

Biological Analysis Report

SW-DIST-2019-03-20-01

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: **SMP: Run 8**
Request ID: **RQ-2019-03-18-15**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 25-APR-2019 13:16



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: Lil Manatee River N.Fork @ Carlton Lake Rd

Collection Date/Time: 03/19/2019 10:00

Field ID: G2SW0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2071302	EPA 1603	Escherichia coli-Membrane Filter**	308		cfu/100 mL		

Sample Location: Gamble Creek @ Mulholland Rd

Collection Date/Time: 03/19/2019 11:35

Field ID: G2SW0106

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2071303	EPA 1603	Escherichia coli-Membrane Filter**	72	B	cfu/100 mL		

Sample Location: Mill Creek @ Upper Manatee Rvr Rd

Collection Date/Time: 03/19/2019 12:00

Field ID: G2SW0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2071300	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P361403	
	SOP-PCR-1.2	GULL2-qPCR**	5.6E+03	U	TSC/100 mL	P361403	
	SOP-PCR-1.3	GFD-purified-qPCR**	750		TSC/100 mL	P361911	LCS, MS, RPD
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P361403	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold			P360637	
2071305	SM 9230 C	Enterococci-Membrane Filter	1100	B	cfu/100 mL		

Sample Location: Gamble Creek @ Golf Course Rd

Collection Date/Time: 03/19/2019 11:10

Field ID: G2SW0107

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2071304	EPA 1603	Escherichia coli-Membrane Filter**	3500		cfu/100 mL		

Sample Location: Lil Manatee River @ Saffold Rd

Collection Date/Time: 03/19/2019 10:30

Field ID: G2SW0103

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2071299	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.2	U	ug/L	P361921	
		Phaeophytin-a	1.4	U	ug/L	P361921	
		Chlorophyll-a, Uncorrected	1.0	I	ug/L	P361921	
2071301	EPA 1603	Escherichia coli-Membrane Filter**	520		cfu/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.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P361921

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.60	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P361403

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

Reference Method: SOP-PCR-1.2
Batch ID: P361403

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

Reference Method: SOP-PCR-1.3
Batch ID: P361911

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

Reference Method: SOP-PCR-1.4
Batch ID: P361403

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: P361921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	107		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P361403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	92.8	102	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P361403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	100	216	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P361911

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	151	13.2	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P361403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P361403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	98.2	87.2	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P361403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2069251	HF183-qPCR	101		P	50 - 175
2069252	HF183-qPCR	98.8		P	50 - 175
2069253	HF183-qPCR	91.5		P	50 - 175
2071300	HF183-qPCR	70.4		P	50 - 175
2072205	HF183-qPCR	82.9		P	50 - 175
2074409	HF183-qPCR	81.2	77.0	P/P	50 - 175
2074410	HF183-qPCR	76.7		P	50 - 175
2074642	HF183-qPCR	67.4		P	50 - 175
2074778	HF183-qPCR	84.8		P	50 - 175
2074779	HF183-qPCR	74.9		P	50 - 175
2075908	HF183-qPCR	79.3		P	50 - 175
2077083	HF183-qPCR	72.6		P	50 - 175
2077084	HF183-qPCR	73.4		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P361403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2069251	GULL2-qPCR	72.8		P	50 - 300
2069252	GULL2-qPCR	89.5		P	50 - 300
2069253	GULL2-qPCR	129		P	50 - 300
2071300	GULL2-qPCR	65.2		P	50 - 300
2072205	GULL2-qPCR	83.1		P	50 - 300
2074409	GULL2-qPCR	77.6	88.0	P/P	50 - 300
2074410	GULL2-qPCR	68.8		P	50 - 300
2074642	GULL2-qPCR	70.1		P	50 - 300
2074778	GULL2-qPCR	68.5		P	50 - 300
2074779	GULL2-qPCR	69.1		P	50 - 300
2075908	GULL2-qPCR	81.0		P	50 - 300
2077083	GULL2-qPCR	74.7		P	50 - 300
2077084	GULL2-qPCR	63.1		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P361911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2068767	GFD-purified-qPCR	239		F	50 - 175
2068768	GFD-purified-qPCR	253		F	50 - 175
2069251	GFD-purified-qPCR	234		F	50 - 175
2069252	GFD-purified-qPCR	152		P	50 - 175
2069253	GFD-purified-qPCR	260		F	50 - 175
2069298	GFD-purified-qPCR	146		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3

