

Biological Analysis Report

TLH-ROC-2022-01-05-01

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

Event Description: **Run 13**
Request ID: **RQ-2022-01-10-36**
Customer: **TLH-ROC**
Project ID: **SMP**

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

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This Report replaces the previous Report Serial Number: 0135025

Report Comment: Unauthorized to add Test ID PCR-DG3 per customer request.

Revision certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 11-MAR-2022 17:38



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: Williford Spring

Collection Date/Time: 01/05/2022 10:20

Field ID: G3TLHR0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2297652	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P408348	
		Phaeophytin-a	0.90	U	ug/L	P408348	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P408348	

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: Merial Lake Center

Collection Date/Time: 01/05/2022 10:55

Field ID: G3TLHR0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2297653	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.1	I	ug/L	P408348	
		Phaeophytin-a	2.2	U	ug/L	P408348	
		Chlorophyll-a, Uncorrected	5.0		ug/L	P408348	

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: Bayou George Creek at US231

Collection Date/Time: 01/05/2022 11:30

Field ID: G3TLHR0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2297654	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.8	U	ug/L	P408348	
		Phaeophytin-a	3.0	U	ug/L	P408348	
		Chlorophyll-a, Uncorrected	2.0	U	ug/L	P408348	
2297655	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	882.0		MPN/100 mL	P408297	
2297656	SOP-PCR-1.0	HF183-purified-qPCR**	280	UJ	TSC/100 mL	P408524	LCS, SUR
	SOP-PCR-1.4	BacR-purified-qPCR**	250	UJ	TSC/100 mL	P408524	LCS, SUR
	SOP-PCR-1.5	DG3-purified-qPCR**	430	UJ	TSC/100 mL	P408524	LCS, SUR
	SOP-PCR-1.6	COWM2-purified-qPCR**	77	UJ	TSC/100 mL	P408524	LCS, SUR

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: Precision data unavailable for HF183-purified-qPCR component. Refer to the Lab Analysis Report for an explanation of QC Codes.

SOP-PCR-1.4: Precision data unavailable for BacR-purified-qPCR component. Refer to the Lab Analysis Report for an explanation of QC Codes.

SOP-PCR-1.5: Precision data unavailable for DG3-purified-qPCR component. Refer to the Lab Analysis Report for an explanation of QC Codes.

SOP-PCR-1.6: Precision data unavailable for COWM2-purified-qPCR component. Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P408348

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

Quality Assurance Report Method Blank Results

Reference Method: SM 9223 B Quanti-Tray
Batch ID: P408297

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

Reference Method: SOP-PCR-1.0
Batch ID: P408524

Component	Result	Code	Units
HF183-purified-qPCR	550	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P408524

Component	Result	Code	Units
BacR-purified-qPCR	510	U	TSC/100 mL

Reference Method: SOP-PCR-1.5
Batch ID: P408524

Component	Result	Code	Units
DG3-purified-qPCR	430	U	TSC/100 mL
DG3-purified-qPCR	430	U	TSC/100 mL

Reference Method: SOP-PCR-1.6
Batch ID: P408524

Component	Result	Code	Units
COWM2-purified-qPCR	150	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P408348

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	89.6		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P408524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-purified-qPCR	71.5	7.00	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P408524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-purified-qPCR	81.0	11.1	P/F	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.5
 Batch ID: P408524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-purified-qPCR	10.3	86.8	F/P	50 - 175
DG3-purified-qPCR	10.2	66.6	F/P	50 - 175

Reference Method: SOP-PCR-1.6
 Batch ID: P408524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
COWM2-purified-qPCR	71.3	1.76	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P408524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2295516	HF183-purified-qPCR	77.4		P	50 - 175
2296556	HF183-purified-qPCR	81.6		P	50 - 175
2297656	HF183-purified-qPCR	83.3		P	50 - 175
2297978	HF183-purified-qPCR	79.8		P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P408524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2295516	BacR-purified-qPCR	87.4		P	50 - 175
2296556	BacR-purified-qPCR	85.0		P	50 - 175
2297656	BacR-purified-qPCR	77.6		P	50 - 175
2297978	BacR-purified-qPCR	79.2		P	50 - 175

Reference Method: SOP-PCR-1.5
 Batch ID: P408524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297656	DG3-purified-qPCR	77.2		P	50 - 175
2297978	DG3-purified-qPCR	85.3		P	50 - 175

Reference Method: SOP-PCR-1.6
 Batch ID: P408524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297656	COWM2-purified-qPCR	75.9		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 9223 B Quanti-Tray
 Batch ID: P408297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SM 9223 B Quanti-Tray
 Batch ID: P408297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297545	Escherichia Coli-Quanti-Tray	15.1	Sample	P	0 - 80

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 2297656
 Field Sample ID: G3TLHR0030

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	3.46	F	50 - 300
SOP-PCR-1.4	SKETA-qPCR	3.96	F	30 - 300
SOP-PCR-1.5	SKETA-qPCR	1.80	F	50 - 300
SOP-PCR-1.6	SKETA-qPCR	4.09	F	30 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	89.6								
SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray								15.1	
SOP-PCR-1.0	HF183-purified-qPCR	7.00	71.5		77.4	81.6	83.3			
					79.8					
SOP-PCR-1.4	BacR-purified-qPCR	11.1	81.0		87.4	85.0	77.6			
					79.2					
SOP-PCR-1.5	DG3-purified-qPCR	10.3	66.6	10.2	85.3	77.2				
		86.8								
SOP-PCR-1.6	COWM2-purified-qPCR	1.76	71.3		75.9					

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2297652, 2297653, 2297654
SM 9223 B Quanti-Tray	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2297655
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2297656
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2297656
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2297656
SOP-PCR-1.6	Detection and quantification of cow-specific COWM2 genetic marker with quantitative polymerase chain reaction	2297656

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	01/05/2022	01/05/2022 16:20	Jillian G Hanley	01/10/2022 11:00	Joel Wharton	2297652, 2297653, 2297654
SM 9223 B Quanti-Tray	01/05/2022	01/05/2022 16:24	Amber S. Eells	01/06/2022 11:28	Amber S. Eells	2297655
SOP-PCR-1.0	01/05/2022	01/06/2022 13:50	DeAsia Armster	01/18/2022 10:41	DeAsia Armster	2297656
SOP-PCR-1.4	01/05/2022	01/06/2022 13:50	DeAsia Armster	01/20/2022 10:56	DeAsia Armster	2297656
SOP-PCR-1.5	01/05/2022	01/06/2022 13:50	DeAsia Armster	03/10/2022 15:21	DeAsia Armster	2297656
SOP-PCR-1.6	01/05/2022	01/06/2022 13:50	DeAsia Armster	01/24/2022 15:59	DeAsia Armster	2297656