

Biological Analysis Report

TLH-ROC-2018-04-11-02

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

Event Description: **A-b/t/m**
Request ID: **RQ-2018-04-09-55**
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
J. Marshall Faircloth - Aquatic Toxicology
Jacqueline Savage - Bench Biology
Jacqueline Savage - Microbiology
Puja Jasrotia, Ph.D. - Molecular Biology
Cheryl Swanson - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 08-MAY-2018 14:10

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 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: SPRING CREEK AT US98

Collection Date/Time: 04/11/2018 11:50

Field ID: G1TLHR0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1983686	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P344003	
		Phaeophytin-a	0.40	U	ug/L	P344003	
		Chlorophyll-a, Uncorrected	0.48	I	ug/L	P344003	
1983687	SM 9222 D	Fecal Coliforms-Membrane Filter	53	A	cfu/100 mL	P343363	
1983688	SOP-PCR-1.0	HF183-qPCR**	190	U	GEU/100 mL	P343867	
	SOP-PCR-1.4	BacR-qPCR**	240	T	TSC/100 mL	P343867	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

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: No amplification of HF183 marker.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P344003

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Reference Method: SM 9222 D

Batch ID: P343363

Component	Result	Code	Units
Fecal Coliforms-Membrane Filter	2	U	cfu/100 mL

Reference Method: SOP-PCR-1.0

Batch ID: P343867

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

Reference Method: SOP-PCR-1.4

Batch ID: P343867

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)

Batch ID: P344003

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	88.4		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P343867

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	95.7	70.1	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P343867

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	82.2	58.9	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P343867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976854	HF183-qPCR	72.1		P	50 - 175
1976855	HF183-qPCR	61.9		P	50 - 175
1976857	HF183-qPCR	55.5		P	50 - 175
1976858	HF183-qPCR	56.2		P	50 - 175
1976859	HF183-qPCR	63.5		P	50 - 175
1980254	HF183-qPCR	74.2		P	50 - 175
1981665	HF183-qPCR	84.2		P	50 - 175
1981666	HF183-qPCR	76.2		P	50 - 175
1982100	HF183-qPCR	79.6		P	50 - 175
1983688	HF183-qPCR	77.3		P	50 - 175
1984031	HF183-qPCR	82.1		P	50 - 175
1987386	HF183-qPCR	80.4		P	50 - 175
1987512	HF183-qPCR	74.8	95.8	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P343867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976854	BacR-qPCR	68.8		P	50 - 175
1976858	BacR-qPCR	58.2		P	50 - 175
1982100	BacR-qPCR	72.8		P	50 - 175
1983688	BacR-qPCR	76.6		P	50 - 175
1987512	BacR-qPCR	67.8	69.2	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P344003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983419	Chlorophyll-a, Uncorrected	13.6	Sample	P	0 - 25
1983419	Phaeophytin-a	11.4	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SM 9222 D
Batch ID: P343363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983687	Fecal Coliforms-Membrane Filter	18.9	Sample	P	0 - 50

Reference Method: SOP-PCR-1.0
Batch ID: P343867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987512	HF183-qPCR	24.6	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P343867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987512	BacR-qPCR	2.16	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: 1983688
Field Sample ID: G1TLHR0084

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	113	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	96.4	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	88.4							
	Chlorophyll-a, Uncorrected							13.6	
	Phaeophytin-a							11.4	
SM 9222 D	Fecal Coliforms-Membrane Filter							18.9	
SOP-PCR-1.0	HF183-qPCR	70.1	95.7	76.2	74.2	80.4			24.6
SOP-PCR-1.4	BacR-qPCR	58.9	82.2	79.6					
				72.8	67.8	69.2			2.16
				68.8					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1983686
SM 9222 D / E31780	Fecal coliforms by membrane filter method - non-chlorinated water systems	1983687

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1983688
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1983688
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1983688

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	04/11/2018	04/11/2018 16:45	Mariam Hanna	04/18/2018 09:15	Carina A. Tull	1983686
SM 9222 D	04/11/2018	04/11/2018 16:40	Edwin Gonzalez-Soto	04/12/2018 16:00	Peterson Janvier	1983687
SOP-PCR-1.0	04/11/2018	04/12/2018 14:15	Puja Jasrotia	05/02/2018 17:03	Mailin Lopez	1983688
SOP-PCR-1.4	04/11/2018	04/12/2018 14:15	Puja Jasrotia	05/03/2018 10:26	Sarah Menz	1983688
SOP-PCR-4.0	04/11/2018	04/12/2018 14:15	Angela Smith	05/01/2018 13:27	Puja Jasrotia	1983688