

Biological Analysis Report

WQAP-2017-06-22-02

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: **Run 4**
Request ID: **RQ-2017-06-19-29**
Customer: **WQAP**
Project ID: **SMP**

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Date Certified: 30-AUG-2017 10:56



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: KLOSTERMAN N

Collection Date/Time: 06/21/2017 10:05

Field ID: G5SW0039

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908240	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P328846	
	SOP-PCR-1.2	GULL2-qPCR**	970	T	TSC/100 mL	P328846	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P328846	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1908243	EPA 1603	Escherichia coli-Membrane Filter**	520		cfu/100 mL		

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

SOP-PCR-1.4: No amplification of BACR marker.

Sample Location: KLOSTERMAN S

Collection Date/Time: 06/21/2017 10:25

Field ID: G5SW0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908241	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P328846	
	SOP-PCR-1.2	GULL2-qPCR**	5.6E+03	U	TSC/100 mL	P328846	
	SOP-PCR-1.3	GFD-purified-qPCR**	20	TJ	TSC/100 mL	P329164	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P328846	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1908244	EPA 1603	Escherichia coli-Membrane Filter**	480		cfu/100 mL		

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

SOP-PCR-1.2: No amplification of GULL2 marker.

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

SOP-PCR-1.4: No amplification of BACR marker.

Sample Location: KLOSTERMAN S

Collection Date/Time: 06/21/2017 10:25

Field ID: G5SW0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908239	SM 10200 H (mod.)	Chlorophyll-a, Corrected	30		ug/L	P327550	
		Phaeophytin-a	15		ug/L	P327550	
		Chlorophyll/Phaeophytin Ratio	1.5			P327550	
		Chlorophyll-a, Uncorrected	40		ug/L	P327550	

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.

Sample Location: PINELLAS PARK DITCH #5

Collection Date/Time: 06/21/2017 11:20

Field ID: G5SW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908242	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P328846	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P328846	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	U	TSC/100 mL	P329164	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P328846	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1908245	EPA 1603	Escherichia coli-Membrane Filter**	760		cfu/100 mL		

Field ID: G5SW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment: SOP-PCR-1.0: No amplification of HF183 marker. SOP-PCR-1.2: No amplification of GULL2 marker. SOP-PCR-1.3: No amplification of GFD marker. SOP-PCR-1.4: No amplification of BACR marker.							

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P327550

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: P328846

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

Reference Method: SOP-PCR-1.2
Batch ID: P328846

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

Reference Method: SOP-PCR-1.3
Batch ID: P329164

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

Reference Method: SOP-PCR-1.4
Batch ID: P328846

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: P327550

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	104		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P328846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	116	94.6	P/P	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.2
 Batch ID: P328846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	62.4	134	P/P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P329164

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	103	27.3	P/F	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P328846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	68.4	38.9	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P328846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904148	HF183-qPCR	101		P	50 - 175
1904149	HF183-qPCR	102		P	50 - 175
1904150	HF183-qPCR	103		P	50 - 175
1904515	HF183-qPCR	70.9		P	50 - 175
1904516	HF183-qPCR	98.5		P	50 - 175
1905343	HF183-qPCR	100		P	50 - 175
1905506	HF183-qPCR	71.8		P	50 - 175
1907480	HF183-qPCR	86.3		P	50 - 175
1907482	HF183-qPCR	108		P	50 - 175
1908240	HF183-qPCR	121		P	50 - 175
1908241	HF183-qPCR	73.8		P	50 - 175
1908242	HF183-qPCR	103	87.3	P/P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P328846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905343	GULL2-qPCR	69.5		P	50 - 300
1907480	GULL2-qPCR	62.3		P	50 - 300
1908240	GULL2-qPCR	103		P	50 - 300
1908241	GULL2-qPCR	51.3		P	50 - 300
1908242	GULL2-qPCR	61.0	64.1	P/P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P329164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905343	GFD-purified-qPCR	92.8		P	50 - 175
1907480	GFD-purified-qPCR	78.6		P	50 - 175
1908241	GFD-purified-qPCR	5.72		F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
 Batch ID: P329164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908242	GFD-purified-qPCR	91.9	102	P/P	50 - 175
1908455	GFD-purified-qPCR	21.3		F	50 - 175
1916655	GFD-purified-qPCR	178		F	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P328846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904516	BacR-qPCR	58.1		P	50 - 175
1905343	BacR-qPCR	60.7		P	50 - 175
1905506	BacR-qPCR	55.0		P	50 - 175
1907480	BacR-qPCR	51.6		P	50 - 175
1908240	BacR-qPCR	59.4		P	50 - 175
1908241	BacR-qPCR	54.6		P	50 - 175
1908242	BacR-qPCR	64.2	58.6	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P328846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908242	HF183-qPCR	16.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
 Batch ID: P328846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908242	GULL2-qPCR	4.94	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P329164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908242	GFD-purified-qPCR	10.3	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P328846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908242	BacR-qPCR	9.19	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: 1908240
Field Sample ID: G5SW0039

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	97.2	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	92.8	P	50 - 300

Lab Sample ID: 1908241
Field Sample ID: G5SW0040

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	72.5	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	72.4	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	72.1	P	50 - 300

Lab Sample ID: 1908242
Field Sample ID: G5SW0118

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	85.9	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	76.7	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	78.5	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	104							
SOP-PCR-1.0	HF183-qPCR	94.6	116	101	102	103			16.1
				70.9					
SOP-PCR-1.2	GULL2-qPCR	134	62.4	69.5	62.3	103			4.94
				51.3					
SOP-PCR-1.3	GFD-purified-qPCR	27.3	103	91.9	102	21.3			10.3
				178					
SOP-PCR-1.4	BacR-qPCR	38.9	68.4	58.1	60.7	55.0			9.19
				51.6					

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	1908243, 1908244, 1908245
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1908239
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1908240, 1908241, 1908242
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1908240, 1908241, 1908242
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1908241, 1908242
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1908240, 1908241, 1908242
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1908240, 1908241, 1908242

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	06/21/2017			06/21/2017 16:00	AEL - Tampa	1908243, 1908244, 1908245
SM 10200 H (mod.)	06/22/2017	06/22/2017 13:15	Elizabeth Lovern	06/27/2017	Kim M. Spencer	1908239
SOP-PCR-1.0	06/22/2017	06/22/2017 12:22	Puja Jasrotia	07/26/2017	Puja Jasrotia	1908240, 1908241, 1908242
SOP-PCR-1.2	06/22/2017	06/22/2017 12:22	Puja Jasrotia	07/31/2017	Sarah Menz	1908240, 1908241, 1908242
SOP-PCR-1.3	06/22/2017	06/22/2017 12:22	Avril Wood	08/02/2017	Sarah Menz	1908241, 1908242
SOP-PCR-1.4	06/22/2017	06/22/2017 12:22	Puja Jasrotia	07/28/2017	Sarah Menz	1908240, 1908241, 1908242
SOP-PCR-4.0	06/22/2017	06/22/2017 12:22	Sarah Menz	07/20/2017	Puja Jasrotia	1908240, 1908241, 1908242