

Biological Analysis Report

SO-DIST-2018-05-31-02

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

Overflow Analyses Performed By:
Sanders Laboratories
10090 Bavaria Road
Ft. Myers, FL 33913
DOH Accreditation E85457

Event Description: **SFM: Oak, Hendry, Winkler, Manuel**
Request ID: **RQ-2018-06-04-54**
Customer: **SO-DIST**
Project ID: **SMP**

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This Report replaces the previous Report Serial Number: 0106486

Report Comment: Removed commas from results.

Revision certified by: Amelia G. Rankin,

Date Certified: 15-NOV-2018 10:59



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 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: MANUEL BRANCH @ BROADWAY

Collection Date/Time: 05/30/2018 08:15

Field ID: G3SD0078

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996306	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P346839	
	SOP-PCR-1.2	GULL2-qPCR**	1.84E+05		TSC/100 mL	P346839	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P346839	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1996308	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray**	2420	J	MPN/100 mL		

Ref. Method and Comment:

SOP-PCR-1.2: Precision data unavailable due for Analysis Batch A84942

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A84705.

SM 9223 Quanti-Tray: All Quanti Tray wells were positive. Results maybe higher than reported.

Sample Location: WINKLER CANAL @ PRINCETON

Collection Date/Time: 05/30/2018 08:50

Field ID: G3SD0055

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996303	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.2		ug/L	P346410	
		Phaeophytin-a	0.40	U	ug/L	P346410	
		Chlorophyll-a, Uncorrected	2.3		ug/L	P346410	
1996307	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P346839	
	SOP-PCR-1.2	GULL2-qPCR**	3.3E+04		TSC/100 mL	P346839	
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P346839	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1996309	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray**	2420		MPN/100 mL		

Ref. Method and Comment:

SOP-PCR-1.2: Precision data unavailable due for Analysis Batch A84942

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A84705.

Sample Location: OAK CREEK @ OAK CRK PRESERVE

Collection Date/Time: 05/30/2018 10:30

Field ID: G1SD0050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996305	SM 10200 H (mod.)	Chlorophyll-a, Corrected	8.2		ug/L	P346411	
		Phaeophytin-a	1.9		ug/L	P346411	
		Chlorophyll-a, Uncorrected	9.6		ug/L	P346411	
1996310	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray**	770		MPN/100 mL		

Sample Location: HendryCrk@OldGladiolus

Collection Date/Time: 05/30/2018 09:30

Field ID: G1SD0062

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996304	SM 10200 H (mod.)	Chlorophyll-a, Corrected	14		ug/L	P346411	
		Phaeophytin-a	5.1		ug/L	P346411	
		Chlorophyll-a, Uncorrected	17		ug/L	P346411	

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P346410

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: SM 10200 H (mod.)
Batch ID: P346411

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: P346839

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

Reference Method: SOP-PCR-1.2
Batch ID: P346839

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-1.4
Batch ID: P346839

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: P346410

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	96.2		P	84 - 116

Reference Method: SM 10200 H (mod.)
Batch ID: P346411

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	93.6		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P346839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	118	118	P/P	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.2
 Batch ID: P346839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	218	118	P/P	50 - 300
GULL2-qPCR	211	70.1	P/P	50 - 300

Reference Method: SOP-PCR-1.4
 Batch ID: P346839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	88.0	111	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P346839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994792	HF183-qPCR	110		P	50 - 175
1995735	HF183-qPCR	90.2		P	50 - 175
1996156	HF183-qPCR	81.6		P	50 - 175
1996306	HF183-qPCR	117		P	50 - 175
1996307	HF183-qPCR	94.6		P	50 - 175
1996352	HF183-qPCR	91.8		P	50 - 175
1996526	HF183-qPCR	93.0		P	50 - 175
1996527	HF183-qPCR	98.1		P	50 - 175
2001183	HF183-qPCR	92.3	90.2	P/P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P346839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994792	GULL2-qPCR	72.0	101	P/P	50 - 300
1996306	GULL2-qPCR	103	105	P/P	50 - 300
1996307	GULL2-qPCR	105	58.5	P/P	50 - 300

Reference Method: SOP-PCR-1.4
 Batch ID: P346839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994792	BacR-qPCR	81.5		P	50 - 175
1995735	BacR-qPCR	51.8		P	50 - 175
1996156	BacR-qPCR	64.8		P	50 - 175
1996306	BacR-qPCR	76.2		P	50 - 175
1996307	BacR-qPCR	81.3		P	50 - 175
1996352	BacR-qPCR	58.9		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P346410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996078	Chlorophyll-a, Corrected	0.623	Sample	P	0 - 25
1996078	Chlorophyll-a, Uncorrected	1.16	Sample	P	0 - 25
1996078	Phaeophytin-a	5.02	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P346411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996343	Chlorophyll-a, Corrected	0.756	Sample	P	0 - 25
1996343	Chlorophyll-a, Uncorrected	2.18	Sample	P	0 - 25
1996343	Phaeophytin-a	8.07	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P346839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001183	HF183-qPCR	2.37	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: 1996306
Field Sample ID: G3SD0078

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	105	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	108	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	100	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	97.2	P	50 - 300

Lab Sample ID: 1996307
Field Sample ID: G3SD0055

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	108	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	112	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	110	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	105	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	96.2		0.623	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision	MS
									SMP	
SM 10200 H (mod.)	Chlorophyll-a, Corrected	93.6							0.756	
	Chlorophyll-a, Uncorrected								1.16	
	Chlorophyll-a, Uncorrected								2.18	
	Phaeophytin-a								5.02	
	Phaeophytin-a								8.07	
SOP-PCR-1.0	HF183-qPCR	118	118		92.3	90.2	110			2.37
SOP-PCR-1.2	GULL2-qPCR	218	70.1	211	90.2					
		118			72.0	105	58.5			
SOP-PCR-1.4	BacR-qPCR	111	88.0		101					
					81.5	51.8	64.8			
					76.2					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1996303, 1996304, 1996305
SM 9223 Quanti-Tray / E85457	Escherichia coli by Colilert 18 Quanti-Tray method by Sanders Laboratories	1996308, 1996309, 1996310
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1996306, 1996307
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalum Gull2 genetic marker with quantitative polymerase chain reaction	1996306, 1996307
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1996306, 1996307
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1996306, 1996307

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	05/31/2018	05/31/2018 14:20	Jennifer Mihalic	06/05/2018 09:30	Carina A. Tull	1996303
	05/31/2018	05/31/2018 14:20	Jennifer Mihalic	06/05/2018 10:05	Carina A. Tull	1996304, 1996305
SM 9223 Quanti-Tray	05/30/2018	05/30/2018 14:30		05/31/2018 09:25	Sanders-Fort Myers	1996308, 1996309, 1996310
SOP-PCR-1.0	05/31/2018	05/31/2018 12:40	Angela Smith	06/19/2018 16:09	Mailin Lopez	1996306, 1996307
SOP-PCR-1.2	05/31/2018	05/31/2018 12:40	Angela Smith	06/29/2018 13:31	Mailin Lopez	1996306, 1996307
SOP-PCR-1.4	05/31/2018	05/31/2018 12:40	Angela Smith	06/20/2018 09:41	Mailin Lopez	1996306, 1996307
SOP-PCR-4.0	05/31/2018	05/31/2018 12:40	Angela Smith	06/18/2018 10:30	Puja Jasrotia	1996306, 1996307