

Biological Analysis Report

TLH-ROC-2021-06-01-02

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

Event Description: **Run 12**
Request ID: **RQ-2021-05-31-20**
Customer: **TLH-ROC**
Project ID: **SMP**

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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 30-JUN-2021 12:54



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: Watson Bayou South

Collection Date/Time: 06/01/2021 11:00

Field ID: G3TLHR0006

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2251259	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.7	I	ug/L	P399669	RPD
		Phaeophytin-a	1.8	U	ug/L	P399669	
		Chlorophyll-a, Uncorrected	3.7		ug/L	P399669	RPD
2251263	Enterolert/QT	Enterococci-Quanti-Tray	10.0	U	MPN/100 mL	P399228	

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.

Enterolert/QT: Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: Parker Bayou @ Mouth

Collection Date/Time: 06/01/2021 11:50

Field ID: G3TLHR0043

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2251258	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.2	I	ug/L	P399669	RPD
		Phaeophytin-a	1.8	U	ug/L	P399669	
		Chlorophyll-a, Uncorrected	3.9		ug/L	P399669	RPD
2251261	Enterolert/QT	Enterococci-Quanti-Tray	10.0		MPN/100 mL	P399228	
2251262	SM 9222 D	Fecal Coliforms-Membrane Filter	15	B	cfu/100 mL	P399222	

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.

Enterolert/QT: Laboratory duplicate result is 10.0 U. Precision data is unavailable due to the small amount of analyte in the QC sample.

SM 9222 D: Laboratory duplicate result is 12 B. Precision data for this duplicate is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: Parker Creek @ Park

Collection Date/Time: 06/01/2021 11:30

Field ID: G3TLHR0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2251257	SM 10200 H (mod.)	Chlorophyll-a, Corrected	190		ug/L	P399669	RPD
		Phaeophytin-a	58		ug/L	P399669	
		Chlorophyll-a, Uncorrected	230		ug/L	P399669	RPD
2251260	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	52.0		MPN/100 mL	P399228	
2251264	SOP-PCR-1.0	HF183-purified-qPCR**	280	UJ	TSC/100 mL	P399506	LCS, SUR
	SOP-PCR-1.2	GULL2-purified-qPCR**	300	UJ	TSC/100 mL	P399506	LCS, SUR
	SOP-PCR-1.3	GFD-purified-qPCR**	1.16E+03	J	TSC/100 mL	P399506	LCS, SUR
	SOP-PCR-1.4	BacR-purified-qPCR**	250	UJ	TSC/100 mL	P399506	LCS, SUR
	SOP-PCR-1.5	DG3-purified-qPCR**	1.1E+03	VJ	TSC/100 mL	P399506	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-1.2: Precision data unavailable for GULL2-purified-qPCR component. Refer to the Lab Analysis Report for an explanation of QC Codes.

SOP-PCR-1.3: Precision data unavailable for GFD-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. Refer to the Lab Analysis Report for an explanation of QC Codes.

SOP-PCR-1.5: Precision data unavailable for DG3-purified-qPCR component. Result is V-qualified due to a control blank failure. Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Quality Assurance Report

Method Blank Results

Reference Method: Enterolert/QT
Batch ID: P399228

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

Reference Method: SM 10200 H (mod.)
Batch ID: P399669

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 9222 D
Batch ID: P399222

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

Reference Method: SM 9223 Quanti-Tray
Batch ID: P399228

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

Reference Method: SOP-PCR-1.0
Batch ID: P399506

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

Reference Method: SOP-PCR-1.2
Batch ID: P399506

Component	Result	Code	Units
GULL2-purified-qPCR	600	U	TSC/100 mL

Reference Method: SOP-PCR-1.3
Batch ID: P399506

Component	Result	Code	Units
GFD-purified-qPCR	120	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P399506

Component	Result	Code	Units
BacR-purified-qPCR	720	I	TSC/100 mL

Reference Method: SOP-PCR-1.5
Batch ID: P399506

Component	Result	Code	Units
DG3-purified-qPCR	7.1E+03		TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P399669

