

Biological Analysis Report

TLH-ROC-2017-11-15-04

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

Event Description: **SMP 2017 kit_b/t/m PCR-FILTER / PCR-HF183 / (811
Ocklawaha Creek)**
Request ID: **RQ-2017-10-30-56**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Date Certified: 05-JAN-2018 14:51



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: 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: WOODS CREEK @ OSTEEN RD.

Collection Date/Time: 11/15/2017 09:35

Field ID: G1TLHR0067-2017-10

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1946634	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	602.0	A	MPN/100 mL	P335927	
1946635	SOP-PCR-1.0	HF183-qPCR**	71	U	GEU/100 mL	P335328	
	SOP-PCR-1.2	GULL2-qPCR**	4.2E+03	U	TSC/100 mL	P335328	
	SOP-PCR-1.3	GFD-purified-qPCR**	14	TJ	TSC/100 mL	P336491	LCS, MS, RPD
	SOP-PCR-1.4	BacR-qPCR**	760	U	TSC/100 mL	P335328	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

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

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

SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.

SOP-PCR-1.4: No amplification of BACR marker.

Quality Assurance Report Method Blank Results

Reference Method: SM 9223 Quanti-Tray

Batch ID: P335927

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

Reference Method: SOP-PCR-1.0

Batch ID: P335328

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

Reference Method: SOP-PCR-1.2

Batch ID: P335328

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

Reference Method: SOP-PCR-1.3

Batch ID: P336491

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

Reference Method: SOP-PCR-1.4

Batch ID: P335328

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

Quality Assurance Report Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P335328

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	117	107	P/P	50 - 175
HF183-qPCR	101	114	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P335328

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	91.4	114	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P336491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	5.70	125	F/P	50 - 175
GFD-purified-qPCR	12.2	152	F/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P335328

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	117	148	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P335328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946394	HF183-qPCR	82.1	80.1	P/P	50 - 175
1946395	HF183-qPCR	90.5		P	50 - 175
1946396	HF183-qPCR	82.0		P	50 - 175
1946397	HF183-qPCR	86.6		P	50 - 175
1946398	HF183-qPCR	72.1		P	50 - 175
1946445	HF183-qPCR	65.7		P	50 - 175
1946446	HF183-qPCR	71.9		P	50 - 175
1946447	HF183-qPCR	77.3		P	50 - 175
1946448	HF183-qPCR	54.4		P	50 - 175
1946449	HF183-qPCR	74.9		P	50 - 175
1946450	HF183-qPCR	85.3		P	50 - 175
1946451	HF183-qPCR	86.3		P	50 - 175
1946635	HF183-qPCR	87.2		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P335328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946394	GULL2-qPCR	77.7	66.2	P/P	50 - 300
1946395	GULL2-qPCR	62.5		P	50 - 300
1946396	GULL2-qPCR	87.3		P	50 - 300
1946397	GULL2-qPCR	56.5		P	50 - 300

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.2

Batch ID: P335328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946398	GULL2-qPCR	58.1		P	50 - 300
1946445	GULL2-qPCR	51.1		P	50 - 300
1946635	GULL2-qPCR	79.8		P	50 - 300
1947559	GULL2-qPCR	62.4		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P336491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943228	GFD-purified-qPCR	193		F	50 - 175
1946445	GFD-purified-qPCR	69.0		P	50 - 175
1946635	GFD-purified-qPCR	176		F	50 - 175
1950434	GFD-purified-qPCR	140		P	50 - 175
1951442	GFD-purified-qPCR	57.7		P	50 - 175
1951443	GFD-purified-qPCR	148	130	P/P	50 - 175
1953137	GFD-purified-qPCR	156		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P335328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946394	BacR-qPCR	55.0	55.1	P/P	50 - 175
1946395	BacR-qPCR	65.1		P	50 - 175
1946396	BacR-qPCR	62.7		P	50 - 175
1946397	BacR-qPCR	59.7		P	50 - 175
1946398	BacR-qPCR	66.5		P	50 - 175
1946445	BacR-qPCR	55.1		P	50 - 175
1946635	BacR-qPCR	56.8		P	50 - 175
1946708	BacR-qPCR	63.3		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 9223 Quanti-Tray

Batch ID: P335927

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946296	Escherichia Coli-Quanti-Tray	59.5	Sample	P	0 - 80
1946634	Escherichia Coli-Quanti-Tray	28.2	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0

Batch ID: P335328

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946394	HF183-qPCR	2.50	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.2
Batch ID: P335328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946394	GULL2-qPCR	15.9	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P336491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951443	GFD-purified-qPCR	12.7	Spike	P	0 - 25
1955375	GFD-purified-qPCR	74.0	Spike	F	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P335328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946394	BacR-qPCR	0.237	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: 1946635
Field Sample ID: G1TLHR0067-2017-10

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	126	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	101	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	98.8	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SM 9223 Quanti-Tray SOP-PCR-1.0	Escherichia Coli-Quanti-Tray HF183-qPCR	117	114	101	82.1	80.1	90.5		59.5 28.2	2.50
SOP-PCR-1.2	GULL2-qPCR	107			82.0					
		114	91.4		77.7	66.2	62.5			15.9
					87.3					
SOP-PCR-1.3	GFD-purified-qPCR	5.70	152	12.2	140	148	130			12.7 74.0
		125			69.0					
SOP-PCR-1.4	BacR-qPCR	148	117		55.0	55.1	65.1			0.237
					62.7					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1946634
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1946635
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1946635
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1946635
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1946635
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1946635

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 9223 Quanti-Tray	11/15/2017	11/15/2017 16:35	Carina A. Tull	11/16/2017 11:50	Carina A. Tull	1946634
SOP-PCR-1.0	11/15/2017	11/16/2017 08:30	Sarah Menz	12/01/2017	Sarah Menz	1946635
SOP-PCR-1.2	11/15/2017	11/16/2017 08:30	Sarah Menz	12/12/2017	Sarah Menz	1946635
SOP-PCR-1.3	11/15/2017	11/16/2017 08:30	Avril Wood	12/15/2017	Sarah Menz	1946635
SOP-PCR-1.4	11/15/2017	11/16/2017 08:30	Sarah Menz	12/11/2017	Sarah Menz	1946635
SOP-PCR-4.0	11/15/2017	11/16/2017 08:30	Sarah Menz	12/12/2017	Puja Jasrotia	1946635