

Biological Analysis Report

SO-DIST-2020-08-28-01

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: **Hatchee Cricks pt 2+ drainage + metals blank**
Request ID: **RQ-2020-08-24-34**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Nicole Reistad

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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 17-SEP-2020 08:28



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: Bee Branch @ Loblolly Bay Rd

Collection Date/Time: 08/27/2020 08:50

Field ID: G3SD0085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193020	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	U	ug/L	P386892	
		Phaeophytin-a	1.8	U	ug/L	P386892	
		Chlorophyll-a, Uncorrected	1.3	I	ug/L	P386892	
2193022	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P386626	
	SOP-PCR-1.4	BacR-qPCR**	1.23E+04		TSC/100 mL	P386626	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P386626	
2193038	Colilert-18	Escherichia Coli-Quanti-Tray	119		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: Cypress Creek @ N River Rd

Collection Date/Time: 08/27/2020 09:50

Field ID: G3SD0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193023	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P386626	
	SOP-PCR-1.4	BacR-qPCR**	7.37E+03		TSC/100 mL	P386626	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P386626	
2193039	Colilert-18	Escherichia Coli-Quanti-Tray	365		MPN/100 mL		

Sample Location: Owl Creek @ N River Rd

Collection Date/Time: 08/27/2020 10:25

Field ID: G3SD0166

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193024	SOP-PCR-1.0	HF183-qPCR**	190	U	GEU/100 mL	P386626	
	SOP-PCR-1.4	BacR-qPCR**	3.23E+05		TSC/100 mL	P386626	
	SOP-PCR-1.5	DG3-qPCR**	1.7E+03	U	TSC/100 mL	P386626	
2193040	Colilert-18	Escherichia Coli-Quanti-Tray	649		MPN/100 mL		

Sample Location: Drainage Ditch @ Cr 850

Collection Date/Time: 08/27/2020 11:20

Field ID: G1SD0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193021	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.7	I	ug/L	P386892	
		Phaeophytin-a	1.8	U	ug/L	P386892	
		Chlorophyll-a, Uncorrected	2.6	I	ug/L	P386892	
2193041	Colilert-18	Escherichia Coli-Quanti-Tray	57.3		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.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P386892

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P386892

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-1.4
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

Reference Method: SM 10200 H (mod.)
Batch ID: P386892

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	93.1		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-1.4
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

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
2194194	HF183-qPCR	70.2		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

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: P386892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192856	Chlorophyll-a, Corrected	13.2	Sample	P	0 - 25
2192856	Chlorophyll-a, Uncorrected	6.98	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-1.4
 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: 2193022
 Field Sample ID: G3SD0085

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	68.2	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	69.3	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	66.3	P	50 - 300

Lab Sample ID: 2193023
 Field Sample ID: G3SD0084

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	93.2	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	82.2	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	73.8	P	50 - 300

Lab Sample ID: 2193024
 Field Sample ID: G3SD0166

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
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Quality Assurance Report Surrogates

Lab Sample ID: 2193024
Field Sample ID: G3SD0166

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	106	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	94.0	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	90.6	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	93.1						13.2	
	Chlorophyll-a, Uncorrected							6.98	
SOP-PCR-1.0	HF183-qPCR	107	113	107	109	101			1.80
SOP-PCR-1.4	BacR-qPCR	92.5	95.2	80.9	84.0	82.4			3.65
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
Colilert-18	E. coli by Colilert-18/QT by Sanders in Fort Myers	2193038, 2193039, 2193040, 2193041
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2193020, 2193021
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2193022, 2193023, 2193024
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2193022, 2193023, 2193024
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2193022, 2193023, 2193024

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Colilert-18	08/27/2020	08/27/2020 15:09		08/28/2020 09:43	Sanders-Fort Myers	2193038, 2193039, 2193040, 2193041
SM 10200 H (mod.)	08/28/2020	08/28/2020 14:19	Jessica Sherman	09/03/2020 08:11	Yuliya Danyuk	2193020, 2193021
SOP-PCR-1.0	08/28/2020	08/28/2020 14:15	Mailin Lopez	09/08/2020 13:01	Lauren Campbell	2193022, 2193023, 2193024
SOP-PCR-1.4	08/28/2020	08/28/2020 14:15	Mailin Lopez	09/09/2020 10:25	Lauren Campbell	2193022, 2193023, 2193024
SOP-PCR-1.5	08/28/2020	08/28/2020 14:15	Mailin Lopez	09/09/2020 11:48	Lauren Campbell	2193022, 2193023, 2193024