

Biological Analysis Report

SO-DIST-2019-09-05-01

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: **2019 SMP : Myakka Streams + Phillippe**

Request ID: **RQ-2019-09-02-72**

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

For additional information please contact

Cheryl Swanson - Administrator
Jacqueline Savage - Microbiology
Diane Power - Bench Biology
Andrew Tintle - Aquatic Toxicology
Puja Jasrotia, Ph.D. - Molecular Biology
Amelia Rankin - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 10-OCT-2019 08:43



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: Myakka(Tidal) @US41

Collection Date/Time: 09/04/2019 09:50

Field ID: G3SD0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116588	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P370137	LCS
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P370137	
	SOP-PCR-1.3	GFD-purified-qPCR**	2.39E+03	J	TSC/100 mL	P371426	MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P370137	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P370137	LCS
2116589	Enterolert/QT	Enterococci-Quanti-Tray	144		MPN/100 mL		

Ref. Method and Comment:
 SOP-PCR-1.2: Precision data unavailable for Analysis Batch A94587
 SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.

Sample Location: RockCreek@EisenhowerDr

Collection Date/Time: 09/04/2019 10:20

Field ID: G3SD0070

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116583	SM 10200 H (mod.)	Chlorophyll-a, Corrected	9.3	J	ug/L	P370456	
		Phaeophytin-a	3.8	J	ug/L	P370456	
		Chlorophyll-a, Uncorrected	12	J	ug/L	P370456	
2116590	Enterolert/QT	Enterococci-Quanti-Tray	285		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. See nonconformance report #7929.

Sample Location: Apollo Waterway @ Bend

Collection Date/Time: 09/04/2019 10:45

Field ID: G3SD0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116584	SM 10200 H (mod.)	Chlorophyll-a, Corrected	10		ug/L	P370456	
		Phaeophytin-a	2.4	I	ug/L	P370456	
		Chlorophyll-a, Uncorrected	12		ug/L	P370456	
2116591	Enterolert/QT	Enterococci-Quanti-Tray	41		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: LittleAlligator@Midway

Collection Date/Time: 09/04/2019 11:50

Field ID: G3SD0071

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116585	SM 10200 H (mod.)	Chlorophyll-a, Corrected	14		ug/L	P370456	
		Phaeophytin-a	4.6		ug/L	P370456	
		Chlorophyll-a, Uncorrected	17		ug/L	P370456	

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: LittleAlligator@Midway

Collection Date/Time: 09/04/2019 11:55

Field ID: G3SD0071_DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
-----------	-------------	-----------	--------	------	-------	----------	----------

Field ID: G3SD0071_DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116586	SM 10200 H (mod.)	Chlorophyll-a, Corrected	13		ug/L	P370456	
		Phaeophytin-a	6.7		ug/L	P370456	
		Chlorophyll-a, Uncorrected	18		ug/L	P370456	

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: LittleAlligator@Midway

Collection Date/Time: 09/04/2019 12:00

Field ID: FB_09042019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116587	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P370456	
		Phaeophytin-a	0.90	U	ug/L	P370456	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P370456	

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.

Non-Conformance Report

NCR ID: 7929

Event(s)

SO-DIST-2019-09-05-01

Job(s)

TLH-2019-09-05-15

Sample(s)

2116583

Test(s)

NCR Type: ANALYSIS

NCR Category: Analytical Measurement

Observation: Turbidity for sample was high. Sample did not respond as expected after acidification.

Resolution: Customer has been notified. Results will be J-qualified.

