

Biological Analysis Report

SW-DIST-2017-11-17-01

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

Overflow Analyses Performed By:
Advanced Environmental Laboratories - Tampa
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DOH Accreditation E84589

Event Description: **Ref SCI**
Request ID: **RQ-2017-11-13-63**
Customer: **SW-DIST**
Project ID: **SCIREF**

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Date Certified: 20-MAR-2018 09:48



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: Manatee R Below SR64

Collection Date/Time: 11/16/2017 11:05

Field ID: MANAREF

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1947555	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.3	I	ug/L	P336453	
		Phaeophytin-a	0.47	I	ug/L	P336453	
		Chlorophyll-a, Uncorrected	1.6		ug/L	P336453	
1947561	SOP-PCR-1.0	HF183-qPCR**	9.0	T	GEU/100 mL	P335440	
	SOP-PCR-1.3	GFD-purified-qPCR**	120	IJ	TSC/100 mL	P335439	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	760	U	TSC/100 mL	P335440	

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: No amplification of BACR marker.

Sample Location: Manatee R Below SR64

Collection Date/Time: 11/16/2017 11:05

Field ID: MANAREF

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1947558	SOP-IZ06	Stream Condition Index (SCI)**	68	A	Points		
		Macroinvert-FW-Qual-DipnetX20-#Taxa-Rep2**	29		# Taxa		

Sample Location: Manatee R Below SR64

Collection Date/Time: 11/16/2017 11:05

Field ID: MANAREF

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1947562	EPA 1603	Escherichia coli-Membrane Filter**	50	B	cfu/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P336453

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: P335440

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

Reference Method: SOP-PCR-1.3

Batch ID: P335439

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.4
Batch ID: P335440

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: P336453

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	103		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P335440

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	82.6	89.9	P/P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P335439

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	152	8.70	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P335440

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	120	172	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P335440

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946905	HF183-qPCR	96.3		P	50 - 175
1946907	HF183-qPCR	61.3		P	50 - 175
1946908	HF183-qPCR	66.5		P	50 - 175
1947119	HF183-qPCR	56.8		P	50 - 175
1947120	HF183-qPCR	92.2		P	50 - 175
1947121	HF183-qPCR	65.9		P	50 - 175
1947122	HF183-qPCR	78.4	78.0	P/P	50 - 175
1947123	HF183-qPCR	68.0		P	50 - 175
1947561	HF183-qPCR	62.8		P	50 - 175
1947921	HF183-qPCR	93.2		P	50 - 175
1948228	HF183-qPCR	76.6		P	50 - 175
1948229	HF183-qPCR	68.9		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3

Batch ID: P335439

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947119	GFD-purified-qPCR	61.6		P	50 - 175
1947120	GFD-purified-qPCR	59.5		P	50 - 175
1947121	GFD-purified-qPCR	105		P	50 - 175
1947122	GFD-purified-qPCR	181	228	F/F	50 - 175
1947123	GFD-purified-qPCR	129		P	50 - 175
1947561	GFD-purified-qPCR	269		F	50 - 175
1948510	GFD-purified-qPCR	70.2		P	50 - 175
1948780	GFD-purified-qPCR	163		P	50 - 175
1948781	GFD-purified-qPCR	158		P	50 - 175
1948782	GFD-purified-qPCR	208		F	50 - 175
1948783	GFD-purified-qPCR	207		F	50 - 175
1948784	GFD-purified-qPCR	207		F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P335440

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947119	BacR-qPCR	69.0		P	50 - 175
1947120	BacR-qPCR	78.5		P	50 - 175
1947121	BacR-qPCR	61.8		P	50 - 175
1947122	BacR-qPCR	74.3	71.5	P/P	50 - 175
1947123	BacR-qPCR	60.8		P	50 - 175
1947561	BacR-qPCR	60.9		P	50 - 175
1949274	BacR-qPCR	68.7		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0

Batch ID: P335440

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947122	HF183-qPCR	0.530	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3

Batch ID: P335439

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947122	GFD-purified-qPCR	23.0	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4

Batch ID: P335440

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947122	BacR-qPCR	3.82	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: 1947561
Field Sample ID: MANAREF

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	87.1	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	93.5	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	103							
SOP-PCR-1.0	HF183-qPCR	89.9	82.6	68.0	62.8	93.2			0.530
				76.6					
SOP-PCR-1.3	GFD-purified-qPCR	8.70	152	158	208	207			23.0
				207					
SOP-PCR-1.4	BacR-qPCR	172	120	74.3	71.5	69.0			3.82
				78.5					

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	1947562
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1947555
SOP-IZ06 / E31780	No. Taxa of FW macroinverts, qual samp, 20 dipnets.	1947558
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1947561
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1947561
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1947561

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	11/16/2017	11/16/2017 14:20		11/17/2017 14:20	AEL - Tampa	1947562
SM 10200 H (mod.)	11/17/2017	11/17/2017 13:50	Jennifer Mihalic	12/05/2017	Kim M. Spencer	1947555
SOP-IZ06	11/17/2017	01/16/2018	Lisa Homann	01/31/2018	Lisa Homann	1947558
	11/17/2017	01/16/2018	Lisa Homann	02/06/2018	Lisa Homann	1947558
SOP-PCR-1.0	11/17/2017	11/17/2017 13:00	Sarah Menz	12/05/2017	Sarah Menz	1947561
SOP-PCR-1.3	11/17/2017	11/17/2017 13:00	Sarah Menz	12/15/2017	Sarah Menz	1947561
SOP-PCR-1.4	11/17/2017	11/17/2017 13:00	Sarah Menz	12/11/2017	Sarah Menz	1947561