

Biological Analysis Report

SW-DIST-2018-05-25-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

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

Event Description: **Mullet/Allen/Bishop/Moccasin**
Request ID: **RQ-2018-05-21-04**
Customer: **SW-DIST**
Project ID: **SMP**

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Date Certified: 11-JUL-2018 14:01



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: Allen Creek @ Belleair Rd

Collection Date/Time: 05/24/2018 09:40

Field ID: G1SW0096

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995730	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.7		ug/L	P346294	
		Phaeophytin-a	1.6		ug/L	P346294	
		Chlorophyll-a, Uncorrected	3.8		ug/L	P346294	
1995734	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1995736	EPA 1603	Escherichia coli-Membrane Filter**	232		cfu/100 mL		

Sample Location: Moccasin Creek Tidal

Collection Date/Time: 05/24/2018 10:55

Field ID: G1SW0051

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995731	SM 10200 H (mod.)	Chlorophyll-a, Corrected	43		ug/L	P346294	
		Phaeophytin-a	7.6		ug/L	P346294	
		Chlorophyll-a, Uncorrected	49		ug/L	P346294	
1995737	SM 9230 C	Enterococci-Membrane Filter	260		cfu/100 mL		

Sample Location: Mullet Creek Tidal

Collection Date/Time: 05/24/2018 10:15

Field ID: G1SW0095

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995732	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.0		ug/L	P346294	
		Phaeophytin-a	2.8		ug/L	P346294	
		Chlorophyll-a, Uncorrected	8.9		ug/L	P346294	
1995738	SM 9230 C	Enterococci-Membrane Filter	620	B	cfu/100 mL		

Sample Location: Bishop Creek Tidal

Collection Date/Time: 05/24/2018 10:35

Field ID: G1SW0054

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995733	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.4	I	ug/L	P346294	
		Phaeophytin-a	5.4	I	ug/L	P346294	
		Chlorophyll-a, Uncorrected	11		ug/L	P346294	
1995735	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P346839	
	SOP-PCR-1.2	GULL2-purified-qPCR**	1.4E+03	UJ	TSC/100 mL	P347656	LCS, SUR
	SOP-PCR-1.3	GFD-purified-qPCR**	470	I	TSC/100 mL	P347656	LCS, MS, RPD
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P346839	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1995739	SM 9230 C	Enterococci-Membrane Filter	640	B	cfu/100 mL		

Ref. Method and Comment:

SOP-PCR-1.2: Quality control failure(s) observed. See QA report for details. Precision data unavailable for Analysis Batch A85027.

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

Quality Assurance Report Method Blank Results

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Reference Method: SM 10200 H (mod.)
Batch ID: P346294

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: P347656

Component	Result	Code	Units
GULL2-purified-qPCR	2.8E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.3
Batch ID: P347656

Component	Result	Code	Units
GFD-purified-qPCR	340	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: P346294

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	95.6		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

Reference Method: SOP-PCR-1.2
Batch ID: P347656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-purified-qPCR	82.3	11.3	P/F	50 - 300

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P347656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	104	31.6	P/F	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

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: P347656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995735	GULL2-purified-qPCR	70.4		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P347656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994792	GFD-purified-qPCR	125		P	50 - 175
1995735	GFD-purified-qPCR	110		P	50 - 175
2004208	GFD-purified-qPCR	88.2		P	50 - 175
2004209	GFD-purified-qPCR	82.3	31.5	P/F	50 - 175
2004210	GFD-purified-qPCR	113		P	50 - 175
2004211	GFD-purified-qPCR	79.3		P	50 - 175
2004212	GFD-purified-qPCR	51.0		P	50 - 175
2004213	GFD-purified-qPCR	75.6		P	50 - 175
2004214	GFD-purified-qPCR	90.6		P	50 - 175
2004215	GFD-purified-qPCR	66.9		P	50 - 175
2004224	GFD-purified-qPCR	88.0		P	50 - 175

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

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

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P346294

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995870	Chlorophyll-a, Corrected	8.04	Sample	P	0 - 25
1995870	Chlorophyll-a, Uncorrected	9.43	Sample	P	0 - 25
1995870	Phaeophytin-a	14.1	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

Reference Method: SOP-PCR-1.3
Batch ID: P347656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004209	GFD-purified-qPCR	89.3	Spike	F	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: 1995735
Field Sample ID: G1SW0054

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	84.6	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	1.30	F	30 - 300
SOP-PCR-1.4	SKETA-qPCR	86.4	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	95.6						8.04	
	Chlorophyll-a, Uncorrected							9.43	
	Phaeophytin-a							14.1	
SOP-PCR-1.0	HF183-qPCR	118	118	92.3	90.2	110			2.37
SOP-PCR-1.2	GULL2-purified-qPCR	11.3	82.3	70.4					
SOP-PCR-1.3	GFD-purified-qPCR	31.6	104	125	110	88.2			89.3
SOP-PCR-1.4	BacR-qPCR	111	88.0	82.3					
				81.5	51.8	64.8			
				76.2					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E84589	Escherichia coli by membrane filter method using modified mTEC by Advanced Environmental Tampa Lab for SWD	1995736
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1995730, 1995731, 1995732, 1995733
SM 9230 C / E84589	Enterococci by membrane filter method by Advanced Environmental Overflow Laboratories for SWD	1995737, 1995738, 1995739
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1995735
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1995735
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1995735
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1995735
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1995734, 1995735

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	05/24/2018	05/24/2018 16:00		05/25/2018 15:00	AEL - Tampa	1995736
SM 10200 H (mod.)	05/25/2018	05/25/2018 15:00	Edwin Gonzalez-Soto	06/01/2018 08:55	Carina A. Tull	1995730, 1995731, 1995732, 1995733
SM 9230 C	05/24/2018	05/24/2018 16:20		05/25/2018 14:30	AEL - Tampa	1995737, 1995738, 1995739
SOP-PCR-1.0	05/25/2018	05/25/2018 14:35	Angela Smith	06/19/2018 16:09	Mailin Lopez	1995735
SOP-PCR-1.2	05/25/2018	05/25/2018 14:35	Mailin Lopez	07/05/2018 10:25	Sarah Menz	1995735
SOP-PCR-1.3	05/25/2018	05/25/2018 14:35	Mailin Lopez	07/02/2018 12:23	Sarah Menz	1995735
SOP-PCR-1.4	05/25/2018	05/25/2018 14:35	Angela Smith	06/20/2018 09:41	Mailin Lopez	1995735
SOP-PCR-4.0	05/25/2018	05/25/2018 14:35	Angela Smith	06/18/2018 10:30	Puja Jasrotia	1995734, 1995735