

Biological Analysis Report

TLH-ROC-2019-06-26-02

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

Event Description: **Run 1**
Request ID: **RQ-2019-06-24-37**
Customer: **TLH-ROC**
Project ID: **SMP**

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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 30-JUL-2019 15:15



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, 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 by the Florida Department of Health Environmental Laboratory Certification Program 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: LEXINGTON CREEK 100M DOWNSTREAM N
 MERIDIAN RD**

Collection Date/Time: 06/26/2019 08:55

Field ID: G1TLHR0109

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2098707	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.8	I	ug/L	P366904	
		Phaeophytin-a	0.75	U	ug/L	P366904	
		Chlorophyll-a, Uncorrected	2.2		ug/L	P366904	
2098708	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1119.9		MPN/100 mL	P366750	
2098709	SOP-PCR-1.0	HF183-qPCR**	170	I	GEU/100 mL	P366320	LCS
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P366320	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	UJ	TSC/100 mL	P365420	MS
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P366320	LCS
	SOP-PCR-1.7	HUMM2-qPCR**	4.50E+04		TSC/100 mL	P366320	LCS

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

SOP-PCR-1.0: Duplicate was analyzed and result is 140 U.

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

SOP-PCR-1.7: Duplicate was analyzed and result is 630 U.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P366904

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.69	U	ug/L
Chlorophyll-a, Uncorrected	0.50	U	ug/L
Phaeophytin-a	0.75	U	ug/L

Reference Method: SM 9223 Quanti-Tray

Batch ID: P366750

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

Reference Method: SOP-PCR-1.0

Batch ID: P366320

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

Reference Method: SOP-PCR-1.2

Batch ID: P366320

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

Reference Method: SOP-PCR-1.3

Batch ID: P365420

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.5
Batch ID: P366320

Component	Result	Code	Units
DG3-qPCR	2.6E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.7
Batch ID: P366320

Component	Result	Code	Units
HUMM2-qPCR	1.3E+03	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P366904

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	90.4		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P366320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	111	205	P/F	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P366320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	237	112	P/P	50 - 300
GULL2-qPCR	187	118	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P365420

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	111	67.8	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P366320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	112	280	P/F	50 - 175

Reference Method: SOP-PCR-1.7
Batch ID: P366320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HUMM2-qPCR	158	651	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P366320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095801	HF183-qPCR	80.3		P	50 - 175
2098564	HF183-qPCR	85.8		P	50 - 175
2098709	HF183-qPCR	104	101	P/P	50 - 175
2098783	HF183-qPCR	90.4		P	50 - 175
2098815	HF183-qPCR	93.6		P	50 - 175
2098816	HF183-qPCR	93.5		P	50 - 175
2099128	HF183-qPCR	92.0		P	50 - 175
2099129	HF183-qPCR	87.8		P	50 - 175
2099217	HF183-qPCR	90.5		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P366320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095801	GULL2-qPCR	70.7		P	50 - 300
2098709	GULL2-qPCR	89.0	108	P/P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P365420

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091168	GFD-purified-qPCR	219		F	50 - 175
2092578	GFD-purified-qPCR	225		F	50 - 175
2092579	GFD-purified-qPCR	144		P	50 - 175
2094286	GFD-purified-qPCR	331		F	50 - 175
2095801	GFD-purified-qPCR	151		P	50 - 175
2095804	GFD-purified-qPCR	237		F	50 - 175
2095805	GFD-purified-qPCR	144		P	50 - 175
2098709	GFD-purified-qPCR	342	294	F/F	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P366320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098709	DG3-qPCR	105	104	P/P	50 - 175

Reference Method: SOP-PCR-1.7

Batch ID: P366320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098709	HUMM2-qPCR	136	135	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P366904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098730	Chlorophyll-a, Corrected	2.64	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P366904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098730	Chlorophyll-a, Uncorrected	3.31	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
 Batch ID: P366750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098699	Escherichia Coli-Quanti-Tray	0.514	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
 Batch ID: P366320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098709	HF183-qPCR	2.67	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
 Batch ID: P366320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098709	GULL2-qPCR	18.9	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P365420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098709	GFD-purified-qPCR	15.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
 Batch ID: P366320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098709	DG3-qPCR	0.398	Spike	P	0 - 25

Reference Method: SOP-PCR-1.7
 Batch ID: P366320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098709	HUMM2-qPCR	0.489	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: 2098709
Field Sample ID: G1TLHR0109

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	107	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	106	P	50 - 300
SOP-PCR-1.7	SKETA-qPCR	111	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	90.4						2.64	
	Chlorophyll-a, Uncorrected							3.31	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray							0.514	
SOP-PCR-1.0	HF183-qPCR	205	111	85.8	104	101			2.67
				90.4					
SOP-PCR-1.2	GULL2-qPCR	237	118	187	89.0	108	70.7		18.9
		112							
SOP-PCR-1.3	GFD-purified-qPCR	67.8	111		342	294	225		15.1
							144		
SOP-PCR-1.5	DG3-qPCR	280	112		105	104			0.398
SOP-PCR-1.7	HUMM2-qPCR	651	158		136	135			0.489

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2098707
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2098708
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2098709
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2098709
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2098709
SOP-PCR-1.5 / E31780	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2098709
SOP-PCR-1.7 / E31780	Detection and quantification of human-specific HUMM2 genetic marker with quantitative polymerase chain reaction	2098709

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	06/26/2019	06/27/2019 14:24	Yuliya Danyuk	07/09/2019 08:20	Peterson Janvier	2098707
SM 9223 Quanti-Tray	06/26/2019	06/26/2019 16:28	Jessica Fetgatter	06/27/2019 13:11	Jessica Fetgatter	2098708
SOP-PCR-1.0	06/26/2019	06/27/2019 09:45	Angela Smith	07/02/2019 11:37	Mailin Lopez	2098709
SOP-PCR-1.2	06/26/2019	06/27/2019 09:45	Angela Smith	07/16/2019 13:31	Mailin Lopez	2098709
SOP-PCR-1.3	06/26/2019	06/27/2019 09:45	Angela Smith	07/12/2019 11:35	Mailin Lopez	2098709
SOP-PCR-1.5	06/26/2019	06/27/2019 09:45	Angela Smith	07/09/2019 14:20	Mailin Lopez	2098709
SOP-PCR-1.7	06/26/2019	06/27/2019 09:45	Angela Smith	07/09/2019 16:48	Mailin Lopez	2098709