

Biological Analysis Report

WQAP-2017-06-28-08

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

Event Description: **B/T/M only (WBID 977) Moore Branch**
Request ID: **RQ-2017-05-22-39**
Customer: **WQAP**
Project ID: **SMP**

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Date Certified: 28-JUL-2017 09:27



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: 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: 06/28/2017 11:42

Field ID: G1TLHR0041-2017-04

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909879	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	980.4		MPN/100 mL	P327848	
1909880	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P328003	
	SOP-PCR-1.2	GULL2-purified--qPCR**	1.4E+03	UJ	TSC/100 mL	P327537	SUR
	SOP-PCR-1.3	GFD-purified-qPCR**	170	U	TSC/100 mL	P327537	LCS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	UJ	TSC/100 mL	P328003	MS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

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

SOP-PCR-1.2: No amplification of GULL2 marker. Quality control failure(s) observed. See QA report for details. Precision data unavailable.

SOP-PCR-1.3: No amplification of GFD marker.

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

Quality Assurance Report Method Blank Results

Reference Method: SM 9223 Quanti-Tray

Batch ID: P327848

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

Reference Method: SOP-PCR-1.0

Batch ID: P328003

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

Reference Method: SOP-PCR-1.2

Batch ID: P327537

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

Reference Method: SOP-PCR-1.3

Batch ID: P327537

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

Reference Method: SOP-PCR-1.4

Batch ID: P328003

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P328003

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	108	113	P/P	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.2
Batch ID: P327537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-purified--qPCR	74.0	73.1	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P327537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	112	30.8	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P328003

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	63.8	73.8	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P328003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1903778	HF183-qPCR	114		P	50 - 175
1903779	HF183-qPCR	117		P	50 - 175
1903824	HF183-qPCR	84.8		P	50 - 175
1903826	HF183-qPCR	83.5		P	50 - 175
1904117	HF183-qPCR	101	118	P/P	50 - 175
1904193	HF183-qPCR	91.8		P	50 - 175
1904194	HF183-qPCR	120		P	50 - 175
1904195	HF183-qPCR	146		P	50 - 175
1905561	HF183-qPCR	125		P	50 - 175
1908822	HF183-qPCR	143		P	50 - 175
1909880	HF183-qPCR	113		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P327537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909880	GULL2-purified--qPCR	73.1		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P327537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908836	GFD-purified-qPCR	142		P	50 - 175
1908837	GFD-purified-qPCR	152		P	50 - 175
1908838	GFD-purified-qPCR	172	157	P/P	50 - 175
1908839	GFD-purified-qPCR	155		P	50 - 175
1908840	GFD-purified-qPCR	94.1		P	50 - 175
1908841	GFD-purified-qPCR	154		P	50 - 175
1909047	GFD-purified-qPCR	86.5		P	50 - 175
1909880	GFD-purified-qPCR	143		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
 Batch ID: P327537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910229	GFD-purified-qPCR	74.0		P	50 - 175
1910230	GFD-purified-qPCR	131		P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P328003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905561	BacR-qPCR	58.2		P	50 - 175
1908822	BacR-qPCR	51.7		P	50 - 175
1909880	BacR-qPCR	45.1		F	50 - 175

Quality Assurance Report Precision

Reference Method: SM 9223 Quanti-Tray
 Batch ID: P327848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909603	Escherichia Coli-Quanti-Tray	1.17	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
 Batch ID: P328003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904117	HF183-qPCR	15.6	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P327537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908838	GFD-purified-qPCR	8.95	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P328003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906648	BacR-qPCR	3.47	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

Quality Assurance Report Surrogates

Lab Sample ID: 1909880

Field Sample ID: G1TLHR0041-2017-04

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	89.7	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	7.89	F	30 - 300
SOP-PCR-1.4	SKETA-qPCR	97.8	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray							1.17	
SOP-PCR-1.0	HF183-qPCR	113	108	114	117	84.8			15.6
				83.5					
SOP-PCR-1.2	GULL2-purified--qPCR	73.1	74.0	73.1					
SOP-PCR-1.3	GFD-purified-qPCR	30.8	112	142	152	172			8.95
				157					
SOP-PCR-1.4	BacR-qPCR	73.8	63.8	58.2	51.7	45.1			3.47

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1909879
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1909880
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1909880
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter genetic marker with quantitative polymerase chain reaction	1909880
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1909880
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1909880

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 9223 Quanti-Tray	06/28/2017	06/28/2017 16:30	Morgan Lane	06/29/2017 11:05	Kim M. Spencer	1909879
SOP-PCR-1.0	06/28/2017	06/28/2017 09:02	Puja Jasrotia	07/11/2017	Puja Jasrotia	1909880
SOP-PCR-1.2	06/28/2017	06/28/2017 09:02	Sarah Menz	07/24/2017	Sarah Menz	1909880
SOP-PCR-1.3	06/28/2017	06/28/2017 09:02	Avril Wood	07/03/2017	Sarah Menz	1909880
SOP-PCR-1.4	06/28/2017	06/28/2017 09:02	Puja Jasrotia	07/21/2017	Sarah Menz	1909880
SOP-PCR-4.0	06/28/2017	06/29/2017 08:58	Avril Wood	07/06/2017	Puja Jasrotia	1909880