Chemical Analysis Report

CEN-DIST-2016-11-03-02

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

Event Description: **Groover branch+YSI**
Request ID: **RQ-2016-10-31-63**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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3319 Maguire Blvd., Suite 232
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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: GLENCOE DITCH @ 225M SOUTH OF TURNBULL BAY RD.

Collection Date/Time: 11/02/2016 13:55

Field ID: G5CE0077

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1846989	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P314544	
	EPA 300.0 Rev. 2.1	Chloride	91		mg Cl/L	P315509	
		Sulfate	6.7		mg SO4/L	P315502	
	SM 2120 B	Color (true)	24		PCU	P314579	
	SM 2320 B-97	Total Alkalinity	242		mg CaCO3/L	P314921	
	SM 2540 C-97	TDS	442		mg/L	P315441	
	SM 2540 D-97	TSS	6	I	mg/L	P315124	
	SM 4500 F-C-97	Fluoride	0.063	I	mg F/L	P314924	
1846990	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P315024	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P315343	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P314786	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P315085	
	SM 5310 B-00	Organic Carbon	8.7		mg C/L	P314657	
1846991	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.031		mg P/L	P314539	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-97: 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.
SM 5310 B-00: 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: P314544

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315502

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315509

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315024

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315343

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314786

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315085

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314539

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

Reference Method: SM 2120 B
Batch ID: P314579

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P314921

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

Reference Method: SM 2540 C-97
Batch ID: P315441

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P315124

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P314924

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P314657

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: P315502

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315509

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315024

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315343

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314786

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315085

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314539

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

Reference Method: SM 2320 B-97
Batch ID: P314921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P314921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P314924

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P314657

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847117	Sulfate	94.4		P	90 - 110
1848093	Sulfate	95.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847117	Chloride	102		P	90 - 110
1848093	Chloride	101		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315343

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847120	Kjeldahl Nitrogen	109	111	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1846990	NO2NO3-N	104	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315085

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847053	Total-P	97.8	97.0	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1846991	O-Phosphate-P	99.6	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P314924

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1846901	Fluoride	99.4	100	P/P	91 - 105

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P314544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1846994	Turbidity	4.73	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315509

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847117	Chloride	0.0198	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1846044	Ammonia-N	0.947	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315343

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847120	Kjeldahl Nitrogen	1.19	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1846990	NO2NO3-N	2.27	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315085

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

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847053	Total-P	0.726	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1846991	O-Phosphate-P	2.27	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P314579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847116	Color (true)	0.241	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P314921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1846901	Total Alkalinity	0.287	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P315441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1846917	TDS	0.889	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P314924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1846901	Fluoride	0.494	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P314657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1846918	Organic Carbon	1.75	Spike	P	0 - 20

* 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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A72602
Included Lab Sample IDs: 1846991

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A72603
Included Lab Sample IDs: 1846989

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

Reference Method: SM 2120 B
Run ID: A72614
Included Lab Sample IDs: 1846989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	99.9	P/P	85 - 115

Reference Method: SM 5310 B-00
Run ID: A72642
Included Lab Sample IDs: 1846990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A72695
Included Lab Sample IDs: 1846990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A72739
Included Lab Sample IDs: 1846989

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

Reference Method: SM 4500 F-C-97
Run ID: A72739
Included Lab Sample IDs: 1846989

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A72765
Included Lab Sample IDs: 1846990

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72822
Included Lab Sample IDs: 1846990

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A72830
Included Lab Sample IDs: 1846989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	99.0	P/P	90 - 110
Sulfate	101	96.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A72901
Included Lab Sample IDs: 1846990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	101	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					4.73	
EPA 300.0 Rev. 2.1	Chloride	103	102	101		0.0198	
	Sulfate	99.0	94.4	95.0			
EPA 350.1 Rev. 2.0	Ammonia-N	103					0.947
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	111	109			1.19
EPA 353.2 Rev. 2.0	NO2NO3-N	106	104	101			2.27
EPA 365.1 Rev. 2.0	Total-P	96.2	97.8	97.0			0.726
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	99.6	103			2.27
SM 2120 B	Color (true)					0.241	
SM 2320 B-97	Total Alkalinity	102				0.287	
SM 2540 C-97	TDS					0.889	
SM 4500 F-C-97	Fluoride	98.5	99.4	100			0.494
SM 5310 B-00	Organic Carbon	101					1.75

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1846989
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1846989
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1846989

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1846990
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1846990
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1846990
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1846990
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1846991
SM 2120 B / E31780	True Color measured at 450 nm	1846989
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1846989
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1846989
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1846989
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1846989
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1846990

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	11/03/2016			11/03/2016 15:45	Julie Michelle Frank	1846989
EPA 300.0 Rev. 2.1	11/03/2016			11/18/2016	Ping Hua	1846989
EPA 350.1 Rev. 2.0	11/03/2016			11/10/2016	Julie Michelle Frank	1846990
EPA 351.2 Rev. 2.0	11/03/2016	11/17/2016	Martin Acosta	11/18/2016	Joseph Suarez	1846990
EPA 353.2 Rev. 2.0	11/03/2016			11/08/2016	Beverly Y. Sanders	1846990
EPA 365.1 Rev. 2.0	11/03/2016	11/14/2016	Adrian Shelby	11/15/2016	Lipi Saha	1846990
EPA 365.1 Rev. 2.0 dissolved	11/03/2016			11/03/2016 15:06	Julia Storbeck	1846991
SM 2120 B	11/03/2016			11/03/2016 15:51	Jared I. Manley	1846989
SM 2320 B-97	11/03/2016			11/10/2016	Dale L. Simmons	1846989
SM 2540 C-97	11/03/2016			11/07/2016	Sima Feizi	1846989
SM 2540 D-97	11/03/2016			11/07/2016	Sima Feizi	1846989
SM 4500 F-C-97	11/03/2016			11/10/2016	Dale L. Simmons	1846989
SM 5310 B-00	11/03/2016			11/04/2016	Julie Michelle Frank	1846990