

Biological Analysis Report

TLH-ROC-2018-01-18-02

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: 23-FEB-2018 14:58



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: HARVEY CREEK @ HWY20

Collection Date/Time: 01/18/2018 09:25

Field ID: G1TLHR0058

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960439	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1299.7		MPN/100 mL	P339770	
1960444	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P339080	
	SOP-PCR-1.4	BacR-qPCR**	360	T	TSC/100 mL	P339080	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
SOP-PCR-1.0: No amplification of HF183 marker.

Sample Location: HARVEY CREEK @ JOE THOMAS RD

Collection Date/Time: 01/18/2018 09:50

Field ID: G1TLHR0082

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960440	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1299.7		MPN/100 mL	P339770	
1960445	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P339080	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P339080	
	SOP-PCR-1.3	GFD-purified-qPCR**	140	TJ	TSC/100 mL	P338789	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P339080	
	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. Precision data unavailable for Analysis Batch A82166.
SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.
SOP-PCR-1.4: No amplification of BACR marker.

Sample Location: HARVEY CREEK @ JOE THOMAS RD

Collection Date/Time: 01/18/2018 09:55

Field ID: G1TLHR0082DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960441	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1119.9		MPN/100 mL	P339770	
1960446	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P339080	
	SOP-PCR-1.4	BacR-qPCR**	150	T	TSC/100 mL	P339080	
	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-1.4: Precision data unavailable for Analysis Batch A82022.

Sample Location: FIELD BLANK

Collection Date/Time: 01/18/2018 09:55

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960442	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL	P339770	
1960447	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: MULE CREEK @ SR12

Collection Date/Time: 01/18/2018 11:45

Field ID: G1TLHR0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960443	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	319.0	A	MPN/100 mL	P339770	
1960448	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Quality Assurance Report Method Blank Results

Reference Method: SM 9223 Quanti-Tray
 Batch ID: P339770

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

Reference Method: SOP-PCR-1.0
 Batch ID: P339080

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

Reference Method: SOP-PCR-1.2
 Batch ID: P339080

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

Reference Method: SOP-PCR-1.3
 Batch ID: P338789

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

Reference Method: SOP-PCR-1.4
 Batch ID: P339080

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: SOP-PCR-1.0
 Batch ID: P339080

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	112	87.7	P/P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P339080

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	87.3	112	P/P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P338789

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	181	12.4	F/F	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P339080

