

Biological Analysis Report

SW-DIST-2017-03-31-01

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: **2 SCI REF SITES-TBD**
Request ID: **RQ-2017-03-13-21**
Customer: **SW-DIST**
Project ID: **SCIREF**

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Date Certified: 30-JUN-2017 16:48



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, InvertZool, 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: Livingston Crk

Collection Date/Time: 03/30/2017 12:00

Field ID: LVNGSTNREF

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885073	SM 10200 H (mod.)	Chlorophyll-a, Corrected	10		ug/L	P322834	
		Phaeophytin-a	2.4		ug/L	P322834	
		Chlorophyll/Phaeophytin Ratio	1.6			P322834	
		Chlorophyll-a, Uncorrected	12		ug/L	P322834	
1885076	SOP-PCR-1.0	HF183-qPCR**	1.0	TJ	GEU/100 mL	P323009	LCS, SUR

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-1.0: Sample processed with an additional purification step to reduce inhibition, which can reduce overall DNA recovery. See QA report.

Sample Location: Peace R above Bowleg

Collection Date/Time: 03/30/2017 13:35

Field ID: G3SW0042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885074	SM 10200 H (mod.)	Chlorophyll-a, Corrected	150		ug/L	P322834	
		Phaeophytin-a	36		ug/L	P322834	
		Chlorophyll/Phaeophytin Ratio	1.6			P322834	
		Chlorophyll-a, Uncorrected	180		ug/L	P322834	
1885077	SOP-PCR-1.0	HF183-qPCR**	1.0	TJ	GEU/100 mL	P323009	LCS, SUR

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-1.0: Sample processed with an additional purification step to reduce inhibition, which can reduce overall DNA recovery. See QA report.

Sample Location: Livingston Crk

Collection Date/Time: 03/30/2017 12:00

Field ID: LVNGSTNREF

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885075	SOP-IZ06	Stream Condition Index (SCI)**	81	A	Points		
		Macroinvert-FW-Qual-DipnetX20-#Taxa-Rep2**	29		# Taxa		

Sample Location: Livingston Crk

Collection Date/Time: 03/30/2017 12:00

Field ID: LVNGSTNREF

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885078	SM 9222 D	Fecal Coliforms-Membrane Filter	200		cfu/100 mL		

Sample Location: Peace R above Bowleg

Collection Date/Time: 03/30/2017 13:35

Field ID: G3SW0042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885079	EPA 1603	Escherichia coli-Membrane Filter**	90	B	cfu/100 mL		

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P322834

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: P323009

Component	Result	Code	Units
HF183-qPCR	47	U	GEU/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P322834

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	89.1		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P323009

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	78.9	18.1	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P323009

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884447	HF183-qPCR	68.2		P	50 - 175
1884450	HF183-qPCR	77.1		P	50 - 175
1885076	HF183-qPCR	82.1		P	50 - 175
1885077	HF183-qPCR	77.1		P	50 - 175
1885630	HF183-qPCR	84.0		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P322834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885168	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1885168	Chlorophyll-a, Corrected	8.45	Sample	P	0 - 25
1885168	Chlorophyll-a, Uncorrected	8.49	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P323009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885630	HF183-qPCR	4.05	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: 1885076
 Field Sample ID: LVNGSTNREF

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	8.93	F	30 - 300

Lab Sample ID: 1885077
 Field Sample ID: G3SW0042

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	8.24	F	30 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
				LCS				
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio						0.0	
	Chlorophyll-a, Corrected	89.1					8.45	
	Chlorophyll-a, Uncorrected						8.49	
SOP-PCR-1.0	HF183-qPCR	18.1	78.9	68.2	77.1	82.1		4.05
				77.1				

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	1885079
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1885073, 1885074
SM 9222 D / E84589	Fecal coliforms by membrane filter method by Advanced Environmental Overflow Laboratories for SWD	1885078
SOP-IZ06 / E31780	No. Taxa of FW macroinverts, qual samp, 20 dipnets.	1885075
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1885076, 1885077

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	03/30/2017			03/30/2017 16:46	AEL - Tampa	1885079
SM 10200 H (mod.)	03/31/2017	03/31/2017 13:15	Carina A. Tull	04/05/2017	Kim M. Spencer	1885073, 1885074
SM 9222 D	03/30/2017			03/30/2017 16:25	AEL - Tampa	1885078
SOP-IZ06	03/31/2017	04/04/2017	Elizabeth Lovern	06/20/2017	Michael Heyn	1885075
SOP-PCR-1.0	03/31/2017	03/31/2017 12:45	Sarah Menz	04/10/2017	Sarah Menz	1885076, 1885077