

Biological Analysis Report

SO-DIST-2020-09-01-01

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

Overflow Analyses Performed By:
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DOH Accreditation E85086

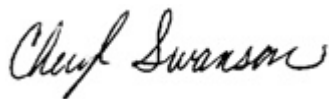
Event Description: **Charlotte Cricks**
Request ID: **RQ-2020-08-24-36**
Customer: **SO-DIST**
Project ID: **SMP**

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Date Certified: 02-OCT-2020 11:51



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, Molecular and Overflow.

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: Big Slough @ Butler Park

Collection Date/Time: 08/31/2020 09:20

Field ID: G3SD0168

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193345	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	U	ug/L	P387514	
		Phaeophytin-a	1.8	U	ug/L	P387514	
		Chlorophyll-a, Uncorrected	2.1	I	ug/L	P387514	
2193351	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	243		MPN/100 mL		

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: Big Slough Canal

Collection Date/Time: 08/31/2020 09:50

Field ID: G3SD0161

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193346	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.7		ug/L	P387514	
		Phaeophytin-a	19		ug/L	P387514	
		Chlorophyll-a, Uncorrected	18		ug/L	P387514	
2193352	Enterolert/QT	Enterococci-Quanti-Tray	479		MPN/100 mL		

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: Cleveland Cemetary Ditch @ Riverside Rd

Collection Date/Time: 08/31/2020 08:40

Field ID: G3SD0076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193343	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	U	ug/L	P387514	
		Phaeophytin-a	1.8	U	ug/L	P387514	
		Chlorophyll-a, Uncorrected	1.2	U	ug/L	P387514	
2193347	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P386626	
	SOP-PCR-1.2	GULL2-qPCR**	5.6E+03	U	TSC/100 mL	P386626	MS
	SOP-PCR-1.3	GFD-purified-qPCR**	110	U	TSC/100 mL	P387144	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P386626	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P386626	
2193349	Enterolert/QT	Enterococci-Quanti-Tray	1153		MPN/100 mL		

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: Myakka River (tidal) @ US 41

Collection Date/Time: 08/31/2020 10:15

Field ID: G3SD0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193344	SM 10200 H (mod.)	Chlorophyll-a, Corrected	14		ug/L	P387514	
		Phaeophytin-a	6.5		ug/L	P387514	
		Chlorophyll-a, Uncorrected	18		ug/L	P387514	
2193348	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P386626	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	UJ	TSC/100 mL	P386626	MS
	SOP-PCR-1.3	GFD-purified-qPCR**	170	U	TSC/100 mL	P387144	LCS, MS

Field ID: G3SD0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193348	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P386626	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P386626	
2193350	Enterolert/QT	Enterococci-Quanti-Tray	437		MPN/100 mL		

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-1.2: 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: P387514

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: P386626

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

Reference Method: SOP-PCR-1.2
 Batch ID: P386626

Component	Result	Code	Units
GULL2-qPCR	1.7E+04	U	TSC/100 mL

Reference Method: SOP-PCR-1.3
 Batch ID: P387144

Component	Result	Code	Units
GFD-purified-qPCR	340	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
 Batch ID: P386626

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

Reference Method: SOP-PCR-1.5
 Batch ID: P386626

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

Quality Assurance Report Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P387514

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	96.0		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P386626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	113	107	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P386626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	96.1	110	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P387144

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	90.1	6.04	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P386626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	95.2	92.5	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P386626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	89.6	98.0	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P386626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192796	HF183-qPCR	107	109	P/P	50 - 175
2192797	HF183-qPCR	101		P	50 - 175
2192864	HF183-qPCR	108		P	50 - 175
2192865	HF183-qPCR	108		P	50 - 175
2193022	HF183-qPCR	88.7		P	50 - 175
2193023	HF183-qPCR	92.0		P	50 - 175
2193024	HF183-qPCR	100		P	50 - 175
2193347	HF183-qPCR	104		P	50 - 175
2193348	HF183-qPCR	77.2		P	50 - 175
2194016	HF183-qPCR	128		P	50 - 175
2194192	HF183-qPCR	109		P	50 - 175
2194193	HF183-qPCR	83.9		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P386626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194194	HF183-qPCR	70.2		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P386626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192796	GULL2-qPCR	83.3	81.7	P/P	50 - 300
2192797	GULL2-qPCR	85.6		P	50 - 300
2192864	GULL2-qPCR	53.4		P	50 - 300
2192865	GULL2-qPCR	76.4		P	50 - 300
2193347	GULL2-qPCR	83.1		P	50 - 300
2193348	GULL2-qPCR	19.9		F	50 - 300
2194016	GULL2-qPCR	82.2		P	50 - 300
2194193	GULL2-qPCR	73.9		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P387144

