

Biological Analysis Report

SO-DIST-2020-01-09-01

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: **2020 SMP : DeSoto Cricks**
Request ID: **RQ-2020-01-06-46**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
2295 Victoria Ave. Suite 364
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Date Certified: 06-FEB-2020 09:48



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: HawthorneCreek@Reynolds

Collection Date/Time: 01/08/2020 10:10

Field ID: G3SD0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2148192	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.2	I	ug/L	P377202	
		Phaeophytin-a	0.90	U	ug/L	P377202	
		Chlorophyll-a, Uncorrected	1.7	I	ug/L	P377202	
2148204	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	882		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: Hog Bay @ CR 763

Collection Date/Time: 01/08/2020 11:00

Field ID: G3SD0096

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2148191	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.4	I	ug/L	P377202	
		Phaeophytin-a	1.1	I	ug/L	P377202	
		Chlorophyll-a, Uncorrected	2.2		ug/L	P377202	
2148202	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P376687	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P377220	LCS
	SOP-PCR-1.3	GFD-purified-qPCR**	84	UJ	TSC/100 mL	P377136	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P376687	LCS
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P376687	
2148203	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1376		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-1.3: Quality control failure(s) observed. See QA report for details.

Sample Location: MyrtleSlough@PinelIsland

Collection Date/Time: 01/08/2020 11:40

Field ID: G3SD0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2148193	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.88	I	ug/L	P377202	
		Phaeophytin-a	0.90	U	ug/L	P377202	
		Chlorophyll-a, Uncorrected	1.3	I	ug/L	P377202	
2148205	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	2046		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: P377202

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P376687

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

Reference Method: SOP-PCR-1.2
Batch ID: P377220

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

Reference Method: SOP-PCR-1.3
Batch ID: P377136

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

Reference Method: SOP-PCR-1.4
Batch ID: P376687

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

Reference Method: SOP-PCR-1.5
Batch ID: P376687

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: P377202

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	106		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P376687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	123	131	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P377220

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	95.0	47.4	P/F	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P377136

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

Reference Method: SOP-PCR-1.3
 Batch ID: P377136

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	104	47.7	P/F	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P376687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	93.0	242	P/F	50 - 175

Reference Method: SOP-PCR-1.5
 Batch ID: P376687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	99.0	115	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P376687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146859	HF183-qPCR	93.9		P	50 - 175
2147334	HF183-qPCR	115		P	50 - 175
2147335	HF183-qPCR	117		P	50 - 175
2147336	HF183-qPCR	112		P	50 - 175
2147337	HF183-qPCR	106	112	P/P	50 - 175
2147383	HF183-qPCR	96.6		P	50 - 175
2147410	HF183-qPCR	104		P	50 - 175
2147469	HF183-qPCR	111		P	50 - 175
2147778	HF183-qPCR	111		P	50 - 175
2147779	HF183-qPCR	107		P	50 - 175
2147780	HF183-qPCR	126		P	50 - 175
2147781	HF183-qPCR	98.2		P	50 - 175
2148202	HF183-qPCR	109		P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P377220

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2148202	GULL2-qPCR	69.3		P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P377136

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2148202	GFD-purified-qPCR	207		F	50 - 175
2149258	GFD-purified-qPCR	234		F	50 - 175
2149259	GFD-purified-qPCR	195		F	50 - 175
2149260	GFD-purified-qPCR	141		P	50 - 175
2149261	GFD-purified-qPCR	187	207	F/F	50 - 175
2149540	GFD-purified-qPCR	187		F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3

