EPA 365.1 Rev. 2.0	Total-P	95.3	99.5	93.7			5.86
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	98.7	98.9			0.174
SM 2120 B	Color (true)					1.11	
SM 2320 B-97	Total Alkalinity	103				0.317	
SM 2540 C-97	TDS					4.74	
SM 4500 F-C-97	Fluoride	98.0	98.7	98.7			0.0
SM 5310 B-00	Organic Carbon	99.0	98.0	99.1			0.674

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1809967
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1809967
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1809967
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1809968
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1809968
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1809968
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1809968
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1809969
SM 2120 B / E31780	True Color measured at 450 nm	1809967
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1809967
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1809967
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1809967
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1809967
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1809968

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	06/22/2016			06/22/2016 15:56	Sima Feizi	1809967
EPA 300.0 Rev. 2.1	06/22/2016			07/01/2016	Ping Hua	1809967
EPA 350.1 Rev. 2.0	06/22/2016			06/27/2016	Diana M. Turner	1809968
EPA 351.2 Rev. 2.0	06/22/2016	06/23/2016	Sofia Elnemr	06/24/2016	Christopher Armour	1809968
EPA 353.2 Rev. 2.0	06/22/2016			06/27/2016	Beverly Y. Sanders	1809968
EPA 365.1 Rev. 2.0	06/22/2016	06/24/2016	Vijayalakshmi Reddy	06/27/2016	Lipi Saha	1809968
EPA 365.1 Rev. 2.0 dissolved	06/22/2016			06/22/2016 14:07	Julia Storbeck	1809969
SM 2120 B	06/22/2016			06/22/2016 17:20	Chrisoulla Rakowski	1809967
SM 2320 B-97	06/22/2016			07/02/2016	Dale L. Simmons	1809967
SM 2540 C-97	06/22/2016			06/24/2016	Yijie Li	1809967
SM 2540 D-97	06/22/2016			06/24/2016	Yijie Li	1809967
SM 4500 F-C-97	06/22/2016			07/02/2016	Dale L. Simmons	1809967
SM 5310 B-00	06/22/2016			06/28/2016	Diana M. Turner	1809968