

Biological Analysis Report

SO-DIST-2022-04-06-01

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

Overflow Analyses Performed By:
Benchmark EnviroAnalytical, Inc. - North Port
1001 Corporate Avenue, Suite 102
North Port, FL 34289
DOH Accreditation E85086

Event Description: **2022 SMP: DeSoto Cricks**
Request ID: **RQ-2022-04-04-41**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 17-MAY-2022 17:27



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: Joshua Creek above Peace River

Collection Date/Time: 04/05/2022 09:00

Field ID: G3SD0159

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2316972	SOP-PCR-1.0	HF183-qPCR**	1.1E+03	U	TSC/100 mL	P411813	
	SOP-PCR-1.4	BacR-qPCR**	1.06E+04		TSC/100 mL	P411813	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P411813	
2316974	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	504		MPN/100 mL		

Sample Location: Joshua Creek above CR760

Collection Date/Time: 04/05/2022 10:40

Field ID: G3SD0175

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2316973	SOP-PCR-1.0	HF183-qPCR**	1.1E+03	U	TSC/100 mL	P411813	
	SOP-PCR-1.2	GULL2-qPCR**	2.4E+03	U	TSC/100 mL	P411813	
	SOP-PCR-1.3	GFD-qPCR**	480	U	TSC/100 mL	P411813	
	SOP-PCR-1.4	BacR-qPCR**	2.0E+03	U	TSC/100 mL	P411813	
	SOP-PCR-1.5	DG3-qPCR**	1.7E+03	U	TSC/100 mL	P413209	
2316975	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	259		MPN/100 mL		

Ref. Method and Comment:
SOP-PCR-1.5: Precision data unavailable for DG3-qPCR component.

Sample Location: Brandy Branch @ SR 70

Collection Date/Time: 04/05/2022 11:45

Field ID: G3SD0083

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2316971	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.0		ug/L	P412148	
		Phaeophytin-a	3.3		ug/L	P412148	
		Chlorophyll-a, Uncorrected	7.2		ug/L	P412148	
2316976	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	17329		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: BrandyBranch@NWLilyCoRd

Collection Date/Time: 04/05/2022 12:25

Field ID: G3SD0201

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2316977	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1723		MPN/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P412148

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.96	U	ug/L
Chlorophyll-a, Uncorrected	0.70	U	ug/L
Phaeophytin-a	1.0	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P411813

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

Reference Method: SOP-PCR-1.2
Batch ID: P411813

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

Reference Method: SOP-PCR-1.3
Batch ID: P411813

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

Reference Method: SOP-PCR-1.4
Batch ID: P411813

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

Reference Method: SOP-PCR-1.5
Batch ID: P411813

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

Reference Method: SOP-PCR-1.5
Batch ID: P413209

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: P412148

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	91.7		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P411813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	53.4	86.8	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P411813

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

Reference Method: SOP-PCR-1.2
Batch ID: P411813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	102	102	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P411813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	97.1	93.5	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P411813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	92.3	53.5	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P411813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	87.2	58.9	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P413209

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	64.9	64.2	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P411813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315708	HF183-qPCR	80.0	74.8	P/P	50 - 175
2315709	HF183-qPCR	77.8		P	50 - 175
2315710	HF183-qPCR	77.3		P	50 - 175
2315711	HF183-qPCR	73.8		P	50 - 175
2316157	HF183-qPCR	73.6		P	50 - 175
2316437	HF183-qPCR	72.9		P	50 - 175
2316469	HF183-qPCR	73.7		P	50 - 175
2316470	HF183-qPCR	84.4		P	50 - 175
2316935	HF183-qPCR	75.2		P	50 - 175
2316936	HF183-qPCR	71.4		P	50 - 175
2316972	HF183-qPCR	78.0		P	50 - 175
2316973	HF183-qPCR	92.4		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P411813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315708	GULL2-qPCR	79.0	85.4	P/P	50 - 300

