Biological Analysis Report

SO-DIST-2018-06-22-01

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

Event Description: **3240M : Stroud Creek**
Request ID: **RQ-2018-06-04-79**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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Date Certified: 24-JUL-2018 19:26

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 group are included in this report: 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: Stroud Creek @ SR78 Up Side **Collection Date/Time: 06/21/2018 09:27**

Field ID: AD78487 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2002843	SOP-PCR-1.0	HF183-qPCR**	190	U	GEU/100 mL	P347738	
	SOP-PCR-1.2	GULL2-qPCR**	1.1E+04	U	TSC/100 mL	P347738	MS, RPD
	SOP-PCR-1.3	GFD-purified-qPCR**	1.67E+03		TSC/100 mL	P348222	MS
	SOP-PCR-1.4	BacR-qPCR**	2.0E+03	U	TSC/100 mL	P347738	MS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
SOP-PCR-1.0: Precision data unavailable for Analysis Batch A85041

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P347738

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

Reference Method: SOP-PCR-1.2
Batch ID: P347738

Component	Result	Code	Units
GULL2-qPCR	1.7E+04	U	TSC/100 mL

Reference Method: SOP-PCR-1.3
Batch ID: P348222

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

Reference Method: SOP-PCR-1.4
Batch ID: P347738

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: P347738

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	101	124	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P347738

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	100	220	P/P	50 - 300

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P348222

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	113	79.8	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P347738

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	63.2	149	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P347738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002843	HF183-qPCR	93.3		P	50 - 175
2003511	HF183-qPCR	92.1		P	50 - 175
2004442	HF183-qPCR	92.1		P	50 - 175
2004443	HF183-qPCR	73.6		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P347738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002843	GULL2-qPCR	77.3		P	50 - 300
2004208	GULL2-qPCR	106		P	50 - 300
2004209	GULL2-qPCR	67.6	98.3	P/P	50 - 300
2004210	GULL2-qPCR	72.9		P	50 - 300
2004211	GULL2-qPCR	31.1		F	50 - 300
2004212	GULL2-qPCR	66.3		P	50 - 300
2004213	GULL2-qPCR	183		P	50 - 300
2004214	GULL2-qPCR	26.3		F	50 - 300
2004215	GULL2-qPCR	24.4		F	50 - 300
2004224	GULL2-qPCR	84.8		P	50 - 300
2004442	GULL2-qPCR	20.8		F	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P348222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001769	GFD-purified-qPCR	143		P	50 - 175
2001856	GFD-purified-qPCR	125		P	50 - 175
2002721	GFD-purified-qPCR	0.0		F	50 - 175
2002843	GFD-purified-qPCR	128		P	50 - 175
2009401	GFD-purified-qPCR	163	146	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P347738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002843	BacR-qPCR	54.2		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P347738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003511	BacR-qPCR	29.6		F	50 - 175
2004208	BacR-qPCR	45.8		F	50 - 175
2004209	BacR-qPCR	55.0	54.2	P/P	50 - 175
2004210	BacR-qPCR	66.1		P	50 - 175
2004211	BacR-qPCR	52.3		P	50 - 175
2004212	BacR-qPCR	65.7		P	50 - 175
2004213	BacR-qPCR	47.4		F	50 - 175
2004214	BacR-qPCR	62.2		P	50 - 175
2004215	BacR-qPCR	62.3		P	50 - 175
2004224	BacR-qPCR	51.7		P	50 - 175
2004442	BacR-qPCR	63.5		P	50 - 175
2004443	BacR-qPCR	50.6		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.2
Batch ID: P347738

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004209	GULL2-qPCR	37.0	Spike	F	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P348222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009401	GFD-purified-qPCR	11.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P347738

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004209	BacR-qPCR	1.52	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: 2002843
Field Sample ID: AD78487

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	120	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	113	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	115	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.0	HF183-qPCR	124 101	93.3 92.1 92.1 73.6			
SOP-PCR-1.2	GULL2-qPCR	220 100	77.3 106 67.6 98.3			37.0
SOP-PCR-1.3	GFD-purified-qPCR	79.8 113	125 128 143 0.0			11.1
SOP-PCR-1.4	BacR-qPCR	149 63.2	29.6 45.8 47.4 54.2			1.52

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2002843
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2002843
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2002843
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2002843
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2002843

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SOP-PCR-1.0	06/22/2018	06/22/2018 12:30	Puja Jasrotia	07/05/2018 15:21	Mailin Lopez	2002843
SOP-PCR-1.2	06/22/2018	06/22/2018 12:30	Puja Jasrotia	07/11/2018 11:44	Sarah Menz	2002843
SOP-PCR-1.3	06/22/2018	06/22/2018 12:30	Sarah Menz	07/23/2018 09:23	Sarah Menz	2002843
SOP-PCR-1.4	06/22/2018	06/22/2018 12:30	Puja Jasrotia	07/09/2018 10:58	Sarah Menz	2002843
SOP-PCR-4.0	06/22/2018	06/22/2018 12:30	Sarah Menz	06/29/2018 11:20	Puja Jasrotia	2002843