

Biological Analysis Report

SW-DIST-2019-02-28-03

Florida Department of Environmental Protection
Central Laboratory
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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: **SMP - Run 11; Gily, Owen Cr, Myakka**
Request ID: **RQ-2019-02-25-19**
Customer: **SW-DIST**
Project ID: **SMP**

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Date Certified: 10-APR-2019 15:53



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: GILLEY CRK @ STRICKLANDS

Collection Date/Time: 02/27/2019 13:54

Field ID: G2SW0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2066130	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.4	I	ug/L	P360119	
		Phaeophytin-a	0.60	U	ug/L	P360119	
		Chlorophyll-a, Uncorrected	1.5		ug/L	P360119	
2066131	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P360512	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P360512	
	SOP-PCR-1.3	GFD-purified-qPCR**	3.97E+03	J	TSC/100 mL	P361482	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P360512	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold			P359296	
2066139	EPA 1603	Escherichia coli-Membrane Filter**	900	B	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.

SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A90384

Sample Location: MYAKKA RIVER @ CLAY GULLY IN PARK

Collection Date/Time: 02/27/2019 12:40

Field ID: G3SW0054

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2066129	SM 10200 H (mod.)	Chlorophyll-a, Corrected	17		ug/L	P360119	
		Phaeophytin-a	0.68	U	ug/L	P360119	
		Chlorophyll-a, Uncorrected	18		ug/L	P360119	
2066138	EPA 1603	Escherichia coli-Membrane Filter**	380		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: P360119

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

Reference Method: SOP-PCR-1.0

Batch ID: P360512

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

Reference Method: SOP-PCR-1.2

Batch ID: P360512

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.3
Batch ID: P361482

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

Reference Method: SOP-PCR-1.4
Batch ID: P360512

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: P360119

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	100		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P360512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	112	143	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P360512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	145	256	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P361482

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	174	42.8	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P360512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	103	114	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P360512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065677	HF183-qPCR	87.5		P	50 - 175
2065678	HF183-qPCR	90.2		P	50 - 175
2065679	HF183-qPCR	93.5		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P360512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2066131	HF183-qPCR	85.4	96.7	P	50 - 175
2066948	HF183-qPCR	95.6		P	50 - 175
2067539	HF183-qPCR	91.3		P	50 - 175
2067540	HF183-qPCR	67.4		P	50 - 175
2070613	HF183-qPCR	97.5		P/P	50 - 175
2070872	HF183-qPCR	102		P	50 - 175
2071058	HF183-qPCR	106		P	50 - 175
2071543	HF183-qPCR	98.5		P	50 - 175
2071722	HF183-qPCR	99.9		P	50 - 175
2071723	HF183-qPCR	96.1		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P360512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065677	GULL2-qPCR	72.4	118	P	50 - 300
2065678	GULL2-qPCR	87.3		P	50 - 300
2065679	GULL2-qPCR	89.2		P	50 - 300
2066131	GULL2-qPCR	95.6		P	50 - 300
2067539	GULL2-qPCR	94.8		P	50 - 300
2070613	GULL2-qPCR	108		P/P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P361482

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065677	GFD-purified-qPCR	446	611	F	50 - 175
2065678	GFD-purified-qPCR	423		F	50 - 175
2065679	GFD-purified-qPCR	479		F	50 - 175
2066131	GFD-purified-qPCR	503		F	50 - 175
2067539	GFD-purified-qPCR	453		F	50 - 175
2074409	GFD-purified-qPCR	642		F/F	50 - 175
2074410	GFD-purified-qPCR	613		F	50 - 175
2074642	GFD-purified-qPCR	595		F	50 - 175
2074778	GFD-purified-qPCR	610		F	50 - 175
2074779	GFD-purified-qPCR	485		F	50 - 175
2075908	GFD-purified-qPCR	590		F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P360512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2065677	BacR-qPCR	73.9		P	50 - 175
2065678	BacR-qPCR	73.9		P	50 - 175
2065679	BacR-qPCR	88.8		P	50 - 175
2066131	BacR-qPCR	75.7		P	50 - 175
2067539	BacR-qPCR	73.5		P	50 - 175
2071544	BacR-qPCR	72.8		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P360119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2066107	Chlorophyll-a, Corrected	0.210	Sample	P	0 - 25
2066107	Chlorophyll-a, Uncorrected	1.37	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P360512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070613	HF183-qPCR	0.766	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P360512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070613	GULL2-qPCR	9.65	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P361482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2074409	GFD-purified-qPCR	4.94	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: 2066131
Field Sample ID: G2SW0024

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	114	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	99.8	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	162	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	100						0.210	
	Chlorophyll-a, Uncorrected							1.37	
SOP-PCR-1.0	HF183-qPCR	143	112	97.5	96.7	87.5			0.766
				90.2					
SOP-PCR-1.2	GULL2-qPCR	256	145	108	118	72.4			9.65
				87.3					

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SOP-PCR-1.3	GFD-purified-qPCR	42.8	174	642	611	613			4.94
SOP-PCR-1.4	BacR-qPCR	114	103	595	73.9	73.9	88.8		
				72.8					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E84589	Escherichia coli by membrane filter	Advanced Environmental Laboratory in Tampa
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2066138, 2066139
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2066129, 2066130
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2066131
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2066131
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2066131
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2066131

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	02/27/2019	02/27/2019 16:32		02/28/2019 15:09	AEL - Tampa	2066138, 2066139
SM 10200 H (mod.)	02/28/2019	02/28/2019 14:10	Jennifer Mihalic	03/07/2019 10:55	Peterson Janvier	2066129, 2066130
SOP-PCR-1.0	02/28/2019	02/28/2019 16:00	Angela Smith	03/28/2019 08:40	Mailin Lopez	2066131
SOP-PCR-1.2	02/28/2019	02/28/2019 16:00	Angela Smith	04/03/2019 14:42	Mailin Lopez	2066131
SOP-PCR-1.3	02/28/2019	02/28/2019 16:00	Angela Smith	04/08/2019 09:09	Sarah Menz	2066131
SOP-PCR-1.4	02/28/2019	02/28/2019 16:00	Angela Smith	04/02/2019 12:07	Mailin Lopez	2066131
SOP-PCR-4.0	02/28/2019	02/28/2019 16:00	Angela Smith	03/26/2019 08:12	Sarah Menz	2066131