

Biological Analysis Report

SW-DIST-2018-05-30-02

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
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DOH Accreditation E31780

Overflow Analyses Performed By:
Advanced Environmental Laboratories - Tampa
9610 Princess Palm Avenue
Tampa, Florida 33619
DOH Accreditation E84589

Event Description: **Cockroach & Lil Manatee**
Request ID: **RQ-2018-05-28-04**
Customer: **SW-DIST**
Project ID: **SMP**

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Date Certified: 12-JUL-2018 17:50



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, Microbiology, 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: Little Manatee River at SP Boat Ramp

Collection Date/Time: 05/29/2018 11:00

Field ID: G2SW0037

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996152	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.7		ug/L	P346410	
		Phaeophytin-a	0.69	I	ug/L	P346410	
		Chlorophyll-a, Uncorrected	2.2		ug/L	P346410	
1996155	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	93.3	Q	MPN/100 mL	P346590	

Sample Location: Cockroach Bay @ Boat Ramp

Collection Date/Time: 05/29/2018 09:25

Field ID: G1SW0089

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996153	SM 10200 H (mod.)	Chlorophyll-a, Corrected	16		ug/L	P346410	
		Phaeophytin-a	2.6		ug/L	P346410	
		Chlorophyll-a, Uncorrected	18		ug/L	P346410	
1996159	SM 9222 D	Fecal Coliforms-Membrane Filter	4	B	cfu/100 mL		
	SM 9230 C	Enterococci-Membrane Filter	4	U	cfu/100 mL		

Sample Location: Cockroach Bay @ Dockage

Collection Date/Time: 05/29/2018 09:50

Field ID: G1SW0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996154	SM 10200 H (mod.)	Chlorophyll-a, Corrected	26		ug/L	P346410	
		Phaeophytin-a	5.1		ug/L	P346410	
		Chlorophyll-a, Uncorrected	30		ug/L	P346410	
1996160	SM 9222 D	Fecal Coliforms-Membrane Filter	32	B	cfu/100 mL		
	SM 9230 C	Enterococci-Membrane Filter	4	B	cfu/100 mL		

Sample Location: Piney Point @ County Line Rd.

Collection Date/Time: 05/29/2018 10:20

Field ID: G1SW0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996156	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P346839	
	SOP-PCR-1.4	BacR-qPCR**	1.96E+05		TSC/100 mL	P346839	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1996161	SM 9230 C	Enterococci-Membrane Filter	740	B	cfu/100 mL		

Ref. Method and Comment:
SOP-PCR-1.4: Precision data unavailable for Analysis Batch A84705.

Sample Location: Piney Point @ County Line Rd.

Collection Date/Time: 05/29/2018 10:25

Field ID: G1SW0091_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996157	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P347054	
	SOP-PCR-1.4	BacR-qPCR**	1.02E+06		TSC/100 mL	P347054	LCS

Ref. Method and Comment:
SOP-PCR-1.4: Precision data unavailable for Analysis Batch A84869.

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 9223 Quanti-Tray
Batch ID: P346590

Component	Result	Code	Units
Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL

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

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

Reference Method: SOP-PCR-1.0
Batch ID: P347054

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

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

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

Reference Method: SOP-PCR-1.4
Batch ID: P347054

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL
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: 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-1.0
Batch ID: P347054

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	116	140	P/P	50 - 175

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

Reference Method: SOP-PCR-1.4
Batch ID: P347054

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	384	76.2	F/P	50 - 175
BacR-qPCR	135	82.8	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-1.0
Batch ID: P347054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969181	HF183-qPCR	89.9		P	50 - 175
1996157	HF183-qPCR	84.6		P	50 - 175
1996529	HF183-qPCR	86.8		P	50 - 175
2000468	HF183-qPCR	111		P	50 - 175
2000469	HF183-qPCR	107		P	50 - 175
2000534	HF183-qPCR	102		P	50 - 175
2000535	HF183-qPCR	96.8		P	50 - 175
2001853	HF183-qPCR	99.5		P	50 - 175
2001854	HF183-qPCR	112	106	P/P	50 - 175
2001855	HF183-qPCR	104		P	50 - 175
2001856	HF183-qPCR	95.0		P	50 - 175
2002922	HF183-qPCR	91.5		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

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

Reference Method: SOP-PCR-1.4
Batch ID: P347054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996157	BacR-qPCR	125		P	50 - 175
1996529	BacR-qPCR	60.6		P	50 - 175
2000535	BacR-qPCR	59.9		P	50 - 175
2001856	BacR-qPCR	50.1		P	50 - 175
2002194	BacR-qPCR	73.1		P	50 - 175

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 9223 Quanti-Tray
Batch ID: P346590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995901	Escherichia Coli-Quanti-Tray	7.11	Sample	P	0 - 80
1996094	Escherichia Coli-Quanti-Tray	22.1	Sample	P	0 - 80

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

Reference Method: SOP-PCR-1.0
Batch ID: P347054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001854	HF183-qPCR	4.96	Spike	P	0 - 25

Quality Assurance Report Precision

* 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: 1996156
Field Sample ID: G1SW0091

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	72.0	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	76.2	P	50 - 300

Lab Sample ID: 1996157
Field Sample ID: G1SW0091_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	93.4	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	160	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	96.2						0.623	
	Chlorophyll-a, Uncorrected							1.16	
	Phaeophytin-a							5.02	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray							7.11	22.1
SOP-PCR-1.0	HF183-qPCR	118	118	92.3	90.2	110			2.37
	HF183-qPCR	140	116	86.8	111	107			4.96
SOP-PCR-1.4	BacR-qPCR	111	88.0	81.5	51.8	64.8			
	BacR-qPCR	384	82.8	60.6	73.1	125			
		76.2		59.9					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1996152, 1996153, 1996154
SM 9222 D / E84589	Fecal coliforms by membrane filter method by Advanced Environmental Overflow Laboratories for SWD	1996159, 1996160
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1996155
SM 9230 C / E84589	Enterococci by membrane filter method by Advanced Environmental Overflow Laboratories for SWD	1996159, 1996160, 1996161
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1996156, 1996157
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1996156, 1996157
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1996156

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	05/30/2018	05/30/2018 16:31	Mariam Hanna	06/05/2018 09:30	Carina A. Tull	1996152, 1996153, 1996154
SM 9222 D	05/29/2018	05/29/2018 16:45		05/30/2018 15:00	AEL - Tampa	1996159, 1996160
SM 9223 Quanti-Tray	05/30/2018	05/30/2018 16:45	Peterson Janvier	05/31/2018 11:05	Peterson Janvier	1996155
SM 9230 C	05/29/2018	05/29/2018 16:55		05/30/2018 15:00	AEL - Tampa	1996159, 1996160, 1996161
SOP-PCR-1.0	05/30/2018	05/30/2018 16:45	Angela Smith	06/19/2018 16:09	Mailin Lopez	1996156
	05/30/2018	05/30/2018 16:45	Sarah Menz	06/25/2018 15:54	Mailin Lopez	1996157
SOP-PCR-1.4	05/30/2018	05/30/2018 16:45	Angela Smith	06/20/2018 09:41	Mailin Lopez	1996156
	05/30/2018	05/30/2018 16:45	Sarah Menz	06/27/2018 11:07	Mailin Lopez	1996157
SOP-PCR-4.0	05/30/2018	05/30/2018 16:45	Angela Smith	06/18/2018 10:30	Puja Jasrotia	1996156