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192796	GFD-purified-qPCR	127	120	P/P	50 - 175
2192797	GFD-purified-qPCR	99.3		P	50 - 175
2192864	GFD-purified-qPCR	33.7		F	50 - 175
2192865	GFD-purified-qPCR	72.7		P	50 - 175
2193347	GFD-purified-qPCR	84.3		P	50 - 175
2193348	GFD-purified-qPCR	79.8		P	50 - 175
2194016	GFD-purified-qPCR	113		P	50 - 175
2194193	GFD-purified-qPCR	39.8		F	50 - 175
2194437	GFD-purified-qPCR	115		P	50 - 175
2195672	GFD-purified-qPCR	92.9		P	50 - 175
2197429	GFD-purified-qPCR	67.0		P	50 - 175
2197581	GFD-purified-qPCR	91.6		P	50 - 175
2197653	GFD-purified-qPCR	88.8		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P386626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192796	BacR-qPCR	80.9	84.0	P/P	50 - 175
2192797	BacR-qPCR	82.4		P	50 - 175
2192864	BacR-qPCR	60.1		P	50 - 175
2192865	BacR-qPCR	67.6		P	50 - 175
2193022	BacR-qPCR	67.0		P	50 - 175
2193023	BacR-qPCR	86.7		P	50 - 175
2193024	BacR-qPCR	80.6		P	50 - 175
2193347	BacR-qPCR	81.6		P	50 - 175
2193348	BacR-qPCR	67.9		P	50 - 175
2194016	BacR-qPCR	67.6		P	50 - 175
2194192	BacR-qPCR	86.2		P	50 - 175
2194193	BacR-qPCR	66.0		P	50 - 175
2194194	BacR-qPCR	78.7		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.5
Batch ID: P386626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192796	DG3-qPCR	86.6	88.4	P/P	50 - 175
2192797	DG3-qPCR	92.8		P	50 - 175
2192864	DG3-qPCR	76.3		P	50 - 175
2192865	DG3-qPCR	109		P	50 - 175
2193022	DG3-qPCR	79.1		P	50 - 175
2193023	DG3-qPCR	84.5		P	50 - 175
2193024	DG3-qPCR	87.9		P	50 - 175
2193347	DG3-qPCR	85.3		P	50 - 175
2193348	DG3-qPCR	71.0		P	50 - 175
2194016	DG3-qPCR	82.8		P	50 - 175
2194192	DG3-qPCR	92.1		P	50 - 175
2194193	DG3-qPCR	87.7		P	50 - 175
2194194	DG3-qPCR	93.5		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P387514

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2193225	Chlorophyll-a, Corrected	5.61	Sample	P	0 - 25
2193225	Chlorophyll-a, Uncorrected	4.94	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P386626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192796	HF183-qPCR	1.80	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P386626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192796	GULL2-qPCR	1.86	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P387144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192796	GFD-purified-qPCR	5.86	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P386626

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

Reference Method: SOP-PCR-1.4
 Batch ID: P386626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192796	BacR-qPCR	3.65	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
 Batch ID: P386626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192796	DG3-qPCR	2.10	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2193347
 Field Sample ID: G3SD0076

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	96.0	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	98.7	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	94.7	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	108	P	50 - 300

Lab Sample ID: 2193348
 Field Sample ID: G3SD0068

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	71.7	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	75.7	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	75.1	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	67.6	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	96.0						5.61	
	Chlorophyll-a, Uncorrected							4.94	
SOP-PCR-1.0	HF183-qPCR	107	113	107	109	101			1.80
				108					
SOP-PCR-1.2	GULL2-qPCR	110	96.1	83.3	81.7	85.6			1.86
				53.4					
SOP-PCR-1.3	GFD-purified-qPCR	6.04	90.1	127	120	99.3			5.86
				33.7					
SOP-PCR-1.4	BacR-qPCR	92.5	95.2	80.9	84.0	82.4			3.65
				60.1					
SOP-PCR-1.5	DG3-qPCR	98.0	89.6	86.6	88.4	92.8			2.10
				76.3					

Reference Method Descriptions

Method	Description	Associated Samples
Enterolert/QT	Enterococci by Enterolert/QT by BEA South in North Port	2193349, 2193350, 2193352
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2193343, 2193344, 2193345, 2193346
SM 9223 Quanti-Tray	E. coli by Colilert/QT by BEA South in North Port	2193351
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2193347, 2193348
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2193347, 2193348
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2193347, 2193348
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2193347, 2193348
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2193347, 2193348

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	08/31/2020	08/31/2020 13:55		09/01/2020 14:41	Benchmark EnviroAnalytical in North Port	2193349, 2193350, 2193352
SM 10200 H (mod.)	09/01/2020	09/01/2020 13:25	Jessica Sherman	09/09/2020 08:43	Yuliya Danyuk	2193343, 2193344, 2193345, 2193346
SM 9223 Quanti-Tray	08/31/2020	08/31/2020 13:50		09/01/2020 14:41	Benchmark EnviroAnalytical in North Port	2193351
SOP-PCR-1.0	09/01/2020	09/01/2020 13:00	Mailin Lopez	09/08/2020 13:01	Lauren Campbell	2193347, 2193348
SOP-PCR-1.2	09/01/2020	09/01/2020 13:00	Mailin Lopez	09/10/2020 10:02	Mailin Lopez	2193347, 2193348
SOP-PCR-1.3	09/01/2020	09/01/2020 13:00	Lauren Campbell	10/01/2020 15:58	Mailin Lopez	2193347, 2193348
SOP-PCR-1.4	09/01/2020	09/01/2020 13:00	Mailin Lopez	09/09/2020 10:25	Lauren Campbell	2193347, 2193348
SOP-PCR-1.5	09/01/2020	09/01/2020 13:00	Mailin Lopez	09/09/2020 11:48	Lauren Campbell	2193347, 2193348