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

Reference Method: SOP-PCR-1.0
Batch ID: P399506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-purified-qPCR	85.5	12.6	P/F	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P399506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-purified-qPCR	94.3	13.9	P/F	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P399506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	93.3	12.0	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P399506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-purified-qPCR	69.1	9.21	P/F	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P399506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-purified-qPCR	68.5	13.2	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P399506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2251264	HF183-purified-qPCR	95.6		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P399506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2251264	GULL2-purified-qPCR	86.9		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P399506

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

Reference Method: SOP-PCR-1.3
 Batch ID: P399506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2251264	GFD-purified-qPCR	95.5		P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P399506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2251264	BacR-purified-qPCR	78.8		P	50 - 175
2253374	BacR-purified-qPCR	74.6		P	50 - 175

Reference Method: SOP-PCR-1.5
 Batch ID: P399506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2251264	DG3-purified-qPCR	65.1		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P399669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2251458	Chlorophyll-a, Corrected	29.2	Sample	F	0 - 25
2251458	Chlorophyll-a, Uncorrected	25.9	Sample	F	0 - 25

Reference Method: SM 9223 Quanti-Tray
 Batch ID: P399228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2251241	Escherichia Coli-Quanti-Tray	32.4	Sample	P	0 - 80

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

Quality Assurance Report Surrogates

Lab Sample ID: 2251264
 Field Sample ID: G3TLHR0040

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	2.57	F	50 - 300
SOP-PCR-1.2	SKETA-qPCR	2.64	F	30 - 300
SOP-PCR-1.3	SKETA-qPCR	4.32	F	30 - 300
SOP-PCR-1.4	SKETA-qPCR	5.22	F	30 - 300
SOP-PCR-1.5	SKETA-qPCR	2.94	F	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		LCS	Precision	MS
							SMP	
SM 10200 H (mod.)	Chlorophyll-a, Corrected	100					29.2	
	Chlorophyll-a, Uncorrected						25.9	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray						32.4	
SOP-PCR-1.0	HF183-purified-qPCR	12.6	85.5	95.6				
SOP-PCR-1.2	GULL2-purified-qPCR	13.9	94.3	86.9				
SOP-PCR-1.3	GFD-purified-qPCR	12.0	93.3	95.5				
SOP-PCR-1.4	BacR-purified-qPCR	9.21	69.1	78.8	74.6			
SOP-PCR-1.5	DG3-purified-qPCR	13.2	68.5	65.1				

Reference Method Descriptions

Method	Description	Associated Samples
Enterolert/QT	Enterococci by Enterolert Quanti-Tray method - non-chlorinated water systems	2251261, 2251263
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2251257, 2251258, 2251259
SM 9222 D	Fecal coliforms by membrane filter method - non-chlorinated water systems	2251262
SM 9223 Quanti-Tray	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2251260
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2251264
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2251264
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2251264
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2251264
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2251264

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	06/01/2021	06/01/2021 15:50	Carina A. Tull	06/02/2021 16:40	Mia Jane Harrell	2251261, 2251263
SM 10200 H (mod.)	06/01/2021	06/01/2021 16:33	Carina A. Tull	06/09/2021 09:30	Jessica Fetgatter	2251257, 2251258, 2251259
SM 9222 D	06/01/2021	06/01/2021 15:45	Abigail L Baker	06/02/2021 14:45	Abigail L Baker	2251262
SM 9223 Quanti-Tray	06/01/2021	06/01/2021 15:50	Carina A. Tull	06/02/2021 11:00	Mia Jane Harrell	2251260
SOP-PCR-1.0	06/01/2021	06/02/2021 13:55	DeAsia Armster	06/14/2021 14:07	DeAsia Armster	2251264
SOP-PCR-1.2	06/01/2021	06/02/2021 13:55	DeAsia Armster	06/17/2021 12:16	DeAsia Armster	2251264
SOP-PCR-1.3	06/01/2021	06/02/2021 13:55	DeAsia Armster	06/15/2021 08:49	Mailin Lopez	2251264
SOP-PCR-1.4	06/01/2021	06/02/2021 13:55	DeAsia Armster	06/14/2021 11:09	Mailin Lopez	2251264
SOP-PCR-1.5	06/01/2021	06/02/2021 13:55	DeAsia Armster	06/16/2021 09:39	DeAsia Armster	2251264