

Biological Analysis Report

WQAP-2017-06-22-04

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

Event Description: **Pinellas LR5**
Request ID: **RQ-2017-06-19-32**
Customer: **WQAP**
Project ID: **SMP**

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Certified by: Jennifer Walters, Environmental Manager

Date Certified: 08-AUG-2017 13:28

A handwritten signature in black ink, appearing to read "J Walters", is positioned below the "Certified by" text.

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: Joes's Creek 62nd&42nd pinellas 35-10

Collection Date/Time: 06/21/2017 10:36

Field ID: G5SW0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908454	SOP-PCR-1.0	HF183-qPCR**	44	T	GEU/100 mL	P327234	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Joes's Creek 46th&46th pinellas 35-11

Collection Date/Time: 06/21/2017 09:10

Field ID: G5SW0138

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908455	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P327234	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P327234	RPD
	SOP-PCR-1.3	GFD-purified-qPCR**	31	TJ	TSC/100 mL	P329164	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P327234	LCS
	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.

SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.

SOP-PCR-1.4: No amplification of BACR marker.

Sample Location: Joes's Creek 64th&38th pinellas 35-12

Collection Date/Time: 06/21/2017 09:46

Field ID: G5SW0139

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908456	SOP-PCR-1.0	HF183-qPCR**	24	T	GEU/100 mL	P327234	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0

Batch ID: P327234

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

Reference Method: SOP-PCR-1.2

Batch ID: P327234

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

Reference Method: SOP-PCR-1.3

Batch ID: P329164

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

Reference Method: SOP-PCR-1.4

Batch ID: P327234

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.4
Batch ID: P327234

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: P327234

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	64.1	82.0	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P327234

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	90.7	62.4	P/P	50 - 300
GULL2-qPCR	86.9	81.6	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P329164

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	103	27.3	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P327234

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	68.4	48.6	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P327234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905391	HF183-qPCR	74.7		P	50 - 175
1905392	HF183-qPCR	80.4		P	50 - 175
1905393	HF183-qPCR	78.6		P	50 - 175
1905394	HF183-qPCR	79.9		P	50 - 175
1905395	HF183-qPCR	88.8		P	50 - 175
1905396	HF183-qPCR	93.3		P	50 - 175
1908007	HF183-qPCR	55.4		P	50 - 175
1908008	HF183-qPCR	78.0	68.4	P/P	50 - 175
1908010	HF183-qPCR	128		P	50 - 175
1908454	HF183-qPCR	99.4		P	50 - 175
1908455	HF183-qPCR	76.0		P	50 - 175
1908456	HF183-qPCR	95.2		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.2
 Batch ID: P327234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905391	GULL2-qPCR	92.2		P	50 - 300
1905392	GULL2-qPCR	78.4		P	50 - 300
1905393	GULL2-qPCR	81.3		P	50 - 300
1905394	GULL2-qPCR	71.8		P	50 - 300
1905395	GULL2-qPCR	80.4		P	50 - 300
1905396	GULL2-qPCR	80.7		P	50 - 300
1908455	GULL2-qPCR	79.5		P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P329164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905343	GFD-purified-qPCR	92.8		P	50 - 175
1907480	GFD-purified-qPCR	78.6		P	50 - 175
1908241	GFD-purified-qPCR	5.72		F	50 - 175
1908242	GFD-purified-qPCR	91.9	102	P/P	50 - 175
1908455	GFD-purified-qPCR	21.3		F	50 - 175
1916655	GFD-purified-qPCR	178		F	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P327234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908455	BacR-qPCR	50.9		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P327234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908008	HF183-qPCR	13.2	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
 Batch ID: P327234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907519	GULL2-qPCR	124	Spike	F	0 - 25
1908242	GULL2-qPCR	4.94	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P329164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908242	GFD-purified-qPCR	10.3	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.4
Batch ID: P327234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908242	BacR-qPCR	9.19	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: 1908454
Field Sample ID: G5SW0137

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	106	P	50 - 300

Lab Sample ID: 1908455
Field Sample ID: G5SW0138

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	66.5	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	83.3	P	50 - 300

Lab Sample ID: 1908456
Field Sample ID: G5SW0139

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	90.2	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision	
									SMP	MS
SOP-PCR-1.0	HF183-qPCR	82.0	64.1		55.4	78.0	68.4			13.2
SOP-PCR-1.2	GULL2-qPCR	90.7	81.6	86.9	92.2	78.4	81.3			124 4.94
SOP-PCR-1.3	GFD-purified-qPCR	27.3	103		91.9	102	21.3			10.3
SOP-PCR-1.4	BacR-qPCR	48.6	68.4		50.9					9.19

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	1908454, 1908455, 1908456
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium genetic marker with quantitative polymerase chain reaction	1908455
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1908455

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes genetic marker with quantitative polymerase chain reaction	1908455
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1908454, 1908455, 1908456

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SOP-PCR-1.0	06/22/2017	06/22/2017 14:58	Puja Jasrotia	06/28/2017	Puja Jasrotia	1908454, 1908455, 1908456
SOP-PCR-1.2	06/22/2017	06/22/2017 14:58	Puja Jasrotia	07/31/2017	Sarah Menz	1908455
SOP-PCR-1.3	06/22/2017	06/22/2017 14:58	Avril Wood	08/02/2017	Sarah Menz	1908455
SOP-PCR-1.4	06/22/2017	06/22/2017 14:58	Puja Jasrotia	07/28/2017	Sarah Menz	1908455
SOP-PCR-4.0	06/22/2017	06/22/2017 14:58	Sarah Menz	07/27/2017	Puja Jasrotia	1908454, 1908455, 1908456