

Biological Analysis Report

WQ-ASSESS-2017-07-21-01

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

Overflow Analyses Performed By:
Advanced Environmental Laboratories - Tampa
9610 Princess Palm Avenue
Tampa, Florida 33619
DOH Accreditation E84589

Event Description: **RUN 11 Moccasin**

Request ID: **RQ-2017-07-17-28**

Customer: **WQ-ASSESS**

Project ID: **SMP**

Send Reports to:
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This Report replaces the previous Report Serial Number: 0098748

Report Comment: Corrected micro incubation times.

Revision certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 18-APR-2018 09:11



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, Molecular and Overflow.

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: Moccasin Creek

Collection Date/Time: 07/20/2017 10:15

Field ID: G1SW0051

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1915692	SM 10200 H (mod.)	Chlorophyll-a, Corrected	9.9		ug/L	P329354	
		Phaeophytin-a	1.3		ug/L	P329354	
		Chlorophyll/Phaeophytin Ratio	1.6			P329354	
		Chlorophyll-a, Uncorrected	11.1		ug/L	P329354	

Sample Location: Moccasin Creek

Collection Date/Time: 07/20/2017 10:15

Field ID: G1SW0051

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1915693	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P330613	LCS
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P330613	LCS
	SOP-PCR-1.3	GFD-purified-qPCR**	780	I	TSC/100 mL	P330552	LCS, MS, RPD
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	UJ	TSC/100 mL	P330613	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1915694	SM 9230 C	Enterococci-Membrane Filter	230		cfu/100 mL		

Ref. Method and Comment:

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

SOP-PCR-1.2: No amplification of GULL2 marker.

SOP-PCR-1.4: No amplification of BACR marker. Quality control failure(s) observed. See QA report for details.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P329354

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: SOP-PCR-1.0

Batch ID: P330613

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

Reference Method: SOP-PCR-1.2

Batch ID: P330613

Component	Result	Code	Units
GULL2-qPCR	1.7E+04	U	TSC/100 mL

Reference Method: SOP-PCR-1.3

Batch ID: P330552

Component	Result	Code	Units
GFD-purified-qPCR	340	U	TSC/100 mL

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.4
 Batch ID: P330613

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL
BacR-qPCR	3.0E+03	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
 Batch ID: P329354

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	108		P	84 - 116

Reference Method: SOP-PCR-1.0
 Batch ID: P330613

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	117	3.57	P/F	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P330613

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	97.5	31.8	P/F	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P330552

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	120	12.9	P/F	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P330613

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	604	96.6	F/P	50 - 175
BacR-qPCR	241	72.4	F/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P330613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913976	HF183-qPCR	102		P	50 - 175
1915406	HF183-qPCR	93.5		P	50 - 175
1915693	HF183-qPCR	95.2		P	50 - 175
1922795	HF183-qPCR	75.9		P	50 - 175
1922796	HF183-qPCR	92.0		P	50 - 175
1922809	HF183-qPCR	58.9		P	50 - 175
1923589	HF183-qPCR	108		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P330613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1923590	HF183-qPCR	74.6		P	50 - 175
1923820	HF183-qPCR	83.5		P	50 - 175
1923821	HF183-qPCR	90.4		P	50 - 175
1923822	HF183-qPCR	73.8	68.0	P/P	50 - 175
1924464	HF183-qPCR	115		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P330613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915693	GULL2-qPCR	70.4		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P330552

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914093	GFD-purified-qPCR	112		P	50 - 175
1915515	GFD-purified-qPCR	62.4		P	50 - 175
1915693	GFD-purified-qPCR	120		P	50 - 175
1916673	GFD-purified-qPCR	135		P	50 - 175
1922635	GFD-purified-qPCR	0.0		F	50 - 175
1923592	GFD-purified-qPCR	221		F	50 - 175
1923820	GFD-purified-qPCR	25.5		F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P330613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915406	BacR-qPCR	61.3		P	50 - 175
1915693	BacR-qPCR	82.9		P	50 - 175
1922809	BacR-qPCR	50.9		P	50 - 175
1923821	BacR-qPCR	68.9		P	50 - 175
1923822	BacR-qPCR	61.4	52.1	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P329354

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915861	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1915861	Chlorophyll-a, Corrected	19.3	Sample	P	0 - 25
1915861	Chlorophyll-a, Uncorrected	19.0	Sample	P	0 - 25
1915861	Phaeophytin-a	14.0	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P330613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923822	HF183-qPCR	8.22	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
 Batch ID: P330613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922635	GULL2-qPCR	2.29	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P330552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922635	GFD-purified-qPCR	10000	Spike	F	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P330613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923822	BacR-qPCR	16.8	Spike	P	0 - 25
1928532	BacR-qPCR	8.98	Spike	P	0 - 25

* 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: 1915693
 Field Sample ID: G1SW0051

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	92.7	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	73.0	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	77.1	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision	
				LCS			SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio						0.0	
	Chlorophyll-a, Corrected	108					19.3	
	Chlorophyll-a, Uncorrected						19.0	
	Phaeophytin-a						14.0	
SOP-PCR-1.0	HF183-qPCR	3.57	117	75.9	92.0	58.9		8.22
				108				
SOP-PCR-1.2	GULL2-qPCR	31.8	97.5	70.4				2.29

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SOP-PCR-1.3	GFD-purified-qPCR	12.9	120		120	0.0	221			10000
SOP-PCR-1.4	BacR-qPCR	604	72.4	241	68.9	61.4	52.1			16.8 8.98
		96.6			61.3					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1915692
SM 9230 C / E84589	Enterococci by membrane filter method by Advanced Environmental Overflow Laboratories for SWD	1915694
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1915693
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1915693
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1915693
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1915693
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1915693

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	07/21/2017	07/21/2017 12:45	Morgan Lane	07/28/2017 07:50	Kim M. Spencer	1915692
SM 9230 C	07/20/2017	07/20/2017 15:04		07/21/2017 13:04	AEL - Tampa	1915694
SOP-PCR-1.0	07/21/2017	07/21/2017 12:00	Puja Jasrotia	08/28/2017 15:19	Puja Jasrotia	1915693
SOP-PCR-1.2	07/21/2017	07/21/2017 12:00	Puja Jasrotia	09/01/2017 10:00	Sarah Menz	1915693
SOP-PCR-1.3	07/21/2017	07/21/2017 12:00	Avril Wood	08/29/2017 11:49	Sarah Menz	1915693
SOP-PCR-1.4	07/21/2017	07/21/2017 12:00	Puja Jasrotia	08/30/2017 12:51	Sarah Menz	1915693
SOP-PCR-4.0	07/21/2017	07/21/2017 12:00	Avril Wood	08/25/2017 13:26	Puja Jasrotia	1915693