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	105	111	P/P	50 - 175
BacR-qPCR	100	113	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P339080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960211	HF183-qPCR	86.4		P	50 - 175
1960432	HF183-qPCR	98.3		P	50 - 175
1960444	HF183-qPCR	86.7		P	50 - 175
1960445	HF183-qPCR	82.7		P	50 - 175
1960446	HF183-qPCR	89.5		P	50 - 175
1963189	HF183-qPCR	99.1	82.3	P/P	50 - 175
1963190	HF183-qPCR	81.9		P	50 - 175
1963377	HF183-qPCR	90.5		P	50 - 175
1964711	HF183-qPCR	96.8		P	50 - 175
1965581	HF183-qPCR	84.2		P	50 - 175
1965582	HF183-qPCR	83.5		P	50 - 175
1965800	HF183-qPCR	78.1		P	50 - 175
1965801	HF183-qPCR	85.5		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P339080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960445	GULL2-qPCR	76.5		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P338789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958503	GFD-purified-qPCR	262		F	50 - 175
1960445	GFD-purified-qPCR	206		F	50 - 175
1962140	GFD-purified-qPCR	166	189	P/F	50 - 175
1963189	GFD-purified-qPCR	149		P	50 - 175
1963190	GFD-purified-qPCR	152		P	50 - 175
1964711	GFD-purified-qPCR	269		F	50 - 175
1965800	GFD-purified-qPCR	254		F	50 - 175
1965801	GFD-purified-qPCR	215		F	50 - 175
1967510	GFD-purified-qPCR	159		P	50 - 175
1967511	GFD-purified-qPCR	108		P	50 - 175
1967512	GFD-purified-qPCR	67.2		P	50 - 175
1967514	GFD-purified-qPCR	193		F	50 - 175
1967891	GFD-purified-qPCR	58.8		P	50 - 175
1967892	GFD-purified-qPCR	129		P	50 - 175
1967893	GFD-purified-qPCR	120		P	50 - 175
1967894	GFD-purified-qPCR	120		P	50 - 175
1967895	GFD-purified-qPCR	259		F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P339080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960444	BacR-qPCR	63.1		P	50 - 175
1960445	BacR-qPCR	75.3		P	50 - 175
1960446	BacR-qPCR	73.3		P	50 - 175
1961602	BacR-qPCR	83.6		P	50 - 175
1963137	BacR-qPCR	57.2		P	50 - 175
1963138	BacR-qPCR	58.3		P	50 - 175
1963189	BacR-qPCR	64.7	72.9	P/P	50 - 175
1963190	BacR-qPCR	66.0		P	50 - 175
1963377	BacR-qPCR	83.5		P	50 - 175
1964711	BacR-qPCR	72.0		P	50 - 175
1965581	BacR-qPCR	67.6		P	50 - 175
1965582	BacR-qPCR	79.5		P	50 - 175
1965801	BacR-qPCR	74.9		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 9223 Quanti-Tray
Batch ID: P339770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960040	Escherichia Coli-Quanti-Tray	10.3	Sample	P	0 - 80
1960443	Escherichia Coli-Quanti-Tray	18.0	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P339080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963189	HF183-qPCR	18.5	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P338789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962140	GFD-purified-qPCR	13.5	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P339080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963189	BacR-qPCR	11.8	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

Quality Assurance Report Surrogates

Lab Sample ID: 1960444
Field Sample ID: G1TLHR0058

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	125	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	113	P	50 - 300

Lab Sample ID: 1960445
Field Sample ID: G1TLHR0082

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	127	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	115	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	115	P	50 - 300

Lab Sample ID: 1960446
Field Sample ID: G1TLHR0082DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	119	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	104	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision		MS
									SMP		
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray								10.3	18.0	
SOP-PCR-1.0	HF183-qPCR	87.7	112		99.1	82.3	81.9				18.5
					90.5						
SOP-PCR-1.2	GULL2-qPCR	112	87.3		76.5						
SOP-PCR-1.3	GFD-purified-qPCR	12.4	181		166	189	149				13.5
					152						
SOP-PCR-1.4	BacR-qPCR	105	113	100	57.2	58.3	64.7				11.8
		111			72.9						

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	1960439, 1960440, 1960441, 1960442, 1960443
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1960444, 1960445, 1960446
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1960445
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1960445
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1960444, 1960445, 1960446
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1960444, 1960445, 1960446, 1960447, 1960448

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 9223 Quanti-Tray	01/18/2018	01/18/2018 15:40	Edwin Gonzalez-Soto	01/19/2018 10:35	Kim M. Spencer	1960439, 1960440, 1960441, 1960442, 1960443
SOP-PCR-1.0	01/18/2018	01/19/2018 13:00	Mailin Lopez	02/09/2018	Sarah Menz	1960444, 1960445, 1960446
SOP-PCR-1.2	01/18/2018	01/19/2018 13:00	Mailin Lopez	02/19/2018	Sarah Menz	1960445
SOP-PCR-1.3	01/18/2018	01/19/2018 13:00	Mailin Lopez	02/21/2018	Sarah Menz	1960445
SOP-PCR-1.4	01/18/2018	01/19/2018 13:00	Mailin Lopez	02/13/2018	Sarah Menz	1960444, 1960445, 1960446
SOP-PCR-4.0	01/18/2018	01/19/2018 13:00	Avril Wood	02/05/2018	Puja Jasrotia	1960444, 1960445, 1960446, 1960447, 1960448