

Biological Analysis Report

SE-DIST-2016-12-01-01

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

Event Description: **Reference SCI-**
Request ID: **RQ-2016-05-23-24**
Customer: **SE-DIST**
Project ID: **SCIREF**

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Certified by: Daisys Matthews,

Date Certified: 24-FEB-2017 14:41

A handwritten signature in cursive script that reads "D Matthews". The signature is written in dark ink on a white background.

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 groups are included in this report: Chlorophyll/Grain Size/BOD, InvertZool, Microbiology and Molecular.

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: FORT DRUM CREEK @ US 441

Collection Date/Time: 11/30/2016 12:00

Field ID: 26010430_SCI

Matrix: BIOLOGICAL

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1853800	SOP-IZ06	Stream Condition Index (SCI)**	68	A	Points		
		Macroinvert-FW-Qual-DipnetX20-#Taxa-Rep2**	23		# Taxa		

Sample Location: FORT DRUM CREEK @ US 441

Collection Date/Time: 11/30/2016 12:30

Field ID: 26010430

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1853797	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.2	I	ug/L	P316265	
		Phaeophytin-a	1.8		ug/L	P316265	
		Chlorophyll/Phaeophytin Ratio	1.3			P316265	
		Chlorophyll-a, Uncorrected	2.4		ug/L	P316265	
1853798	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	410.6	Q	MPN/100 mL	P316197	
1853799	SM 9222 D	Fecal Coliforms-Membrane Filter	350	Q	cfu/100 mL	P316492	
1853801	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P316019	MS

Ref. Method and Comment:

SM 9222 D: Volume filtered for QC sample yielded results outside of the ideal range. Precision could not be evaluated.

SOP-PCR-1.0: No amplification of HF183 marker.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P316265

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Reference Method: SM 9222 D

Batch ID: P316492

Component	Result	Code	Units
Fecal Coliforms-Membrane Filter	2	U	cfu/100 mL

Reference Method: SM 9223 Quanti-Tray

Batch ID: P316197

Component	Result	Code	Units
Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL

Reference Method: SOP-PCR-1.0

Batch ID: P316019

Component	Result	Code	Units
HF183-qPCR	280	U	GEU/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P316265

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	88.8		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P316019

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	89.2	99.2	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P316019

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853801	HF183-qPCR	88.2	98.7	P/P	50 - 175
1853814	HF183-qPCR	132		P	50 - 175
1853815	HF183-qPCR	146		P	50 - 175
1853816	HF183-qPCR	119		P	50 - 175
1853817	HF183-qPCR	122		P	50 - 175
1855596	HF183-qPCR	109		P	50 - 175
1855597	HF183-qPCR	104		P	50 - 175
1855726	HF183-qPCR	12.8		F	50 - 175
1858556	HF183-qPCR	119		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P316265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853684	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1853684	Chlorophyll-a, Corrected	3.27	Sample	P	0 - 25
1853684	Chlorophyll-a, Uncorrected	3.53	Sample	P	0 - 25
1853684	Phaeophytin-a	4.44	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
Batch ID: P316197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853806	Escherichia Coli-Quanti-Tray	14.9	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P316019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853801	HF183-qPCR	11.2	Spike	P	0 - 25

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 Surrogates

Lab Sample ID: 1853801
 Field Sample ID: 26010430

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	87.9	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio						0.0		
	Chlorophyll-a, Corrected	88.8					3.27		
	Chlorophyll-a, Uncorrected						3.53		
	Phaeophytin-a						4.44		
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray						14.9		
SOP-PCR-1.0	HF183-qPCR	99.2	89.2	88.2	98.7	132		11.2	
				146					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1853797
SM 9222 D / E31780	Fecal coliforms by membrane filter method - non-chlorinated water systems	1853799
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1853798
SOP-IZ06 / E31780	No. Taxa of FW macroinverts, qual samp, 20 dipnets.	1853800
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1853801

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	12/01/2016	12/01/2016 16:02	Morgan Lane	12/06/2016	Brian Cumbie	1853797
SM 9222 D	12/01/2016	12/01/2016 16:15	Jennifer Mihalic	12/02/2016 15:30	Kim M. Spencer	1853799
SM 9223 Quanti-Tray	12/01/2016	12/01/2016 15:10	Carina A. Tull	12/02/2016 10:20	Kim M. Spencer	1853798
SOP-IZ06	12/01/2016	01/19/2017	Elizabeth Lovern	02/15/2017	Lisa Homann	1853800
	12/01/2016	01/19/2017	Elizabeth Lovern	02/22/2017	Lisa Homann	1853800
SOP-PCR-1.0	12/01/2016	12/01/2016 14:32	Avril Wood	12/29/2016	Sarah Menz	1853801