Biological Analysis Report

SE-DIST-2022-02-09-01

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

Event Description: **Hollywood '22**
Request ID: **RQ-2022-02-07-52**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Sarah Menz, Environmental Administrator

Date Certified: 23-MAR-2022 14:18

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: Dania Cutoff @ Griffin Marine Park **Collection Date/Time: 02/08/2022 09:30**

Field ID: G4SE0146 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2304525	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.6		ug/L	P409786	
		Phaeophytin-a	1.2	I	ug/L	P409786	
		Chlorophyll-a, Uncorrected	5.4		ug/L	P409786	
2304534	Enterolert/QT	Enterococci-Quanti-Tray	121.0	Q	MPN/100 mL	P409726	
2304541	SOP-PCR-1.0	HF183-qPCR**	830	U	TSC/100 mL	P409327	
	SOP-PCR-1.2	GULL2-qPCR**	900	U	TSC/100 mL	P409327	
	SOP-PCR-1.3	GFD-qPCR**	2.98E+03		TSC/100 mL	P409327	
	SOP-PCR-1.4	BacR-qPCR**	760	U	TSC/100 mL	P409327	
	SOP-PCR-1.5	DG3-qPCR**	640	U	TSC/100 mL	P409327	

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.

Quality Assurance Report
Method Blank Results

Reference Method: Enterolert/QT
Batch ID: P409726

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

Reference Method: SM 10200 H (mod.)
Batch ID: P409786

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: SOP-PCR-1.0
Batch ID: P409327

Component	Result	Code	Units
HF183-qPCR	3.3E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.2
Batch ID: P409327

Component	Result	Code	Units
GULL2-qPCR	3.6E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.3
Batch ID: P409327

Component	Result	Code	Units
GFD-qPCR	720	U	TSC/100 mL

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.4
Batch ID: P409327

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

Reference Method: SOP-PCR-1.5
Batch ID: P409327

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: P409786

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	91.6		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P409327

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	99.1	86.0	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P409327

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	81.7	92.2	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P409327

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	75.8	87.2	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P409327

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	74.8	76.9	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P409327

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	86.9	82.3	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P409327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2303204	HF183-qPCR	89.3	95.7	P/P	50 - 175
2303297	HF183-qPCR	74.6		P	50 - 175
2303423	HF183-qPCR	103		P	50 - 175
2303424	HF183-qPCR	98.8		P	50 - 175
2303716	HF183-qPCR	86.1		P	50 - 175
2303748	HF183-qPCR	103		P	50 - 175
2304427	HF183-qPCR	111		P	50 - 175
2304541	HF183-qPCR	84.9		P	50 - 175
2304640	HF183-qPCR	100		P	50 - 175
2304641	HF183-qPCR	87.8		P	50 - 175
2304642	HF183-qPCR	86.9		P	50 - 175
2304673	HF183-qPCR	87.8		P	50 - 175
2304930	HF183-qPCR	98.6		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P409327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2303204	GULL2-qPCR	79.7	77.7	P/P	50 - 300
2303297	GULL2-qPCR	80.5		P	50 - 300
2303423	GULL2-qPCR	81.3		P	50 - 300
2303424	GULL2-qPCR	72.9		P	50 - 300
2303716	GULL2-qPCR	76.8		P	50 - 300
2303748	GULL2-qPCR	69.6		P	50 - 300
2304427	GULL2-qPCR	77.0		P	50 - 300
2304541	GULL2-qPCR	82.3		P	50 - 300
2304640	GULL2-qPCR	80.1		P	50 - 300
2304641	GULL2-qPCR	79.5		P	50 - 300
2304642	GULL2-qPCR	70.9		P	50 - 300
2304673	GULL2-qPCR	83.1		P	50 - 300
2304930	GULL2-qPCR	75.7		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P409327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2303204	GFD-qPCR	95.7	97.9	P/P	50 - 175
2303297	GFD-qPCR	97.2		P	50 - 175
2303423	GFD-qPCR	109		P	50 - 175
2303424	GFD-qPCR	96.3		P	50 - 175
2303716	GFD-qPCR	92.2		P	50 - 175
2303748	GFD-qPCR	96.2		P	50 - 175
2304427	GFD-qPCR	119		P	50 - 175
2304541	GFD-qPCR	100		P	50 - 175
2304640	GFD-qPCR	110		P	50 - 175
2304641	GFD-qPCR	97.4		P	50 - 175
2304642	GFD-qPCR	102		P	50 - 175
2304673	GFD-qPCR	95.1		P	50 - 175
2304930	GFD-qPCR	94.4		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P409327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2303204	BacR-qPCR	76.3	71.9	P/P	50 - 175
2303297	BacR-qPCR	80.6		P	50 - 175
2303423	BacR-qPCR	69.7		P	50 - 175
2303424	BacR-qPCR	67.2		P	50 - 175
2303716	BacR-qPCR	64.1		P	50 - 175
2303748	BacR-qPCR	59.8		P	50 - 175
2304427	BacR-qPCR	66.3		P	50 - 175
2304541	BacR-qPCR	70.2		P	50 - 175
2304640	BacR-qPCR	69.4		P	50 - 175
2304641	BacR-qPCR	72.6		P	50 - 175
2304642	BacR-qPCR	58.8		P	50 - 175
2304673	BacR-qPCR	66.5		P	50 - 175
2304930	BacR-qPCR	60.9		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P409327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2303204	DG3-qPCR	85.4	80.9	P/P	50 - 175
2303297	DG3-qPCR	88.8		P	50 - 175
2303423	DG3-qPCR	101		P	50 - 175
2303424	DG3-qPCR	92.7		P	50 - 175
2303716	DG3-qPCR	85.4		P	50 - 175
2303748	DG3-qPCR	101		P	50 - 175
2304427	DG3-qPCR	130		P	50 - 175
2304541	DG3-qPCR	85.2		P	50 - 175
2304640	DG3-qPCR	109		P	50 - 175
2304641	DG3-qPCR	85.8		P	50 - 175
2304642	DG3-qPCR	97.5		P	50 - 175
2304673	DG3-qPCR	87.3		P	50 - 175
2304930	DG3-qPCR	83.6		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P409786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2304484	Chlorophyll-a, Corrected	1.01	Sample	P	0 - 25
2304484	Chlorophyll-a, Uncorrected	0.385	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P409327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2303204	HF183-qPCR	7.00	Spike	P	0 - 25

