

Biological Analysis Report

SO-DIST-2021-03-30-01

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

Overflow Analyses Performed By:
Sanders Laboratories
10090 Bavaria Road
Ft. Myers, FL 33913
DOH Accreditation E85457

Event Description: **2021 SMP: Hatchee Cricks**

Request ID: **RQ-2021-03-29-73**

Customer: **SO-DIST**

Project ID: **SMP**

Send Reports to:

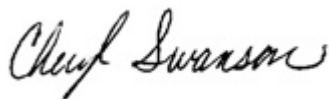
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 23-APR-2021 13:02



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: 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: Pollywog Creek

Collection Date/Time: 03/29/2021 12:05

Field ID: G3SD0189

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2234527	SOP-PCR-1.0	HF183-qPCR**	2.2E+03	U	TSC/100 mL	P395537	
	SOP-PCR-1.2	GULL2-qPCR**	2.4E+03	UJ	TSC/100 mL	P395537	MS
	SOP-PCR-1.3	GFD-qPCR**	1.3E+03	I	TSC/100 mL	P395537	
	SOP-PCR-1.4	BacR-qPCR**	2.0E+03	U	TSC/100 mL	P395537	
	SOP-PCR-1.5	DG3-qPCR**	1.7E+03	U	TSC/100 mL	P395537	
2234528	Colilert-18	Escherichia Coli-Quanti-Tray	1300		MPN/100 mL		

Ref. Method and Comment:
 SOP-PCR-1.2: Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0

Batch ID: P395537

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

Reference Method: SOP-PCR-1.2

Batch ID: P395537

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

Reference Method: SOP-PCR-1.3

Batch ID: P395537

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

Reference Method: SOP-PCR-1.4

Batch ID: P395537

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

Reference Method: SOP-PCR-1.5

Batch ID: P395537

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P395537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	88.9	99.0	P/P	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.2
Batch ID: P395537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	90.9	103	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P395537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	106	94.4	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P395537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	91.8	91.6	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P395537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	88.5	95.2	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P395537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2234087	HF183-qPCR	105	99.9	P/P	50 - 175
2234527	HF183-qPCR	95.6		P	50 - 175
2234754	HF183-qPCR	83.6		P	50 - 175
2234755	HF183-qPCR	89.1		P	50 - 175
2234827	HF183-qPCR	88.4		P	50 - 175
2235407	HF183-qPCR	94.8		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P395537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2234087	GULL2-qPCR	65.8	70.1	P/P	50 - 300
2234527	GULL2-qPCR	49.7		F	50 - 300
2234754	GULL2-qPCR	73.9		P	50 - 300
2234755	GULL2-qPCR	70.2		P	50 - 300
2234827	GULL2-qPCR	66.7		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P395537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2234087	GFD-qPCR	107	109	P/P	50 - 175
2234527	GFD-qPCR	125		P	50 - 175
2234754	GFD-qPCR	115		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P395537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2234755	GFD-qPCR	95.8		P	50 - 175
2234827	GFD-qPCR	101		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P395537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2234087	BacR-qPCR	88.8	87.3	P/P	50 - 175
2234527	BacR-qPCR	74.6		P	50 - 175
2234754	BacR-qPCR	72.6		P	50 - 175
2234755	BacR-qPCR	69.2		P	50 - 175
2234827	BacR-qPCR	73.5		P	50 - 175
2235407	BacR-qPCR	71.5		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P395537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2234087	DG3-qPCR	97.1	101	P/P	50 - 175
2234527	DG3-qPCR	91.7		P	50 - 175
2234754	DG3-qPCR	86.3		P	50 - 175
2234755	DG3-qPCR	88.2		P	50 - 175
2234827	DG3-qPCR	88.4		P	50 - 175
2235407	DG3-qPCR	89.4		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P395537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2234087	HF183-qPCR	4.76	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P395537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2234087	GULL2-qPCR	6.29	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P395537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2234087	GFD-qPCR	1.73	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.4
Batch ID: P395537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2234087	BacR-qPCR	1.67	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P395537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2234087	DG3-qPCR	4.15	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2234527
Field Sample ID: G3SD0189

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	105	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	98.3	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	97.0	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	105	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	77.6	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
SOP-PCR-1.0	HF183-qPCR	99.0	88.9	105	99.9	83.6		4.76
SOP-PCR-1.2	GULL2-qPCR	103	90.9	65.8	70.1	49.7		6.29
SOP-PCR-1.3	GFD-qPCR	94.4	106	107	109	125		1.73
SOP-PCR-1.4	BacR-qPCR	91.6	91.8	88.8	87.3	74.6		1.67
SOP-PCR-1.5	DG3-qPCR	95.2	88.5	97.1	101	91.7		4.15

Reference Method Descriptions

Method	Description	Associated Samples
Colilert-18	E. coli by Colilert-18/QT by Sanders in Fort Myers	2234528
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2234527
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2234527
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2234527

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2234527
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2234527

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Colilert-18	03/29/2021	03/29/2021 15:48		03/30/2021 10:16	Sanders-Fort Myers	2234528
SOP-PCR-1.0	03/30/2021	03/30/2021 13:15	DeAsia Armster	04/06/2021 08:31	Mailin Lopez	2234527
SOP-PCR-1.2	03/30/2021	03/30/2021 13:15	DeAsia Armster	04/20/2021 08:21	Mailin Lopez	2234527
SOP-PCR-1.3	03/30/2021	03/30/2021 13:15	DeAsia Armster	04/21/2021 08:14	Mailin Lopez	2234527
SOP-PCR-1.4	03/30/2021	03/30/2021 13:15	DeAsia Armster	04/07/2021 09:13	Mailin Lopez	2234527
SOP-PCR-1.5	03/30/2021	03/30/2021 13:15	DeAsia Armster	04/07/2021 09:52	Mailin Lopez	2234527