Authorized by/Date: Cheryl A. Swanson 9/30/2019

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: P370456

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: P370137

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.2
 Batch ID: P370137

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

Reference Method: SOP-PCR-1.3
 Batch ID: P371426

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

Reference Method: SOP-PCR-1.4
 Batch ID: P370137

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

Reference Method: SOP-PCR-1.5
 Batch ID: P370137

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: P370456

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	90.4		P	84 - 116

Reference Method: SOP-PCR-1.0
 Batch ID: P370137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	126	274	P/F	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P370137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	93.9	144	P/P	50 - 300
GULL2-qPCR	159	185	P/P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P371426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	81.0	135	P/P	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P370137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	106	143	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P370137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	137	216	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P370137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116409	HF183-qPCR	113	118	P	50 - 175
2116489	HF183-qPCR	120		P	50 - 175
2116490	HF183-qPCR	131		P/P	50 - 175
2116588	HF183-qPCR	95.9		P	50 - 175
2116702	HF183-qPCR	111	118	P	50 - 175
2116703	HF183-qPCR	102		P	50 - 175
2116704	HF183-qPCR	104		P	50 - 175
2116918	HF183-qPCR	93.6		P	50 - 175
2117242	HF183-qPCR	82.6	118	P	50 - 175
2117243	HF183-qPCR	68.4		P	50 - 175
2117278	HF183-qPCR	93.2		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P370137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116489	GULL2-qPCR	190	83.2	P	50 - 300
2116490	GULL2-qPCR	87.1		P/P	50 - 300
2116588	GULL2-qPCR	78.0		P	50 - 300
2117393	GULL2-qPCR	96.3		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P371426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115108	GFD-purified-qPCR	326	118	F	50 - 175
2115210	GFD-purified-qPCR	243		F	50 - 175
2115211	GFD-purified-qPCR	242		F	50 - 175
2116588	GFD-purified-qPCR	424		F	50 - 175
2122833	GFD-purified-qPCR	421	118	F	50 - 175
2122834	GFD-purified-qPCR	394		F	50 - 175
2122835	GFD-purified-qPCR	387		F	50 - 175
2122836	GFD-purified-qPCR	405		F	50 - 175
2122837	GFD-purified-qPCR	394	118	F	50 - 175
2123301	GFD-purified-qPCR	414		F	50 - 175
2123302	GFD-purified-qPCR	340		F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3

Batch ID: P371426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123303	GFD-purified-qPCR	369		F	50 - 175
2123304	GFD-purified-qPCR	421	386	F/F	50 - 175
2123305	GFD-purified-qPCR	325		F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P370137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116409	BacR-qPCR	97.8		P	50 - 175
2116489	BacR-qPCR	90.5		P	50 - 175
2116490	BacR-qPCR	90.8	87.0	P/P	50 - 175
2116588	BacR-qPCR	79.3		P	50 - 175
2116702	BacR-qPCR	99.1		P	50 - 175
2116703	BacR-qPCR	96.7		P	50 - 175
2116704	BacR-qPCR	80.3		P	50 - 175
2116918	BacR-qPCR	51.3		P	50 - 175
2117242	BacR-qPCR	51.7		P	50 - 175
2117278	BacR-qPCR	63.1		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P370137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116409	DG3-qPCR	107		P	50 - 175
2116489	DG3-qPCR	93.9		P	50 - 175
2116490	DG3-qPCR	93.5	91.7	P/P	50 - 175
2116588	DG3-qPCR	74.0		P	50 - 175
2117393	DG3-qPCR	90.0		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0

Batch ID: P370137

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116490	HF183-qPCR	10.5	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2

Batch ID: P370137

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116490	GULL2-qPCR	4.56	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3

Batch ID: P371426

Replicated

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

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.3
 Batch ID: P371426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123304	GFD-purified-qPCR	8.61	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P370137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116490	BacR-qPCR	4.35	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
 Batch ID: P370137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116490	DG3-qPCR	1.98	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2116588
 Field Sample ID: G3SD0068

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	89.8	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	103	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	104	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	77.3	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.) SOP-PCR-1.0	Chlorophyll-a, Corrected HF183-qPCR	90.4			113	120	131			10.5
		274	126		118					
SOP-PCR-1.2	GULL2-qPCR	93.9	185	159	190	87.1	83.2			4.56
		144			96.3					
SOP-PCR-1.3	GFD-purified-qPCR	135	81.0		424	421	394			8.61
					387					
SOP-PCR-1.4	BacR-qPCR	143	106		97.8	90.5	90.8			4.35
					87.0					
SOP-PCR-1.5	DG3-qPCR	216	137		107	93.9	93.5			1.98
					91.7					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E85086	Enterococci by Enterolert/QT by BEA South in North Port	2116589, 2116590, 2116591
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2116583, 2116584, 2116585, 2116586, 2116587
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2116588
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2116588
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2116588
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2116588
SOP-PCR-1.5 / E31780	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2116588

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	09/04/2019	09/04/2019 14:40		09/05/2019 15:35	Benchmark EnviroAnalytical in North Port	2116589, 2116590, 2116591
SM 10200 H (mod.)	09/05/2019	09/05/2019 14:09	Yuliya Danyuk	09/10/2019 10:04	Yuliya Danyuk	2116583, 2116584, 2116585, 2116586, 2116587
SOP-PCR-1.0	09/05/2019	09/05/2019 12:50	Angela Smith	09/24/2019 08:33	Mailin Lopez	2116588
SOP-PCR-1.2	09/05/2019	09/05/2019 12:50	Angela Smith	09/30/2019 11:19	Mailin Lopez	2116588
SOP-PCR-1.3	09/05/2019	09/05/2019 12:50	Mailin Lopez	10/07/2019 12:27	Mailin Lopez	2116588
SOP-PCR-1.4	09/05/2019	09/05/2019 12:50	Angela Smith	09/24/2019 09:07	Mailin Lopez	2116588
SOP-PCR-1.5	09/05/2019	09/05/2019 12:50	Angela Smith	09/23/2019 10:23	Mailin Lopez	2116588