Biological Analysis Report

SO-DIST-2020-11-05-01

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: **Big Slough + Bobcat**
Request ID: **RQ-2020-11-02-40**
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: Gary Snorek

For additional information please contact
Cheryl Swanson - Administrator
Jacqueline Savage - Bench Biology & Aquatic Toxicity
Puja Jasrotia, Ph.D. - Molecular Biology & Taxonomy
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 14-DEC-2020 15:28

NON-CONFORMANCE REPORT INCLUDED

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 Canal **Collection Date/Time: 11/04/2020 11:50**

Field ID: G3SD0161 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2206525	Enterolert/QT	Enterococci-Quanti-Tray	278		MPN/100 mL		

Sample Location: Bobcat Creek in Preserve East **Collection Date/Time: 11/04/2020 10:30**

Field ID: G3SD0131 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2206522	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	UJ	ug/L	P390029	
		Phaeophytin-a	1.8	UJ	ug/L	P390029	
		Chlorophyll-a, Uncorrected	1.2	UJ	ug/L	P390029	
2206523	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P389316	RPD
	SOP-PCR-1.2	GULL2-qPCR**	3.6E+03	UJ	TSC/100 mL	P389316	MS
	SOP-PCR-1.3	GFD-qPCR**	720	U	TSC/100 mL	P389316	
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P389316	RPD
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P389316	RPD
2206524	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	160		MPN/100 mL		

Ref. Method and Comment:
SM 10200 H (mod.): See Non-Conformance Report # 8533.
SOP-PCR-1.2: Precision data unavailable for Analysis Batch A102263 Refer to the Lab Analysis Report for an explanation of QC Codes.

Non-Conformance Report

NCR ID: 8533

Event(s)	Job(s)	Sample(s)	Test(s)
SO-DIST-2020-11-05-01	TLH-2020-11-05-20	2206522	

NCR Type: ANALYSIS **NCR Category: Analytical Measurement**

Observation: The reference cuvette was placed in the instrument incorrectly which affects the baseline of readings.

Resolution: The data will be reported with a "J" qualifier, and the customers have been notified.

Authorized by/Date: Cheryl A. Swanson 11/30/2020

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P390029

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	UJ	ug/L
Chlorophyll-a, Uncorrected	0.60	UJ	ug/L
Phaeophytin-a	0.90	UJ	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P389316

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

Reference Method: SOP-PCR-1.2
Batch ID: P389316

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

Reference Method: SOP-PCR-1.3
Batch ID: P389316

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

Reference Method: SOP-PCR-1.4
Batch ID: P389316

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

Reference Method: SOP-PCR-1.5
Batch ID: P389316

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: P390029

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	98.1		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P389316

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	102	91.5	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P389316

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	89.6	98.1	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P389316

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P389316

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	78.1	83.8	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P389316

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	102	96.9	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P389316

