

Biological Analysis Report

TLH-ROC-2021-01-13-02

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-2021-01-04-23**
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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Certified by: Puja Jasrotia, Environmental Administrator

Date Certified: 05-FEB-2021 15:59

A handwritten signature in black ink, appearing to be 'Puja Jasrotia', with a horizontal line extending to the right.

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: Waccasassa River @ Boat Ramp

Collection Date/Time: 01/13/2021 11:05

Field ID: G1TLHR0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2218913	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.4	I	ug/L	P392525	
		Phaeophytin-a	0.90	U	ug/L	P392525	
		Chlorophyll-a, Uncorrected	1.7	I	ug/L	P392525	
2218914	Enterolert/QT	Enterococci-Quanti-Tray	97.2	A	MPN/100 mL	P392757	
2218923	SOP-PCR-1.0	HF183-qPCR**	110	I	GEU/100 mL	P392217	
	SOP-PCR-1.4	BacR-qPCR**	760	U	TSC/100 mL	P392217	
	SOP-PCR-1.5	DG3-qPCR**	640	U	TSC/100 mL	P392217	

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: WACCASASSA ESTUARY1

Collection Date/Time: 01/13/2021 11:25

Field ID: G1TLHR0125

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2218915	Enterolert/QT	Enterococci-Quanti-Tray	88.0		MPN/100 mL	P392757	
2218919	SM 9222 D	Fecal Coliforms-Membrane Filter	370		cfu/100 mL	P393043	

Ref. Method and Comment:

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: WACCASASSA ESTUARY2

Collection Date/Time: 01/13/2021 11:30

Field ID: G1TLHR0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2218916	Enterolert/QT	Enterococci-Quanti-Tray	238.2		MPN/100 mL	P392757	
2218920	SM 9222 D	Fecal Coliforms-Membrane Filter	300		cfu/100 mL	P393043	

Ref. Method and Comment:

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: WACCASASSA ESTUARY3

Collection Date/Time: 01/13/2021 11:40

Field ID: G1TLHR0138

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2218917	Enterolert/QT	Enterococci-Quanti-Tray	41.0		MPN/100 mL	P392757	
2218921	SM 9222 D	Fecal Coliforms-Membrane Filter	120	B	cfu/100 mL	P393043	

Ref. Method and Comment:

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: WACCASASSA ESTUARY4

Collection Date/Time: 01/13/2021 11:50

Field ID: G1TLHR0139

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2218918	Enterolert/QT	Enterococci-Quanti-Tray	63.0		MPN/100 mL	P392757	
2218922	SM 9222 D	Fecal Coliforms-Membrane Filter	530		cfu/100 mL	P393043	

Ref. Method and Comment:

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Quality Assurance Report Method Blank Results

Reference Method: Enterolert/QT
Batch ID: P392757

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

Reference Method: SM 10200 H (mod.)
Batch ID: P392525

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: P393043

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

Reference Method: SOP-PCR-1.0
Batch ID: P392217

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

Reference Method: SOP-PCR-1.4
Batch ID: P392217

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

Reference Method: SOP-PCR-1.5
Batch ID: P392217

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P392525

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	110		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P392217

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	130	108	P/P	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P392217

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	98.1	58.8	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P392217

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	79.4	56.8	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P392217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2218027	HF183-qPCR	108	116	P	50 - 175
2218028	HF183-qPCR	116		P/P	50 - 175
2218340	HF183-qPCR	130		P	50 - 175
2218923	HF183-qPCR	118		P	50 - 175
2219367	HF183-qPCR	124		P	50 - 175
2219368	HF183-qPCR	110		P	50 - 175
2219369	HF183-qPCR	109		P	50 - 175
2219514	HF183-qPCR	106		P	50 - 175
2220199	HF183-qPCR	101		P	50 - 175
2220200	HF183-qPCR	109		P	50 - 175
2220201	HF183-qPCR	110		P	50 - 175
2220202	HF183-qPCR	105		P	50 - 175
2220203	HF183-qPCR	99.6		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P392217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2218027	BacR-qPCR	74.4	82.7	P	50 - 175
2218028	BacR-qPCR	87.5		P/P	50 - 175
2218340	BacR-qPCR	80.4		P	50 - 175
2218923	BacR-qPCR	88.5		P	50 - 175
2219367	BacR-qPCR	81.8		P	50 - 175
2219368	BacR-qPCR	79.8		P	50 - 175
2219369	BacR-qPCR	74.1		P	50 - 175
2219514	BacR-qPCR	66.6		P	50 - 175
2220199	BacR-qPCR	79.4		P	50 - 175
2220200	BacR-qPCR	76.9		P	50 - 175
2220201	BacR-qPCR	83.3		P	50 - 175
2220202	BacR-qPCR	72.3		P	50 - 175
2220203	BacR-qPCR	71.5		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P392217

