

Biological Analysis Report

WQAP-2017-08-10-06

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

Event Description: **Pinellas LR3**
Request ID: **RQ-2017-08-07-57**
Customer: **WQAP**
Project ID: **SMP**

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Date Certified: 26-SEP-2017 11:54

A handwritten signature in black ink that reads "Jackie Savage". The signature is written in a cursive, flowing style.

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: Alligator Crk P-Co. -Site 14-10

Collection Date/Time: 08/09/2017 12:28

Field ID: G1SW0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920808	SOP-PCR-1.0	HF183-qPCR**	71	U	GEU/100 mL	P330030	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:
 SOP-PCR-1.0: No amplification of HF183 marker.

Sample Location: Bishop Creek P-Co. -Site 12-04

Collection Date/Time: 08/09/2017 14:16

Field ID: G1SW0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920809	SOP-PCR-1.0	HF183-qPCR**	20	T	GEU/100 mL	P330030	

Sample Location: Bishop Creek P-Co. -Site 12-04

Collection Date/Time: 08/09/2017 14:16

Field ID: G1SW0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920810	SOP-PCR-1.0	HF183-qPCR**	58	T	GEU/100 mL	P330030	
	SOP-PCR-1.2	GULL2-qPCR**	4.2E+03	U	TSC/100 mL	P330030	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
 SOP-PCR-1.2: No amplification of GULL2 marker.

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0

Batch ID: P330030

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

Reference Method: SOP-PCR-1.2

Batch ID: P330030

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P330030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	107	92.9	P/P	50 - 175
HF183-qPCR	105	95.3	P/P	50 - 175
HF183-qPCR	125	100	P/P	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.2
 Batch ID: P330030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	191	77.3	P/P	50 - 300
GULL2-qPCR	73.1	92.9	P/P	50 - 300

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P330030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1911743	HF183-qPCR	95.0		P	50 - 175
1911744	HF183-qPCR	84.6		P	50 - 175
1911745	HF183-qPCR	85.9		P	50 - 175
1912910	HF183-qPCR	89.4		P	50 - 175
1920808	HF183-qPCR	87.2		P	50 - 175
1920809	HF183-qPCR	81.9		P	50 - 175
1920810	HF183-qPCR	82.9		P	50 - 175
1920940	HF183-qPCR	98.2		P	50 - 175
1920941	HF183-qPCR	71.3		P	50 - 175
1920942	HF183-qPCR	69.5		P	50 - 175
1920943	HF183-qPCR	109		P	50 - 175
1921167	HF183-qPCR	89.4	85.9	P/P	50 - 175
1921170	HF183-qPCR	77.6		P	50 - 175
1921171	HF183-qPCR	85.9		P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P330030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1911744	GULL2-qPCR	69.9		P	50 - 300
1920810	GULL2-qPCR	66.0		P	50 - 300
1920909	GULL2-qPCR	80.3		P	50 - 300
1920941	GULL2-qPCR	72.8		P	50 - 300
1921167	GULL2-qPCR	74.4	84.8	P/P	50 - 300
1921170	GULL2-qPCR	89.3		P	50 - 300
1921171	GULL2-qPCR	102		P	50 - 300

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P330030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921167	HF183-qPCR	4.00	Spike	P	0 - 25
1928531	HF183-qPCR	4.48	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.2
 Batch ID: P330030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921167	GULL2-qPCR	13.1	Spike	P	0 - 25
1928531	GULL2-qPCR	3.61	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: 1920808
 Field Sample ID: G1SW0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	78.1	P	50 - 300

Lab Sample ID: 1920809
 Field Sample ID: G1SW0061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	96.4	P	50 - 300

Lab Sample ID: 1920810
 Field Sample ID: G1SW0061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	104	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SOP-PCR-1.0	HF183-qPCR	107	92.9	100	77.6	87.2	81.9			4.00 4.48
		95.3			82.9					
SOP-PCR-1.2	GULL2-qPCR	191	92.9	73.1	69.9	66.0	80.3			13.1 3.61
		77.3			74.4					

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	1920808, 1920809, 1920810
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1920810
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1920808, 1920810

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SOP-PCR-1.0	08/10/2017	08/10/2017 14:30	Avril Wood	08/15/2017	Puja Jasrotia	1920808, 1920809, 1920810
SOP-PCR-1.2	08/10/2017	08/10/2017 14:30	Avril Wood	08/17/2017	Sarah Menz	1920810
SOP-PCR-4.0	08/10/2017	08/10/2017 14:30	Avril Wood	09/13/2017	Puja Jasrotia	1920808
	08/10/2017	08/10/2017 14:30	Avril Wood	09/14/2017	Puja Jasrotia	1920810