

Biological Analysis Report

TLH-ROC-2019-06-24-01

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**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

For additional information please contact
Cheryl Swanson - Administrator
Jacqueline Savage - Microbiology
Diane Power - Bench Biology
Andrew Tintle - Aquatic Toxicology
Puja Jasrotia, Ph.D. - Molecular Biology
Amelia Rankin - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 19-JUL-2019 12:06

A handwritten signature in black ink, appearing to be 'Puja Jasrotia', with a horizontal line underneath it.

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: SUGAR CREEK @ SUWANNEE RIVER

Collection Date/Time: 06/24/2019 12:40

Field ID: G1TLHR0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2097840	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P366765	
		Phaeophytin-a	0.90	U	ug/L	P366765	
		Chlorophyll-a, Uncorrected	0.91	I	ug/L	P366765	
2097842	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	770.1		MPN/100 mL	P366300	
2097844	SOP-PCR-1.0	HF183-qPCR**	110	I	GEU/100 mL	P366460	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold			P365679	

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.

Sample Location: LEXINGTON CREEK @ TIMBERLANE RD

Collection Date/Time: 06/24/2019 09:50

Field ID: G1TLHR0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2097841	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.7	I	ug/L	P366765	
		Phaeophytin-a	0.98	U	ug/L	P366765	
		Chlorophyll-a, Uncorrected	1.6	I	ug/L	P366765	
2097843	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	7932.5	A	MPN/100 mL	P366300	
2097845	SOP-PCR-1.0	HF183-qPCR**	5.89E+04		GEU/100 mL	P365930	LCS
	SOP-PCR-1.2	GULL2-qPCR**	5.6E+03	U	TSC/100 mL	P365930	
	SOP-PCR-1.3	GFD-purified-qPCR**	650	J	TSC/100 mL	P366837	LCS, MS
	SOP-PCR-1.5	DG3-qPCR**	7.72E+04		TSC/100 mL	P365930	LCS
	SOP-PCR-1.7	HUMM2-qPCR**	1.87E+06		TSC/100 mL	P365930	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-1.2: Precision data unavailable for Analysis Batch A92599

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

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P366765

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Reference Method: SM 9223 Quanti-Tray

Batch ID: P366300

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

Reference Method: SOP-PCR-1.0

Batch ID: P365930

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P366460

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

Reference Method: SOP-PCR-1.2
Batch ID: P365930

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

Reference Method: SOP-PCR-1.3
Batch ID: P366837

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

Reference Method: SOP-PCR-1.5
Batch ID: P365930

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

Reference Method: SOP-PCR-1.7
Batch ID: P365930

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: P366765

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	107		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P365930

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	125	185	P/F	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P366460

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	149	143	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P365930

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.2
 Batch ID: P365930

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	112	224	P/P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P366837

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	203	71.5	F/P	50 - 175

Reference Method: SOP-PCR-1.5
 Batch ID: P365930

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	112	270	P/F	50 - 175

Reference Method: SOP-PCR-1.7
 Batch ID: P365930

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HUMM2-qPCR	158	431	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P365930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091168	HF183-qPCR	104		P	50 - 175
2092578	HF183-qPCR	98.0		P	50 - 175
2092579	HF183-qPCR	97.2		P	50 - 175
2096760	HF183-qPCR	104		P	50 - 175
2096761	HF183-qPCR	115		P	50 - 175
2096762	HF183-qPCR	126	123	P/P	50 - 175
2097400	HF183-qPCR	93.6		P	50 - 175
2097401	HF183-qPCR	109		P	50 - 175
2097402	HF183-qPCR	90.7		P	50 - 175
2097845	HF183-qPCR	91.5		P	50 - 175
2098198	HF183-qPCR	95.6		P	50 - 175
2098560	HF183-qPCR	88.2		P	50 - 175
2098561	HF183-qPCR	91.5		P	50 - 175

Reference Method: SOP-PCR-1.0
 Batch ID: P366460

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095804	HF183-qPCR	99.2		P	50 - 175
2095805	HF183-qPCR	100		P	50 - 175
2096551	HF183-qPCR	119		P	50 - 175
2096552	HF183-qPCR	101		P	50 - 175
2096585	HF183-qPCR	109		P	50 - 175
2096763	HF183-qPCR	118		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P366460