Batch ID: P377136

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2149541	GFD-purified-qPCR	204		F	50 - 175
2149542	GFD-purified-qPCR	162		P	50 - 175
2149543	GFD-purified-qPCR	195		F	50 - 175
2149996	GFD-purified-qPCR	186		F	50 - 175
2149997	GFD-purified-qPCR	164		P	50 - 175
2149998	GFD-purified-qPCR	205		F	50 - 175
2149999	GFD-purified-qPCR	201		F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P376687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146859	BacR-qPCR	84.8		P	50 - 175
2147334	BacR-qPCR	84.8		P	50 - 175
2147335	BacR-qPCR	81.8		P	50 - 175
2147336	BacR-qPCR	79.8		P	50 - 175
2147337	BacR-qPCR	69.3	81.4	P/P	50 - 175
2147383	BacR-qPCR	71.5		P	50 - 175
2147410	BacR-qPCR	76.9		P	50 - 175
2147469	BacR-qPCR	55.7		P	50 - 175
2147778	BacR-qPCR	54.8		P	50 - 175
2147779	BacR-qPCR	80.7		P	50 - 175
2147780	BacR-qPCR	70.6		P	50 - 175
2147781	BacR-qPCR	75.4		P	50 - 175
2148202	BacR-qPCR	106		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P376687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146859	DG3-qPCR	84.2		P	50 - 175
2147334	DG3-qPCR	86.6		P	50 - 175
2147335	DG3-qPCR	89.3		P	50 - 175
2147336	DG3-qPCR	89.2		P	50 - 175
2147337	DG3-qPCR	89.1	85.3	P/P	50 - 175
2147383	DG3-qPCR	85.1		P	50 - 175
2147410	DG3-qPCR	81.7		P	50 - 175
2147469	DG3-qPCR	82.3		P	50 - 175
2147778	DG3-qPCR	88.1		P	50 - 175
2147779	DG3-qPCR	88.5		P	50 - 175
2147780	DG3-qPCR	89.2		P	50 - 175
2147781	DG3-qPCR	85.8		P	50 - 175
2148202	DG3-qPCR	85.8		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P377202

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2147953	Chlorophyll-a, Corrected	0.795	Sample	P	0 - 25
2147953	Chlorophyll-a, Uncorrected	1.18	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P376687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2147337	HF183-qPCR	6.35	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P377220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2148492	GULL2-qPCR	1.57	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P377136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2149261	GFD-purified-qPCR	10.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P376687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2147337	BacR-qPCR	16.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P376687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2147337	DG3-qPCR	4.34	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2148202
Field Sample ID: G3SD0096

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	74.3	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	79.8	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 2148202
Field Sample ID: G3SD0096

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	76.4	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	85.8	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	106						0.795	
	Chlorophyll-a, Uncorrected							1.18	
SOP-PCR-1.0	HF183-qPCR	131	123	93.9	115	117			6.35
				112					
SOP-PCR-1.2	GULL2-qPCR	47.4	95.0	69.3					1.57
SOP-PCR-1.3	GFD-purified-qPCR	47.7	104	234	195	141			10.1
				187					
SOP-PCR-1.4	BacR-qPCR	242	93.0	84.8	84.8	81.8			16.1
				79.8					
SOP-PCR-1.5	DG3-qPCR	115	99.0	84.2	86.6	89.3			4.34
				89.2					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2148191, 2148192, 2148193
SM 9223 Quanti-Tray / E85086	E. coli by Colilert/QT by BEA South in North Port	2148203, 2148204, 2148205
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2148202
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2148202
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2148202
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2148202
SOP-PCR-1.5 / E31780	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2148202

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	01/09/2020	01/09/2020 13:38	Jessica Fetgatter	01/14/2020 10:08	Yuliya Danyuk	2148191, 2148192, 2148193
SM 9223 Quanti-Tray	01/08/2020	01/08/2020 13:48		01/09/2020 14:23	Benchmark EnviroAnalytical in North Port	2148203, 2148204, 2148205
SOP-PCR-1.0	01/09/2020	01/09/2020 12:30	Angela Smith	01/13/2020 10:15	Lauren Campbell	2148202
SOP-PCR-1.2	01/09/2020	01/09/2020 12:30	Mailin Lopez	01/16/2020 08:33	Mailin Lopez	2148202
SOP-PCR-1.3	01/09/2020	01/09/2020 12:30	Angela Smith	01/22/2020 08:27	Mailin Lopez	2148202
SOP-PCR-1.4	01/09/2020	01/09/2020 12:30	Angela Smith	01/13/2020 14:16	Lauren Campbell	2148202
SOP-PCR-1.5	01/09/2020	01/09/2020 12:30	Angela Smith	01/14/2020 15:38	Lauren Campbell	2148202