Biological Analysis Report

SO-DIST-2018-05-15-01

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-2018-05-14-58**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
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Date Certified: 15-JUN-2018 15:03

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: 05/14/2018 09:16**

Field ID: AD75124 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992743	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P345731	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P345731	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	U	TSC/100 mL	P346466	LCS, RPD
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P345731	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
SOP-PCR-1.2: Precision data unavailable for Analytical Batch A84421
SOP-PCR-4.0: Bacterial results for threshold obtained from county lab.

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P345731

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

Reference Method: SOP-PCR-1.2
Batch ID: P345731

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

Reference Method: SOP-PCR-1.3
Batch ID: P346466

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

Reference Method: SOP-PCR-1.4
Batch ID: P345731

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: P345731

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	104	133	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P345731

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	134	65.9	P/P	50 - 300

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P346466

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	95.5	28.2	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P345731

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	126	65.2	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P345731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989286	HF183-qPCR	91.2		P	50 - 175
1989729	HF183-qPCR	104		P	50 - 175
1989783	HF183-qPCR	96.8		P	50 - 175
1989842	HF183-qPCR	88.9		P	50 - 175
1989843	HF183-qPCR	101		P	50 - 175
1990326	HF183-qPCR	100		P	50 - 175
1990874	HF183-qPCR	93.6		P	50 - 175
1992743	HF183-qPCR	110		P	50 - 175
1992751	HF183-qPCR	93.8		P	50 - 175
1995147	HF183-qPCR	100		P	50 - 175
1995437	HF183-qPCR	92.2		P	50 - 175
1995445	HF183-qPCR	100	98.1	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P345731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989729	GULL2-qPCR	112		P	50 - 300
1989783	GULL2-qPCR	141		P	50 - 300
1989842	GULL2-qPCR	97.4		P	50 - 300
1989843	GULL2-qPCR	115		P	50 - 300
1990326	GULL2-qPCR	108		P	50 - 300
1992743	GULL2-qPCR	105		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P346466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989729	GFD-purified-qPCR	93.1		P	50 - 175
1989783	GFD-purified-qPCR	93.1		P	50 - 175
1989842	GFD-purified-qPCR	69.1		P	50 - 175
1989843	GFD-purified-qPCR	87.0		P	50 - 175
1990326	GFD-purified-qPCR	75.3		P	50 - 175
1990878	GFD-purified-qPCR	90.5		P	50 - 175
1990879	GFD-purified-qPCR	90.9		P	50 - 175
1992313	GFD-purified-qPCR	86.6		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P346466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992498	GFD-purified-qPCR	53.0	147	P/P	50 - 175
1992743	GFD-purified-qPCR	58.9		P	50 - 175
1993440	GFD-purified-qPCR	81.5		P	50 - 175
1993454	GFD-purified-qPCR	55.9		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P345731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989286	BacR-qPCR	64.3		P	50 - 175
1989729	BacR-qPCR	132		P	50 - 175
1989783	BacR-qPCR	99.9		P	50 - 175
1989842	BacR-qPCR	67.4		P	50 - 175
1989843	BacR-qPCR	90.2		P	50 - 175
1990326	BacR-qPCR	86.9		P	50 - 175
1992743	BacR-qPCR	89.7		P	50 - 175
1995127	BacR-qPCR	69.7		P	50 - 175
1995445	BacR-qPCR	51.0	55.2	P/P	50 - 175

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.0
Batch ID: P345731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995445	HF183-qPCR	2.16	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P346466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992498	GFD-purified-qPCR	94.0	Spike	F	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P345731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995445	BacR-qPCR	7.52	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

Quality Assurance Report
Surrogates

Lab Sample ID: 1992743
Field Sample ID: AD75124

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	163	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	96.3	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	151	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.0	HF183-qPCR	133 104	91.2 104 88.9 101			2.16
SOP-PCR-1.2	GULL2-qPCR	65.9 134	112 97.4 115 108			
SOP-PCR-1.3	GFD-purified-qPCR	28.2 95.5	93.1 93.1 69.1 87.0			94.0
SOP-PCR-1.4	BacR-qPCR	65.2 126	64.3 132 67.4 90.2			7.52

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	1992743
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1992743
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1992743
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1992743
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1992743

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SOP-PCR-1.0	05/15/2018	05/15/2018 13:25	Puja Jasrotia	06/01/2018 08:57	Mailin Lopez	1992743
SOP-PCR-1.2	05/15/2018	05/15/2018 13:25	Puja Jasrotia	06/07/2018 10:05	Mailin Lopez	1992743
SOP-PCR-1.3	05/15/2018	05/15/2018 13:25	Sarah Menz	06/11/2018 15:16	Sarah Menz	1992743
SOP-PCR-1.4	05/15/2018	05/15/2018 13:25	Puja Jasrotia	06/01/2018 17:12	Mailin Lopez	1992743
SOP-PCR-4.0	05/15/2018	05/15/2018 13:25	Angela Smith	05/16/2018 12:45	Puja Jasrotia	1992743