

Biological Analysis Report

WQAP-2017-10-02-02

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

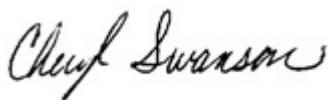
Event Description: **SMP 2017 kit A-b/t/m PCR-FILTER/GRD/BACR (977_Moore Branch)**
Request ID: **RQ-2017-09-25-29**
Customer: **WQAP**
Project ID: **SMP**

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Date Certified: 11-NOV-2017 16:26



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, Microbiology and Molecular.

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: Moore Branch Cody Church Rd

Collection Date/Time: 10/02/2017 11:05

Field ID: G1TLHR0041-2017-06

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933160	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.1	U	ug/L	P332880	
		Phaeophytin-a	0.80	U	ug/L	P332880	
		Chlorophyll-a, Uncorrected	0.80	U	ug/L	P332880	
1933161	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	598.2	A	MPN/100 mL	P333138	
1933162	SOP-PCR-1.0	HF183-purified-qPCR**	24	UJ	GEU/100 mL	P334703	LCS, SUR
	SOP-PCR-1.2	GULL2-purified-qPCR**	1.4E+03	UJ	TSC/100 mL	P334703	LCS, SUR
	SOP-PCR-1.3	GFD-purified-qPCR**	170	UJ	TSC/100 mL	P331945	LCS, MS, RPD
	SOP-PCR-1.4	BacR-purified-qPCR**	250	UJ	TSC/100 mL	P331945	LCS, SUR
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of PURHF marker. Quality control failure(s) observed. See QA report for details.

SOP-PCR-1.2: No amplification of PURG2 marker. Quality control failure(s) observed. See QA report for details. Precision data unavailable.

SOP-PCR-1.3: No amplification of GFD marker. Quality control failure(s) observed. See QA report for details.

SOP-PCR-1.4: No amplification of PURBR marker. Precision data unavailable. Quality control failure(s) observed. See QA report for details.

Quality Assurance Report

Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P332880

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: SM 9223 Quanti-Tray

Batch ID: P333138

Component	Result	Code	Units
Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL

Reference Method: SOP-PCR-1.0

Batch ID: P334703

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

Reference Method: SOP-PCR-1.2

Batch ID: P334703

Component	Result	Code	Units
GULL2-purified-qPCR	2.8E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.3

Batch ID: P331945

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: P331945

Component	Result	Code	Units
BacR-purified-qPCR	510	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P332880

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	101		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P334703

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-purified-qPCR	89.3	4.77	P/F	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P334703

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-purified-qPCR	98.8	6.12	P/F	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P331945

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	72.4	15.0	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P331945

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-purified-qPCR	110	10.1	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P334703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933162	HF183-purified-qPCR	84.6		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P334703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933162	GULL2-purified-qPCR	110		P	50 - 300

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P331945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926085	GFD-purified-qPCR	87.4		P	50 - 175
1927146	GFD-purified-qPCR	67.2		P	50 - 175
1930313	GFD-purified-qPCR	176		F	50 - 175
1932535	GFD-purified-qPCR	88.2	151	P/P	50 - 175
1933162	GFD-purified-qPCR	22.3		F	50 - 175
1933846	GFD-purified-qPCR	57.7		P	50 - 175
1934550	GFD-purified-qPCR	70.6		P	50 - 175
1935003	GFD-purified-qPCR	56.4		P	50 - 175
1935006	GFD-purified-qPCR	70.1		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P331945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933162	BacR-purified-qPCR	94.2		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P332880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933212	Chlorophyll-a, Corrected	0.826	Sample	P	0 - 25
1933212	Chlorophyll-a, Uncorrected	2.68	Sample	P	0 - 25
1933212	Phaeophytin-a	12.3	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
Batch ID: P333138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933161	Escherichia Coli-Quanti-Tray	16.9	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P334703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939760	HF183-purified-qPCR	2.14	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P331945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932535	GFD-purified-qPCR	52.5	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: 1933162

Field Sample ID: G1TLHR0041-2017-06

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	4.76	F	30 - 300
SOP-PCR-1.2	SKETA-qPCR	6.10	F	30 - 300
SOP-PCR-1.4	SKETA-qPCR	6.38	F	30 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision	
							SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	101					0.826	
	Chlorophyll-a, Uncorrected						2.68	
	Phaeophytin-a						12.3	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray						16.9	
SOP-PCR-1.0	HF183-purified-qPCR	4.77	89.3	84.6				2.14
SOP-PCR-1.2	GULL2-purified-qPCR	6.12	98.8	110				
SOP-PCR-1.3	GFD-purified-qPCR	15.0	72.4	176	88.2	151		52.5
				22.3				
SOP-PCR-1.4	BacR-purified-qPCR	10.1	110	94.2				

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1933160
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1933161
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1933162
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1933162
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1933162
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1933162
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1933162

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	10/02/2017	10/03/2017 13:47	Cathy Sherrer	10/05/2017	Kim M. Spencer	1933160
SM 9223 Quanti-Tray	10/02/2017	10/02/2017 15:05	Carina A. Tull	10/03/2017 10:40	Carina A. Tull	1933161
SOP-PCR-1.0	10/02/2017	10/02/2017 14:00	Avril Wood	11/03/2017	Sarah Menz	1933162
SOP-PCR-1.2	10/02/2017	10/02/2017 14:00	Sarah Menz	11/08/2017	Sarah Menz	1933162
SOP-PCR-1.3	10/02/2017	10/02/2017 14:00	Avril Wood	10/10/2017	Sarah Menz	1933162
SOP-PCR-1.4	10/02/2017	10/02/2017 14:00	Avril Wood	10/25/2017	Sarah Menz	1933162
SOP-PCR-4.0	10/02/2017	10/02/2017 14:00	Avril Wood	10/30/2017	Puja Jasrotia	1933162