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.2
Batch ID: P409327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2303204	GULL2-qPCR	2.54	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P409327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2303204	GFD-qPCR	2.30	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P409327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2303204	BacR-qPCR	5.88	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P409327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2303204	DG3-qPCR	5.43	Spike	P	0 - 25

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2304541
Field Sample ID: G4SE0146

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	79.6	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	81.3	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	85.1	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	88.1	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	89.9	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	91.6			1.01	
	Chlorophyll-a, Uncorrected				0.385	
SOP-PCR-1.0	HF183-qPCR	86.0 99.1	89.3 95.7 74.6 103			7.00
SOP-PCR-1.2	GULL2-qPCR	92.2 81.7	79.7 77.7 80.5 81.3			2.54

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.3	GFD-qPCR	87.2 75.8	95.7 97.9 97.2 109			2.30
SOP-PCR-1.4	BacR-qPCR	74.8 76.9	76.3 71.9 80.6 69.7			5.88
SOP-PCR-1.5	DG3-qPCR	82.3 86.9	85.4 80.9 88.8 101			5.43

Reference Method Descriptions

Method	Description	Associated Samples
Enterolert/QT	Enterococci by Enterolert Quanti-Tray method - non-chlorinated water systems	2304534
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2304525
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2304541
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2304541
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2304541
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2304541
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2304541

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	02/09/2022	02/09/2022 15:41	Amber S. Eells	02/10/2022 15:44	Tynan A Branch	2304534
SM 10200 H (mod.)	02/09/2022	02/09/2022 15:38	Jillian G Hanley	02/11/2022 10:30	Joel Wharton	2304525
SOP-PCR-1.0	02/09/2022	02/09/2022 14:40	Luke Hudson	02/24/2022 09:47	DeAsia Armster	2304541
SOP-PCR-1.2	02/09/2022	02/09/2022 14:40	Luke Hudson	03/11/2022 09:31	DeAsia Armster	2304541
SOP-PCR-1.3	02/09/2022	02/09/2022 14:40	Luke Hudson	03/14/2022 09:46	DeAsia Armster	2304541
SOP-PCR-1.4	02/09/2022	02/09/2022 14:40	Luke Hudson	03/08/2022 09:22	DeAsia Armster	2304541
SOP-PCR-1.5	02/09/2022	02/09/2022 14:40	Luke Hudson	03/08/2022 15:05	DeAsia Armster	2304541