

Biological Analysis Report

TLH-ROC-2018-02-22-02

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

Event Description: **b/t/m PCR-FILTER**
Request ID: **RQ-2018-01-15-20**
Customer: **TLH-ROC**
Project ID: **SMP**

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Date Certified: 29-MAR-2018 16:52



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: HARVEYCREEK@JOETHOMASRD

Collection Date/Time: 02/22/2018 12:40

Field ID: G1TLHR0082

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1969849	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	131.4		MPN/100 mL	P340565	
1969852	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: HARVEY CREEK @ HWY20

Collection Date/Time: 02/22/2018 13:00

Field ID: G1TLHR0058

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1969850	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	547.5		MPN/100 mL	P340565	
1969853	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P341092	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P341092	LCS
	SOP-PCR-1.3	GFD-purified-qPCR**	170	I	TSC/100 mL	P341511	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P341092	RPD
	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-1.4: No amplification of BACR marker.

Sample Location: Polk Creek @ End of Merry Robin Rd

Collection Date/Time: 02/22/2018 13:15

Field ID: G1TLHR0055

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1969851	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	224.7		MPN/100 mL	P340565	
1969854	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Quality Assurance Report Method Blank Results

Reference Method: SM 9223 Quanti-Tray

Batch ID: P340565

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

Reference Method: SOP-PCR-1.0

Batch ID: P341092

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

Reference Method: SOP-PCR-1.2

Batch ID: P341092

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

Reference Method: SOP-PCR-1.3

Batch ID: P341511

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: P341092

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P341092

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	128	95.1	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P341092

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	105	26.0	P/F	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P341511

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	104	14.2	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P341092

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	78.8	51.3	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P341092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969246	HF183-qPCR	76.0		P	50 - 175
1969248	HF183-qPCR	98.2		P	50 - 175
1969853	HF183-qPCR	102		P	50 - 175
1970980	HF183-qPCR	92.3		P	50 - 175
1971017	HF183-qPCR	81.1		P	50 - 175
1974797	HF183-qPCR	95.2	96.0	P/P	50 - 175
1974798	HF183-qPCR	85.8		P	50 - 175
1974799	HF183-qPCR	94.7		P	50 - 175
1974800	HF183-qPCR	102		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P341092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969248	GULL2-qPCR	68.5		P	50 - 300

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.2
Batch ID: P341092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969853	GULL2-qPCR	62.8		P	50 - 300
1970982	GULL2-qPCR	81.1		P	50 - 300
1974797	GULL2-qPCR	67.0	64.8	P/P	50 - 300
1974798	GULL2-qPCR	72.9		P	50 - 300
1974799	GULL2-qPCR	84.7		P	50 - 300
1974800	GULL2-qPCR	70.6		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P341511

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969248	GFD-purified-qPCR	66.7		P	50 - 175
1969853	GFD-purified-qPCR	144		P	50 - 175
1974796	GFD-purified-qPCR	103	105	P/P	50 - 175
1974797	GFD-purified-qPCR	186		F	50 - 175
1974798	GFD-purified-qPCR	28.6		F	50 - 175
1974799	GFD-purified-qPCR	147		P	50 - 175
1974800	GFD-purified-qPCR	113		P	50 - 175
1975036	GFD-purified-qPCR	134		P	50 - 175
1975110	GFD-purified-qPCR	40.8		F	50 - 175
1975111	GFD-purified-qPCR	170		P	50 - 175
1975112	GFD-purified-qPCR	59.2		P	50 - 175
1975113	GFD-purified-qPCR	130		P	50 - 175
1975114	GFD-purified-qPCR	143		P	50 - 175
1976478	GFD-purified-qPCR	89.2		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P341092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969248	BacR-qPCR	61.3		P	50 - 175
1969853	BacR-qPCR	56.1		P	50 - 175
1970888	BacR-qPCR	66.5		P	50 - 175
1970889	BacR-qPCR	57.9		P	50 - 175
1974797	BacR-qPCR	66.3	50.5	P/P	50 - 175
1974798	BacR-qPCR	75.1		P	50 - 175
1974799	BacR-qPCR	71.5		P	50 - 175
1974800	BacR-qPCR	56.9		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 9223 Quanti-Tray
Batch ID: P340565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969587	Escherichia Coli-Quanti-Tray	37.3	Sample	P	0 - 80

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P341092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974797	HF183-qPCR	0.805	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P341092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974797	GULL2-qPCR	2.38	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P341511

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974796	GFD-purified-qPCR	9.98	Sample	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P341092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974797	BacR-qPCR	26.9	Spike	F	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: 1969853
Field Sample ID: G1TLHR0058

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	105	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	96.7	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray							37.3	
SOP-PCR-1.0	HF183-qPCR	95.1	128	81.1	76.0	98.2			0.805
				102					
SOP-PCR-1.2	GULL2-qPCR	26.0	105	81.1	68.5	62.8			2.38
				67.0					
SOP-PCR-1.3	GFD-purified-qPCR	14.2	104	103	105	186		9.98	
				28.6					
SOP-PCR-1.4	BacR-qPCR	51.3	78.8	66.5	57.9	61.3			26.9
				56.1					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1969849, 1969850, 1969851
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1969853
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1969853
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1969853
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1969853
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1969852, 1969853, 1969854

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 9223 Quanti-Tray	02/22/2018	02/22/2018 15:10	Edwin Gonzalez-Soto	02/23/2018 09:35	Jennifer Mihalic	1969849, 1969850, 1969851
SOP-PCR-1.0	02/22/2018	02/22/2018 15:10	Sarah Menz	03/15/2018	Sarah Menz	1969853
SOP-PCR-1.2	02/22/2018	02/22/2018 15:10	Sarah Menz	03/19/2018	Sarah Menz	1969853
SOP-PCR-1.3	02/22/2018	02/22/2018 15:10	Sarah Menz	03/23/2018	Sarah Menz	1969853
SOP-PCR-1.4	02/22/2018	02/22/2018 15:10	Sarah Menz	03/16/2018	Sarah Menz	1969853
SOP-PCR-4.0	02/22/2018	02/22/2018 15:10	Angela Smith	03/12/2018	Puja Jasrotia	1969852, 1969853, 1969854