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.2

Batch ID: P411813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315709	GULL2-qPCR	89.0		P	50 - 300
2315710	GULL2-qPCR	93.6		P	50 - 300
2315711	GULL2-qPCR	92.9		P	50 - 300
2316157	GULL2-qPCR	72.0		P	50 - 300
2316437	GULL2-qPCR	93.6		P	50 - 300
2316469	GULL2-qPCR	77.8		P	50 - 300
2316470	GULL2-qPCR	88.2		P	50 - 300
2316935	GULL2-qPCR	88.6		P	50 - 300
2316936	GULL2-qPCR	96.7		P	50 - 300
2316973	GULL2-qPCR	80.2		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P411813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315708	GFD-qPCR	89.1	88.3	P/P	50 - 175
2315709	GFD-qPCR	85.3		P	50 - 175
2315710	GFD-qPCR	88.6		P	50 - 175
2315711	GFD-qPCR	87.4		P	50 - 175
2316157	GFD-qPCR	84.4		P	50 - 175
2316437	GFD-qPCR	92.6		P	50 - 175
2316469	GFD-qPCR	85.8		P	50 - 175
2316470	GFD-qPCR	87.7		P	50 - 175
2316935	GFD-qPCR	95.6		P	50 - 175
2316936	GFD-qPCR	87.0		P	50 - 175
2316973	GFD-qPCR	92.2		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P411813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315708	BacR-qPCR	70.0	71.3	P/P	50 - 175
2315709	BacR-qPCR	70.9		P	50 - 175
2315710	BacR-qPCR	77.7		P	50 - 175
2315711	BacR-qPCR	79.1		P	50 - 175
2316157	BacR-qPCR	50.2		P	50 - 175
2316437	BacR-qPCR	83.3		P	50 - 175
2316469	BacR-qPCR	57.2		P	50 - 175
2316470	BacR-qPCR	67.8		P	50 - 175
2316935	BacR-qPCR	56.5		P	50 - 175
2316936	BacR-qPCR	82.9		P	50 - 175
2316972	BacR-qPCR	75.0		P	50 - 175
2316973	BacR-qPCR	72.4		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P411813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315708	DG3-qPCR	79.6	82.9	P/P	50 - 175
2315709	DG3-qPCR	79.4		P	50 - 175
2315710	DG3-qPCR	76.3		P	50 - 175
2315711	DG3-qPCR	75.1		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.5
Batch ID: P411813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315712	DG3-qPCR	64.5		P	50 - 175
2315713	DG3-qPCR	72.8		P	50 - 175
2316157	DG3-qPCR	77.0		P	50 - 175
2316437	DG3-qPCR	78.9		P	50 - 175
2316469	DG3-qPCR	75.3		P	50 - 175
2316470	DG3-qPCR	81.6		P	50 - 175
2316935	DG3-qPCR	84.4		P	50 - 175
2316936	DG3-qPCR	83.4		P	50 - 175
2316972	DG3-qPCR	86.6		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P413209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2316973	DG3-qPCR	86.7		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P412148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316820	Chlorophyll-a, Corrected	10.4	Sample	P	0 - 25
2316820	Chlorophyll-a, Uncorrected	7.62	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P411813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315708	HF183-qPCR	6.84	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P411813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315708	GULL2-qPCR	7.80	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P411813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315708	GFD-qPCR	0.933	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	53.7	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	101	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	100	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	96.0	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	169	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision		MS
							LCS	SMP	
SM 10200 H (mod.)	Chlorophyll-a, Corrected	91.7						10.4	
	Chlorophyll-a, Uncorrected							7.62	
SOP-PCR-1.0	HF183-qPCR	86.8	53.4	80.0	74.8	77.8			6.84
				77.3					
SOP-PCR-1.2	GULL2-qPCR	102	102	79.0	85.4	89.0			7.80
				93.6					
SOP-PCR-1.3	GFD-qPCR	93.5	97.1	89.1	88.3	85.3			0.933
				88.6					
SOP-PCR-1.4	BacR-qPCR	53.5	92.3	70.0	71.3	70.9			1.86
				77.7					
SOP-PCR-1.5	DG3-qPCR	58.9	87.2	79.6	82.9	79.4			4.13
				76.3					
	DG3-qPCR	64.2	64.9	86.7					

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2316971
SM 9223 Quanti-Tray	E. coli by Colilert/QT by BEA South in North Port	2316974, 2316975, 2316976, 2316977
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2316972, 2316973
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2316973
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2316973
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2316972, 2316973
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2316972, 2316973

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	04/06/2022	04/06/2022 14:38	Joel Wharton	04/07/2022 15:32	Jillian G Hanley	2316971
SM 9223 Quanti-Tray	04/05/2022	04/05/2022 15:32		04/06/2022 16:13	Benchmark EnviroAnalytical in North Port	2316974, 2316975, 2316976, 2316977
SOP-PCR-1.0	04/06/2022	04/06/2022 16:20	Roberta Tatti	04/28/2022 10:08	DeAsia Armster	2316972, 2316973
SOP-PCR-1.2	04/06/2022	04/06/2022 16:20	Roberta Tatti	05/02/2022 10:42	Roberta Tatti	2316973
SOP-PCR-1.3	04/06/2022	04/06/2022 16:20	Roberta Tatti	05/02/2022 16:27	Roberta Tatti	2316973
SOP-PCR-1.4	04/06/2022	04/06/2022 16:20	Roberta Tatti	04/29/2022 13:19	DeAsia Armster	2316972, 2316973
SOP-PCR-1.5	04/06/2022	04/06/2022 16:20	Roberta Tatti	04/25/2022 10:14	DeAsia Armster	2316973
	04/06/2022	04/06/2022 16:20	Roberta Tatti	05/02/2022 09:05	DeAsia Armster	2316972