

Biological Analysis Report

TLH-ROC-2018-11-26-01

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

Event Description: **G2 Run 5**
Request ID: **RQ-2018-11-26-56**
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: Cheryl A. Swanson, Program Administrator

Date Certified: 20-DEC-2018 16:43



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: Unnamed Branch @ Flat Creek Rd

Collection Date/Time: 11/26/2018 10:35

Field ID: G2TLHR0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2043521	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.6	U	ug/L	P355867	
		Phaeophytin-a	8.2	U	ug/L	P355867	
		Chlorophyll-a, Uncorrected	5.5	U	ug/L	P355867	
2043525	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	2419.6	J	MPN/100 mL	P355390	

Ref. Method and Comment:
SM 9223 Quanti-Tray: All Quanti-Tray wells were positive. Result may be higher than reported.

Sample Location: MOSQUITO CREEK @ SR269

Collection Date/Time: 11/26/2018 11:20

Field ID: G2TLHR0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2043519	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.5	U	ug/L	P355867	
		Phaeophytin-a	6.0	U	ug/L	P355867	
		Chlorophyll-a, Uncorrected	4.0	U	ug/L	P355867	
2043523	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	14136.0		MPN/100 mL	P355390	
2043526	SOP-PCR-1.0	HF183-qPCR**	1.98E+03		GEU/100 mL	P355488	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Mosquito Creek @ Jinks Crossing Rd

Collection Date/Time: 11/26/2018 11:50

Field ID: G2TLHR0092

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2043520	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.2	I	ug/L	P355867	
		Phaeophytin-a	1.2	U	ug/L	P355867	
		Chlorophyll-a, Uncorrected	1.2	I	ug/L	P355867	
2043524	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	2419.6	A	MPN/100 mL	P355390	
2043527	SOP-PCR-1.0	HF183-qPCR**	800		GEU/100 mL	P355488	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: South Mosquito Creek @ Power Line

Collection Date/Time: 11/26/2018 12:15

Field ID: G2TLHR0039

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2043518	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.5	U	ug/L	P355867	
		Phaeophytin-a	6.0	U	ug/L	P355867	
		Chlorophyll-a, Uncorrected	4.0	U	ug/L	P355867	
2043522	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	19863.0		MPN/100 mL	P355390	

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P355867

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

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P355867

Component	Result	Code	Units
Phaeophytin-a	0.60	U	ug/L

Reference Method: SM 9223 Quanti-Tray
Batch ID: P355390

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

Reference Method: SOP-PCR-1.0
Batch ID: P355488

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P355867

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	100		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P355488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	119	175	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P355488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041028	HF183-qPCR	105		P	50 - 175
2041029	HF183-qPCR	84.0		P	50 - 175
2041033	HF183-qPCR	112		P	50 - 175
2043413	HF183-qPCR	107	119	P/P	50 - 175
2043526	HF183-qPCR	95.2		P	50 - 175
2043527	HF183-qPCR	94.9		P	50 - 175
2044593	HF183-qPCR	115		P	50 - 175
2044594	HF183-qPCR	117		P	50 - 175
2044595	HF183-qPCR	119		P	50 - 175
2044596	HF183-qPCR	123		P	50 - 175
2047259	HF183-qPCR	109		P	50 - 175
2047687	HF183-qPCR	115		P	50 - 175
2047688	HF183-qPCR	119		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P355867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2043593	Chlorophyll-a, Corrected	2.59	Sample	P	0 - 25
2043593	Chlorophyll-a, Uncorrected	3.01	Sample	P	0 - 25
2043593	Phaeophytin-a	5.03	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
Batch ID: P355390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2043524	Escherichia Coli-Quanti-Tray	0.0	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P355488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2043413	HF183-qPCR	10.2	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: 2043526
Field Sample ID: G2TLHR0015

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	89.0	P	50 - 300

Lab Sample ID: 2043527
Field Sample ID: G2TLHR0092

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

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision	
				LCS			SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	100					2.59	
	Chlorophyll-a, Uncorrected						3.01	
	Phaeophytin-a						5.03	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray						0.0	
SOP-PCR-1.0	HF183-qPCR	175	119	95.2	94.9	109		10.2
				105				

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2043518, 2043519, 2043520, 2043521
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2043522, 2043523, 2043524, 2043525
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2043526, 2043527
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2043526, 2043527

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	11/26/2018	11/26/2018 15:35	Edwin Gonzalez-Soto	12/06/2018 15:25	Peterson Janvier	2043518, 2043519, 2043520, 2043521
SM 9223 Quanti-Tray	11/26/2018	11/26/2018 16:00	Avril Wood	11/27/2018 11:50	Jennifer Mihalic	2043522, 2043523, 2043524, 2043525
SOP-PCR-1.0	11/26/2018	11/27/2018 14:30	Sarah Menz	12/12/2018 11:46	Mailin Lopez	2043526, 2043527
SOP-PCR-4.0	11/26/2018	11/27/2018 14:30	Angela Smith	12/03/2018 15:06	Sarah Menz	2043526, 2043527