

Biological Analysis Report

WQAP-2017-10-13-03

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: **Armistead, Bellows**
Request ID: **RQ-2017-09-11-25**
Customer: **WQAP**
Project ID: **SMP**

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Date Certified: 22-DEC-2017 11:53



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 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: Bellows Outlet				Collection Date/Time: 10/12/2017 09:00			
Field ID: G1SW0060				Matrix: W-SURF-FRH			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1936919	SM 10200 H (mod.)	Chlorophyll-a, Corrected	43		ug/L	P333929	
		Phaeophytin-a	16		ug/L	P333929	
		Chlorophyll-a, Uncorrected	54		ug/L	P333929	

Sample Location: Bellows Outlet				Collection Date/Time: 10/12/2017 09:00			
Field ID: G1SW0060				Matrix: W-SURF-FRH			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1936920	SOP-PCR-1.0	HF183-qPCR**	3.77E+04		GEU/100 mL	P334675	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1936921	EPA 1603	Escherichia coli-Membrane Filter**	2200		cfu/100 mL		
Ref. Method and Comment: SOP-PCR-1.0: Precision data unavailable for Analysis Batch A80431							

Sample Location: Braden River				Collection Date/Time: 10/12/2017 10:35			
Field ID: G2SW0016				Matrix: W-SURF-FRH			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1936922	EPA 1603	Escherichia coli-Membrane Filter**	50	B	cfu/100 mL		

Sample Location: Nonsence Creek				Collection Date/Time: 10/12/2017 11:00			
Field ID: G2SW0015				Matrix: W-SURF-FRH			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1936923	EPA 1603	Escherichia coli-Membrane Filter**	240		cfu/100 mL		

Sample Location: Cedar Creek				Collection Date/Time: 10/12/2017 11:30			
Field ID: G2SW0018				Matrix: W-SURF-FRH			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1936924	EPA 1603	Escherichia coli-Membrane Filter**	80	B	cfu/100 mL		

Sample Location: Rattlesnake Slough				Collection Date/Time: 10/12/2017 11:45			
Field ID: G2SW0017				Matrix: W-SURF-FRH			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1936925	EPA 1603	Escherichia coli-Membrane Filter**	1900	B	cfu/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P333929

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

Quality Assurance Report Method Blank Results

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 Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
 Batch ID: P333929

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	106		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

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
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

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P333929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1936984	Chlorophyll-a, Corrected	1.56	Sample	P	0 - 25
1936984	Chlorophyll-a, Uncorrected	1.84	Sample	P	0 - 25
1936984	Phaeophytin-a	6.95	Sample	P	0 - 25

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

* 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: 1936920
 Field Sample ID: G1SW0060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	50.0	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	106							1.56	
	Chlorophyll-a, Uncorrected								1.84	
	Phaeophytin-a								6.95	
SOP-PCR-1.0	HF183-qPCR	82.6	95.7	81.7	61.3	91.2	81.5			11.2
		107			92.1					

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	1936921, 1936922, 1936923, 1936924, 1936925
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1936919
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1936920
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1936920

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	10/12/2017	10/12/2017 17:00		10/13/2017 17:00	AEL - Tampa	1936921, 1936922, 1936923
	10/12/2017	10/12/2017 17:55		10/13/2017 17:55	AEL - Tampa	1936924, 1936925
SM 10200 H (mod.)	10/13/2017	10/13/2017 14:55	Carina A. Tull	10/24/2017	Kim M. Spencer	1936919
SOP-PCR-1.0	10/13/2017	10/13/2017 14:30	Avril Wood	11/21/2017	Sarah Menz	1936920
SOP-PCR-4.0	10/13/2017	10/13/2017 14:30	Avril Wood	11/08/2017	Puja Jasrotia	1936920