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2096968	HF183-qPCR	108		P	50 - 175
2096969	HF183-qPCR	89.1		P	50 - 175
2097844	HF183-qPCR	104		P	50 - 175
2098562	HF183-qPCR	97.0		P	50 - 175
2099657	HF183-qPCR	95.5		P	50 - 175
2099658	HF183-qPCR	102		P	50 - 175
2100038	HF183-qPCR	71.7	65.2	P/P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P365930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091168	GULL2-qPCR	112		P	50 - 300
2092578	GULL2-qPCR	102		P	50 - 300
2092579	GULL2-qPCR	85.4		P	50 - 300
2097845	GULL2-qPCR	89.4		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P366837

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2096551	GFD-purified-qPCR	153		P	50 - 175
2096552	GFD-purified-qPCR	272		F	50 - 175
2096585	GFD-purified-qPCR	258		F	50 - 175
2096763	GFD-purified-qPCR	252		F	50 - 175
2096968	GFD-purified-qPCR	393		F	50 - 175
2096969	GFD-purified-qPCR	316		F	50 - 175
2097845	GFD-purified-qPCR	301		F	50 - 175
2098562	GFD-purified-qPCR	96.9		P	50 - 175
2100038	GFD-purified-qPCR	248	221	F/F	50 - 175
2101175	GFD-purified-qPCR	381		F	50 - 175
2101593	GFD-purified-qPCR	311		F	50 - 175
2101594	GFD-purified-qPCR	321		F	50 - 175
2101595	GFD-purified-qPCR	292		F	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P365930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2097845	DG3-qPCR	117		P	50 - 175

Reference Method: SOP-PCR-1.7

Batch ID: P365930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2097845	HUMM2-qPCR	104		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P366765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2097967	Chlorophyll-a, Corrected	4.07	Sample	P	0 - 25
2097967	Chlorophyll-a, Uncorrected	3.95	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
Batch ID: P366300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2097843	Escherichia Coli-Quanti-Tray	5.84	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P365930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2096762	HF183-qPCR	2.64	Spike	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P366460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2100038	HF183-qPCR	9.47	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P366837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2100038	GFD-purified-qPCR	11.2	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P365930

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: P365930

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: 2097844
Field Sample ID: G1TLHR0047

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

Lab Sample ID: 2097845
Field Sample ID: G1TLHR0088

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	104	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	117	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	98.2	P	50 - 300
SOP-PCR-1.7	SKETA-qPCR	102	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	107			4.07	
	Chlorophyll-a, Uncorrected				3.95	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray				5.84	
SOP-PCR-1.0	HF183-qPCR	185 125	104 115 126			2.64
	HF183-qPCR	143 149	108 89.1 104			9.47
			95.5			
SOP-PCR-1.2	GULL2-qPCR	224 112	112 102 85.4			
			89.4			
SOP-PCR-1.3	GFD-purified-qPCR	71.5 203	301 248 221			11.2
			153			
SOP-PCR-1.5	DG3-qPCR	270 112	117			0.398
SOP-PCR-1.7	HUMM2-qPCR	431 158	104			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	2097840, 2097841
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2097842, 2097843
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2097844, 2097845
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2097845
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2097845
SOP-PCR-1.5 / E31780	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2097845
SOP-PCR-1.7 / E31780	Detection and quantification of human-specific HUMM2 genetic marker with quantitative polymerase chain reaction	2097845
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2097844

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	06/24/2019	06/25/2019 13:19	Yuliya Danyuk	07/05/2019 09:47	Yuliya Danyuk	2097840, 2097841
SM 9223 Quanti-Tray	06/24/2019	06/24/2019 17:20	Peterson Janvier	06/25/2019 13:20	Peterson Janvier	2097842, 2097843
SOP-PCR-1.0	06/24/2019	06/25/2019 12:45	Angela Smith	07/01/2019 12:09	Mailin Lopez	2097845
	06/24/2019	06/25/2019 12:45	Sarah Menz	07/05/2019 11:45	Mailin Lopez	2097844
SOP-PCR-1.2	06/24/2019	06/25/2019 12:45	Angela Smith	07/08/2019 08:53	Mailin Lopez	2097845
SOP-PCR-1.3	06/24/2019	06/25/2019 12:45	Mailin Lopez	07/15/2019 17:22	Mailin Lopez	2097845
SOP-PCR-1.5	06/24/2019	06/25/2019 12:45	Angela Smith	07/09/2019 14:20	Mailin Lopez	2097845
SOP-PCR-1.7	06/24/2019	06/25/2019 12:45	Angela Smith	07/09/2019 16:48	Mailin Lopez	2097845
SOP-PCR-4.0	06/24/2019	06/25/2019 12:45	Angela Smith	06/28/2019 11:34	Sarah Menz	2097844