

Biological Analysis Report

WQAP-2017-04-20-01

Florida Department of Environmental Protection
Central Laboratory
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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: **2017 SMP Kits A & C**
Request ID: **RQ-2017-04-10-09**
Customer: **WQAP**
Project ID: **SMP**

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Certified by: Jennifer Walters, Environmental Manager

Date Certified: 29-JUN-2017 09:00



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: AlgalBio, 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 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: ALLIGATOR CREEK NORTH PRONG ABOVE CR768

Collection Date/Time: 04/19/2017 08:50

Field ID: G2SD041917-20

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1890546	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P323951	
		Phaeophytin-a	0.40	U	ug/L	P323951	
		Chlorophyll/Phaeophytin Ratio	1.6			P323951	
		Chlorophyll-a, Uncorrected	0.56	I	ug/L	P323951	
1890549	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray**	529		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: ALLIGATOR CR SOUTH BRANCH @ SR768

Collection Date/Time: 04/19/2017 09:10

Field ID: G2SD041917-22

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1890547	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.8		ug/L	P323951	
		Phaeophytin-a	1.8		ug/L	P323951	
		Chlorophyll/Phaeophytin Ratio	1.5			P323951	
		Chlorophyll-a, Uncorrected	5.0		ug/L	P323951	
1890550	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray**	1	U	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: ALLIGATOR CR SOUTH BR @ SR768 DUP

Collection Date/Time: 04/19/2017 09:15

Field ID: G2SD041917-24

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1890548	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.7		ug/L	P323951	
		Phaeophytin-a	2.0		ug/L	P323951	
		Chlorophyll/Phaeophytin Ratio	1.5			P323951	
		Chlorophyll-a, Uncorrected	5.0		ug/L	P323951	
1890551	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray**	1	U	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: ALLIGATOR CREEK NORTH PRONG ABOVE CR768

Collection Date/Time: 04/19/2017 08:50

Field ID: G2SD041917-20

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1890664	SOP-PCR-1.0	HF183-qPCR**	71	U	GEU/100 mL	P324882	
	SOP-PCR-1.2	GULL2-qPCR**	750	T	TSC/100 mL	P324882	RPD
	SOP-PCR-1.4	BacR-qPCR**	760	U	TSC/100 mL	P324882	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

SOP-PCR-1.4: No amplification of BACR marker.

Sample Location: ALLIGATOR CR SOUTH BRANCH @ SR768

Collection Date/Time: 04/19/2017 09:10

Field ID: G2SD041917-22

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1890665	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: ALLIGATOR CR SOUTH BRANCH @ SR768 Collection Date/Time: 04/19/2017 08:50

Field ID: G2SD041917-22

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1890641	SOP-AB05	Dominant sample taxon**	Chlorophyceae				

Ref. Method and Comment:
 SOP-AB05: The co-dominant taxa were *Spirogyra crassa* and *Rhizoclonium hieroglyphicum*.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P323951

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Reference Method: SOP-PCR-1.0
 Batch ID: P324882

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

Reference Method: SOP-PCR-1.2
 Batch ID: P324882

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

Reference Method: SOP-PCR-1.4
 Batch ID: P324882

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
 Batch ID: P323951

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	101		P	84 - 116

Reference Method: SOP-PCR-1.0
 Batch ID: P324882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	76.0	65.4	P/P	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.2
Batch ID: P324882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	94.2	59.9	P/P	50 - 300

Reference Method: SOP-PCR-1.4
Batch ID: P324882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	66.1	46.4	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P324882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890664	HF183-qPCR	91.5		P	50 - 175
1892527	HF183-qPCR	82.0		P	50 - 175
1892528	HF183-qPCR	76.8		P	50 - 175
1896107	HF183-qPCR	76.4		P	50 - 175
1897147	HF183-qPCR	87.8	77.4	P/P	50 - 175
1897658	HF183-qPCR	61.3		P	50 - 175
1897680	HF183-qPCR	90.8		P	50 - 175
1897681	HF183-qPCR	92.6		P	50 - 175
1897690	HF183-qPCR	88.1		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P324882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890664	GULL2-qPCR	149		P	50 - 300
1892528	GULL2-qPCR	79.9		P	50 - 300

Reference Method: SOP-PCR-1.4
Batch ID: P324882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890664	BacR-qPCR	78.9		P	50 - 175
1892528	BacR-qPCR	59.8		P	50 - 175
1896107	BacR-qPCR	58.5	67.4	P/P	50 - 175
1897680	BacR-qPCR	55.0		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P323951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890422	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1890422	Chlorophyll-a, Corrected	9.87	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P323951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890422	Chlorophyll-a, Uncorrected	12.1	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P324882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897147	HF183-qPCR	12.6	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P324882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888810	GULL2-qPCR	27.7	Spike	F	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P324882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896107	BacR-qPCR	14.1	Spike	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 1890664
Field Sample ID: G2SD041917-20

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	120	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	119	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	120	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio							0.0	
	Chlorophyll-a, Corrected	101						9.87	
	Chlorophyll-a, Uncorrected							12.1	
SOP-PCR-1.0	HF183-qPCR	65.4	76.0	87.8	77.4	90.8			12.6
				92.6					
SOP-PCR-1.2	GULL2-qPCR	59.9	94.2	149	79.9				27.7
SOP-PCR-1.4	BacR-qPCR	46.4	66.1	78.9	59.8	58.5			14.1
				67.4					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1890546, 1890547, 1890548
SM 9223 Quanti-Tray / E85457	Escherichia coli by Colilert 18 Quanti-Tray method by Sanders Laboratories for South District	1890549, 1890550, 1890551
SOP-AB05 / E31780	Qualitative assessment of algal taxa present without counts	1890641
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1890664
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium genetic marker with quantitative polymerase chain reaction	1890664
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes genetic marker with quantitative polymerase chain reaction	1890664
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1890664, 1890665

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	04/20/2017	04/20/2017 13:00	Jennifer Mihalic	04/24/2017	Kim M. Spencer	1890546, 1890547, 1890548
SM 9223 Quanti-Tray	04/19/2017	04/19/2017 14:55		04/20/2017 16:08	Sanders-Fort Myers	1890549, 1890550, 1890551
SOP-AB05	04/20/2017			04/26/2017	Isaura Lorenzo-Perez	1890641
SOP-PCR-1.0	04/20/2017	04/20/2017 13:00	Avril Wood	05/18/2017	Puja Jasrotia	1890664
SOP-PCR-1.2	04/20/2017	04/20/2017 13:00	Avril Wood	05/22/2017	Sarah Menz	1890664
SOP-PCR-1.4	04/20/2017	04/20/2017 13:00	Avril Wood	05/22/2017	Sarah Menz	1890664
SOP-PCR-4.0	04/20/2017	04/20/2017 13:00	Avril Wood	05/12/2017	Puja Jasrotia	1890664, 1890665