Batch ID: P361911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070024	GFD-purified-qPCR	143		P	50 - 175
2070548	GFD-purified-qPCR	153		P	50 - 175
2070871	GFD-purified-qPCR	231		F	50 - 175
2070983	GFD-purified-qPCR	182		F	50 - 175
2071059	GFD-purified-qPCR	141		P	50 - 175
2071300	GFD-purified-qPCR	138		P	50 - 175
2071762	GFD-purified-qPCR	140		P	50 - 175
2072205	GFD-purified-qPCR	133		P	50 - 175
2077083	GFD-purified-qPCR	137		P	50 - 175
2077084	GFD-purified-qPCR	210		F	50 - 175
2077085	GFD-purified-qPCR	183		F	50 - 175
2077086	GFD-purified-qPCR	293	218	F/F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P361403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2069251	BacR-qPCR	96.7		P	50 - 175
2069252	BacR-qPCR	88.4		P	50 - 175
2069253	BacR-qPCR	84.9		P	50 - 175
2071300	BacR-qPCR	69.2		P	50 - 175
2072205	BacR-qPCR	85.4		P	50 - 175
2074409	BacR-qPCR	81.3	78.9	P/P	50 - 175
2074410	BacR-qPCR	69.9		P	50 - 175
2074642	BacR-qPCR	84.6		P	50 - 175
2075908	BacR-qPCR	75.8		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P361921

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071267	Chlorophyll-a, Uncorrected	1.15	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0

Batch ID: P361403

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2074409	HF183-qPCR	5.26	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2

Batch ID: P361403

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2074409	GULL2-qPCR	12.6	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.3
Batch ID: P361911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077086	GFD-purified-qPCR	29.4	Spike	F	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P361403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2074409	BacR-qPCR	3.03	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: 2071300
Field Sample ID: G2SW0040

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	107	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	96.7	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	110	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	107						1.15	
	Chlorophyll-a, Uncorrected								
SOP-PCR-1.0	HF183-qPCR	102	92.8	101	98.8	91.5			5.26
				81.2					
SOP-PCR-1.2	GULL2-qPCR	216	100	72.8	89.5	129			12.6
				77.6					
SOP-PCR-1.3	GFD-purified-qPCR	13.2	151	137	210	183			29.4
				293					
SOP-PCR-1.4	BacR-qPCR	87.2	98.2	96.7	88.4	84.9			3.03
				81.3					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E84589	Escherichia coli by membrane filter	2071301, 2071302, 2071303, 2071304
SM 10200 H (mod.) / E31780	Advanced Environmental Laboratory in Tampa	
	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2071299
SM 9230 C / E84589	Enterococci by membrane filter method by Advanced Environmental Overflow Laboratories for SWD	2071305
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2071300
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2071300

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2071300
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2071300
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2071300

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	03/19/2019	03/19/2019 15:00		03/20/2019 13:00	AEL - Tampa	2071301, 2071302, 2071303, 2071304
SM 10200 H (mod.)	03/20/2019	03/20/2019 15:20	Edwin Gonzalez-Soto	04/04/2019 09:24	Jennifer Mihalic	2071299
SM 9230 C	03/19/2019	03/19/2019 14:48		03/20/2019 12:50	AEL - Tampa	2071305
SOP-PCR-1.0	03/20/2019	03/20/2019 12:45	Sarah Menz	04/15/2019 10:30	Mailin Lopez	2071300
SOP-PCR-1.2	03/20/2019	03/20/2019 12:45	Sarah Menz	04/18/2019 08:48	Mailin Lopez	2071300
SOP-PCR-1.3	03/20/2019	03/20/2019 12:45	Angela Smith	04/22/2019 10:54	Sarah Menz	2071300
SOP-PCR-1.4	03/20/2019	03/20/2019 12:45	Sarah Menz	04/16/2019 12:15	Mailin Lopez	2071300
SOP-PCR-4.0	03/20/2019	03/20/2019 12:45	Angela Smith	04/09/2019 13:46	Sarah Menz	2071300