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	105	97.7	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P389316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204785	HF183-qPCR	92.3		P	50 - 175
2205488	HF183-qPCR	91.8	65.5	P/P	50 - 175
2205489	HF183-qPCR	103		P	50 - 175
2206286	HF183-qPCR	95.5		P	50 - 175
2206348	HF183-qPCR	92.1		P	50 - 175
2206377	HF183-qPCR	97.8		P	50 - 175
2206405	HF183-qPCR	79.2		P	50 - 175
2206406	HF183-qPCR	78.1		P	50 - 175
2206523	HF183-qPCR	65.4		P	50 - 175
2206750	HF183-qPCR	96.5		P	50 - 175
2207207	HF183-qPCR	90.3		P	50 - 175
2207867	HF183-qPCR	94.9		P	50 - 175
2207868	HF183-qPCR	112		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P389316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206348	GULL2-qPCR	80.1		P	50 - 300
2206377	GULL2-qPCR	86.4		P	50 - 300
2206405	GULL2-qPCR	70.2		P	50 - 300
2206406	GULL2-qPCR	72.9		P	50 - 300
2206523	GULL2-qPCR	4.99		F	50 - 300
2206750	GULL2-qPCR	79.0		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P389316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205488	GFD-qPCR	85.5	90.3	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P389316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205489	GFD-qPCR	90.6		P	50 - 175
2206348	GFD-qPCR	73.8		P	50 - 175
2206377	GFD-qPCR	73.4		P	50 - 175
2206405	GFD-qPCR	75.6		P	50 - 175
2206406	GFD-qPCR	73.3		P	50 - 175
2206523	GFD-qPCR	75.7		P	50 - 175
2206750	GFD-qPCR	65.9		P	50 - 175
2207207	GFD-qPCR	76.1		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P389316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204785	BacR-qPCR	91.2		P	50 - 175
2205488	BacR-qPCR	91.2	67.9	P/P	50 - 175
2205489	BacR-qPCR	78.2		P	50 - 175
2206286	BacR-qPCR	71.5		P	50 - 175
2206348	BacR-qPCR	60.5		P	50 - 175
2206377	BacR-qPCR	86.0		P	50 - 175
2206405	BacR-qPCR	63.4		P	50 - 175
2206406	BacR-qPCR	59.8		P	50 - 175
2206523	BacR-qPCR	80.0		P	50 - 175
2206750	BacR-qPCR	85.1		P	50 - 175
2207207	BacR-qPCR	51.8		P	50 - 175
2207867	BacR-qPCR	84.6		P	50 - 175
2207868	BacR-qPCR	79.8		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P389316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205488	DG3-qPCR	95.1	63.8	P/P	50 - 175
2205489	DG3-qPCR	83.2		P	50 - 175
2206286	DG3-qPCR	97.3		P	50 - 175
2206348	DG3-qPCR	95.0		P	50 - 175
2206377	DG3-qPCR	95.0		P	50 - 175
2206405	DG3-qPCR	80.7		P	50 - 175
2206406	DG3-qPCR	84.4		P	50 - 175
2206523	DG3-qPCR	67.2		P	50 - 175
2206750	DG3-qPCR	90.4		P	50 - 175
2207867	DG3-qPCR	82.8		P	50 - 175
2207868	DG3-qPCR	113		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P390029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P390029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206970	Chlorophyll-a, Corrected	2.16	Sample	P	0 - 25
2206970	Chlorophyll-a, Uncorrected	2.22	Sample	P	0 - 25
2206970	Phaeophytin-a	2.15	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P389316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205488	HF183-qPCR	33.5	Spike	F	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P389316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205488	GFD-qPCR	5.39	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P389316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205488	BacR-qPCR	29.2	Spike	F	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P389316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205488	DG3-qPCR	39.4	Spike	F	0 - 25

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2206523
Field Sample ID: G3SD0131

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	61.8	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	76.8	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	72.4	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	64.6	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	98.1			2.16	
	Chlorophyll-a, Uncorrected				2.22	
	Phaeophytin-a				2.15	
SOP-PCR-1.0	HF183-qPCR	91.5 102	92.3 91.8 65.5 103			33.5
SOP-PCR-1.2	GULL2-qPCR	98.1 89.6	80.1 86.4 70.2 72.9			
SOP-PCR-1.3	GFD-qPCR	83.8 78.1	85.5 90.3 90.6 73.8			5.39
SOP-PCR-1.4	BacR-qPCR	96.9 102	91.2 91.2 67.9 78.2			29.2
SOP-PCR-1.5	DG3-qPCR	97.7 105	95.1 63.8 83.2 97.3			39.4

Reference Method Descriptions

Method	Description	Associated Samples
Enterolert/QT	Enterococci by Enterolert/QT by BEA South in North Port	2206525
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2206522
SM 9223 Quanti-Tray	E. coli by Colilert/QT by BEA South in North Port	2206524
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2206523
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2206523
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2206523
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2206523
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2206523

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	11/04/2020	11/04/2020 14:44		11/05/2020 15:14	Benchmark EnviroAnalytical in North Port	2206525
SM 10200 H (mod.)	11/05/2020	11/05/2020 14:19	Jessica Sherman	11/09/2020 13:45	Jennifer Mihalic	2206522
SM 9223 Quanti-Tray	11/04/2020	11/04/2020 14:47		11/05/2020 15:14	Benchmark EnviroAnalytical in North Port	2206524
SOP-PCR-1.0	11/05/2020	11/05/2020 14:50	Lauren Campbell	11/19/2020 12:19	Lauren Campbell	2206523
SOP-PCR-1.2	11/05/2020	11/05/2020 14:50	Lauren Campbell	11/23/2020 09:52	Mailin Lopez	2206523
SOP-PCR-1.3	11/05/2020	11/05/2020 14:50	Lauren Campbell	11/23/2020 12:32	Mailin Lopez	2206523
SOP-PCR-1.4	11/05/2020	11/05/2020 14:50	Lauren Campbell	11/20/2020 11:57	Lauren Campbell	2206523
SOP-PCR-1.5	11/05/2020	11/05/2020 14:50	Lauren Campbell	11/20/2020 12:56	Lauren Campbell	2206523