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-1.5
Batch ID: P392217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2218027	DG3-qPCR	85.5		P	50 - 175
2218028	DG3-qPCR	92.4	81.7	P/P	50 - 175
2218340	DG3-qPCR	95.2		P	50 - 175
2218923	DG3-qPCR	87.9		P	50 - 175
2219367	DG3-qPCR	85.2		P	50 - 175
2219368	DG3-qPCR	82.4		P	50 - 175
2219369	DG3-qPCR	80.2		P	50 - 175
2219514	DG3-qPCR	87.1		P	50 - 175
2220199	DG3-qPCR	84.1		P	50 - 175
2220200	DG3-qPCR	82.2		P	50 - 175
2220201	DG3-qPCR	91.3		P	50 - 175
2220202	DG3-qPCR	71.4		P	50 - 175
2220203	DG3-qPCR	80.4		P	50 - 175

Quality Assurance Report Precision

Reference Method: Enterolert/QT
Batch ID: P392757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2218900	Enterococci-Quanti-Tray	43.6	Sample	P	0 - 80
2218907	Enterococci-Quanti-Tray	23.7	Sample	P	0 - 80
2218914	Enterococci-Quanti-Tray	2.67	Sample	P	0 - 80

Reference Method: SM 10200 H (mod.)
Batch ID: P392525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2219071	Chlorophyll-a, Corrected	5.18	Sample	P	0 - 25
2219071	Chlorophyll-a, Uncorrected	5.61	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P392217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2218028	HF183-qPCR	0.194	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P392217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2218028	BacR-qPCR	5.52	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.5
 Batch ID: P392217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2218028	DG3-qPCR	12.3	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2218923
 Field Sample ID: G1TLHR0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	110	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	123	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	99.0	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision	
								SMP	MS
Enterolert/QT	Enterococci-Quanti-Tray							43.6 2.67	23.7
SM 10200 H (mod.)	Chlorophyll-a, Corrected	110						5.18	
	Chlorophyll-a, Uncorrected							5.61	
SOP-PCR-1.0	HF183-qPCR	108	130	101	109	110			0.194
SOP-PCR-1.4	BacR-qPCR	58.8	98.1	87.5	82.7	74.4			5.52
SOP-PCR-1.5	DG3-qPCR	56.8	79.4	80.4	92.4	81.7	85.5		12.3
				95.2					

Reference Method Descriptions

Method	Description	Associated Samples
Enterolert/QT	Enterococci by Enterolert Quanti-Tray method - non-chlorinated water systems	2218914, 2218915, 2218916, 2218917, 2218918
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2218913
SM 9222 D	Fecal coliforms by membrane filter method - non-chlorinated water systems	2218919, 2218920, 2218921, 2218922
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2218923
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2218923
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2218923

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	01/13/2021	01/13/2021 16:03	Yuliya Danyuk	01/14/2021 16:22	Carina A. Tull	2218914, 2218915, 2218916, 2218917, 2218918
SM 10200 H (mod.)	01/13/2021	01/13/2021 15:24	Jessica Sherman	01/18/2021 11:21	Yuliya Danyuk	2218913
SM 9222 D	01/13/2021	01/13/2021 16:25	Jessica Fetgatter	01/14/2021 14:50	Jessica Fetgatter	2218919, 2218920, 2218921, 2218922
SOP-PCR-1.0	01/13/2021	01/13/2021 15:25	Lauren Campbell	01/21/2021 14:33	Lauren Campbell	2218923
SOP-PCR-1.4	01/13/2021	01/13/2021 15:25	Lauren Campbell	01/22/2021 09:00	Mailin Lopez	2218923
SOP-PCR-1.5	01/13/2021	01/13/2021 15:25	Lauren Campbell	01/22/2021 11:27	Mailin Lopez	2218923