

Biological Analysis Report

WQAP-2017-11-03-01

Florida Department of Environmental Protection
Central Laboratory
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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: **Cedar & Stevenson Crk**
Request ID: **RQ-2017-10-30-41**
Customer: **WQAP**
Project ID: **SMP**

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Date Certified: 19-MAR-2018 14:55



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: Stevenson

Collection Date/Time: 11/02/2017 10:30

Field ID: G5SW0002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1942954	EPA 1603	Escherichia coli-Membrane Filter**	360		cfu/100 mL		

Sample Location: Cedar Crk

Collection Date/Time: 11/02/2017 10:55

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1942955	EPA 1603	Escherichia coli-Membrane Filter**	320		cfu/100 mL		

Sample Location: Cedar Crk

Collection Date/Time: 11/02/2017 10:55

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1942953	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P334675	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P334675	
	SOP-PCR-1.3	GFD-purified-qPCR**	48	T	TSC/100 mL	P334197	LCS, MS, RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:

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

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

Sample Location: Cedar Crk

Collection Date/Time: 11/02/2017 10:55

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1942952	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	I	ug/L	P335248	
		Phaeophytin-a	1.5		ug/L	P335248	
		Chlorophyll-a, Uncorrected	2.5		ug/L	P335248	

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: P335248

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: P334675

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.2
 Batch ID: P334675

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

Reference Method: SOP-PCR-1.3
 Batch ID: P334197

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
 Batch ID: P335248

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

Reference Method: SOP-PCR-1.0
 Batch ID: P334675

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	82.6	107	P/P	50 - 175
HF183-qPCR	81.7	95.7	P/P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P334675

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	97.7	114	P/P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P334197

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	24.9	149	F/P	50 - 175
GFD-purified-qPCR	87.9	149	P/P	50 - 175
GFD-purified-qPCR	11.5	24.9	F/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P334675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935252	HF183-qPCR	79.2		P	50 - 175
1936509	HF183-qPCR	93.5		P	50 - 175
1936510	HF183-qPCR	93.3		P	50 - 175
1936867	HF183-qPCR	73.4		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P334675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1936920	HF183-qPCR	61.3		P	50 - 175
1937848	HF183-qPCR	75.7		P	50 - 175
1942953	HF183-qPCR	91.2	81.5	P/P	50 - 175
1943020	HF183-qPCR	92.1		P	50 - 175
1944326	HF183-qPCR	79.1		P	50 - 175
1944327	HF183-qPCR	76.5		P	50 - 175
1944328	HF183-qPCR	79.3		P	50 - 175
1944330	HF183-qPCR	90.1		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P334675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1942953	GULL2-qPCR	82.5	83.9	P/P	50 - 300
1944329	GULL2-qPCR	73.3		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P334197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934547	GFD-purified-qPCR	95.4		P	50 - 175
1935007	GFD-purified-qPCR	96.6		P	50 - 175
1935457	GFD-purified-qPCR	77.0		P	50 - 175
1938788	GFD-purified-qPCR	106	106	P/P	50 - 175
1940825	GFD-purified-qPCR	102		P	50 - 175
1940826	GFD-purified-qPCR	13.6		F	50 - 175
1940827	GFD-purified-qPCR	142		P	50 - 175
1940858	GFD-purified-qPCR	81.1	88.9	P/P	50 - 175
1940860	GFD-purified-qPCR	36.5		F	50 - 175
1940861	GFD-purified-qPCR	108		P	50 - 175
1940862	GFD-purified-qPCR	52.2		P	50 - 175
1941076	GFD-purified-qPCR	115		P	50 - 175
1942583	GFD-purified-qPCR	126		P	50 - 175
1942883	GFD-purified-qPCR	124		P	50 - 175
1942884	GFD-purified-qPCR	118		P	50 - 175
1942953	GFD-purified-qPCR	135		P	50 - 175
1943019	GFD-purified-qPCR	123		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0

Batch ID: P334675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1942953	HF183-qPCR	11.2	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.2
 Batch ID: P334675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1942953	GULL2-qPCR	1.76	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P334197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940858	GFD-purified-qPCR	9.16	Spike	P	0 - 25
1946394	GFD-purified-qPCR	13.5	Sample	P	0 - 25
1946394	GFD-purified-qPCR	126	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: 1942953
 Field Sample ID: G5SW0129

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	89.5	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	62.0	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								
SOP-PCR-1.0	HF183-qPCR	82.6	95.7	81.7	61.3	91.2	81.5			11.2
		107			92.1					
SOP-PCR-1.2	GULL2-qPCR	114	97.7		82.5	83.9	73.3			1.76
SOP-PCR-1.3	GFD-purified-qPCR	24.9	149	24.9	106	106	102		13.5	126 9.16
		149			13.6					

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	1942954, 1942955
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1942952
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1942953
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1942953
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1942953
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1942953

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	11/02/2017	11/02/2017 16:00		11/03/2017 16:00	AEL - Tampa	1942954, 1942955
SM 10200 H (mod.)	11/03/2017	11/03/2017 15:25	Carina A. Tull	11/14/2017	Kim M. Spencer	1942952
SOP-PCR-1.0	11/03/2017	11/03/2017 14:30	Avril Wood	11/15/2017	Sarah Menz	1942953
SOP-PCR-1.2	11/03/2017	11/03/2017 14:30	Avril Wood	11/29/2017	Sarah Menz	1942953
SOP-PCR-1.3	11/03/2017	11/03/2017 14:30	Sarah Menz	11/13/2017	Sarah Menz	1942953
SOP-PCR-4.0	11/03/2017	11/03/2017 14:30	Avril Wood	12/21/2017	Puja Jasrotia	1942953