Biological Analysis Report

WQAP-2017-10-27-02

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

Event Description: **Pinellas LR5**
Request ID: **RQ-2017-10-23-40**
Customer: **WQAP**
Project ID: **SMP**

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Date Certified: 29-NOV-2017 11:13

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: Joe's Creek PC Site# 35-10 **Collection Date/Time: 10/26/2017 09:45**

Field ID: G5SW0137 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1940825	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P334071	
	SOP-PCR-1.3	GFD-purified-qPCR**	16	T	TSC/100 mL	P334197	LCS, MS, RPD
	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: Joe's Creek PC Site# 35-11 **Collection Date/Time: 10/26/2017 08:35**

Field ID: G5SW0138 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1940826	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P334071	
	SOP-PCR-1.3	GFD-purified-qPCR**	32	TJ	TSC/100 mL	P334197	LCS, MS, RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:
SOP-PCR-1.0: No amplification of HF183 marker.
SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.

Sample Location: Joe's Creek PC Site# 35-12 **Collection Date/Time: 10/26/2017 09:08**

Field ID: G5SW0139 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1940827	SOP-PCR-1.0	HF183-qPCR**	500	I	GEU/100 mL	P334196	
	SOP-PCR-1.3	GFD-purified-qPCR**	38	T	TSC/100 mL	P334197	LCS, MS, RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P334071

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

Reference Method: SOP-PCR-1.0
Batch ID: P334196

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

Reference Method: SOP-PCR-1.3
Batch ID: P334197

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P334071

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	65.4	112	P/P	50 - 175
HF183-qPCR	57.6	89.3	P/P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P334196

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	142	105	P/P	50 - 175
HF183-qPCR	101	87.5	P/P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P334197

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	24.9	149	F/P	50 - 175
GFD-purified-qPCR	87.9	149	P/P	50 - 175
GFD-purified-qPCR	11.5	24.9	F/F	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P334071

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932535	HF183-qPCR	105		P	50 - 175
1932815	HF183-qPCR	91.0		P	50 - 175
1932959	HF183-qPCR	88.0		P	50 - 175
1933345	HF183-qPCR	62.2		P	50 - 175
1933697	HF183-qPCR	97.2		P	50 - 175
1939984	HF183-qPCR	79.8	70.7	P/P	50 - 175
1939985	HF183-qPCR	81.7		P	50 - 175
1940220	HF183-qPCR	87.2		P	50 - 175
1940221	HF183-qPCR	98.7		P	50 - 175
1940222	HF183-qPCR	75.5		P	50 - 175
1940825	HF183-qPCR	99.2		P	50 - 175
1940826	HF183-qPCR	64.4		P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P334196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934547	HF183-qPCR	97.0		P	50 - 175
1934550	HF183-qPCR	92.3		P	50 - 175
1940827	HF183-qPCR	72.0		P	50 - 175
1940858	HF183-qPCR	92.3	91.5	P/P	50 - 175
1940859	HF183-qPCR	93.3		P	50 - 175
1940860	HF183-qPCR	60.9		P	50 - 175
1940861	HF183-qPCR	85.5		P	50 - 175
1941072	HF183-qPCR	96.8		P	50 - 175
1941080	HF183-qPCR	57.3		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P334196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1941103	HF183-qPCR	95.7		P	50 - 175
1941104	HF183-qPCR	63.4		P	50 - 175
1941985	HF183-qPCR	74.0		P	50 - 175
1941986	HF183-qPCR	90.4		P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P334197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934547	GFD-purified-qPCR	95.4		P	50 - 175
1935007	GFD-purified-qPCR	96.6		P	50 - 175
1935457	GFD-purified-qPCR	77.0		P	50 - 175
1938788	GFD-purified-qPCR	106	106	P/P	50 - 175
1940825	GFD-purified-qPCR	102		P	50 - 175
1940826	GFD-purified-qPCR	13.6		F	50 - 175
1940827	GFD-purified-qPCR	142		P	50 - 175
1940858	GFD-purified-qPCR	81.1	88.9	P/P	50 - 175
1940860	GFD-purified-qPCR	36.5		F	50 - 175
1940861	GFD-purified-qPCR	108		P	50 - 175
1940862	GFD-purified-qPCR	52.2		P	50 - 175
1941076	GFD-purified-qPCR	115		P	50 - 175
1942583	GFD-purified-qPCR	126		P	50 - 175
1942883	GFD-purified-qPCR	124		P	50 - 175
1942884	GFD-purified-qPCR	118		P	50 - 175
1942953	GFD-purified-qPCR	135		P	50 - 175
1943019	GFD-purified-qPCR	123		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.0
Batch ID: P334071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939984	HF183-qPCR	12.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P334196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940858	HF183-qPCR	0.866	Spike	P	0 - 25
1943571	HF183-qPCR	5.40	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P334197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940858	GFD-purified-qPCR	9.16	Spike	P	0 - 25

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.3
Batch ID: P334197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946394	GFD-purified-qPCR	13.5	Sample	P	0 - 25
1946394	GFD-purified-qPCR	126	Spike	F	0 - 25
1946394	GFD-purified-qPCR	126	Spike	F	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: 1940825
Field Sample ID: G5SW0137

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	87.3	P	50 - 300

Lab Sample ID: 1940826
Field Sample ID: G5SW0138

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	62.0	P	50 - 300

Lab Sample ID: 1940827
Field Sample ID: G5SW0139

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	89.3	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.0	HF183-qPCR	65.4 89.3 57.6 112	91.0 79.8 70.7 81.7			12.1
	HF183-qPCR	142 87.5 101 105	92.3 91.5 93.3 60.9			0.866 5.40
SOP-PCR-1.3	GFD-purified-qPCR	24.9 149 24.9 149	106 106 102 13.6		13.5	126 126 9.16

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	1940825, 1940826, 1940827
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1940825, 1940826, 1940827
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1940825, 1940826, 1940827

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SOP-PCR-1.0	10/27/2017	10/27/2017 14:00	Sarah Menz	10/31/2017	Sarah Menz	1940825, 1940826
	10/27/2017	10/27/2017 14:00	Sarah Menz	11/06/2017	Sarah Menz	1940827
SOP-PCR-1.3	10/27/2017	10/27/2017 14:00	Sarah Menz	11/13/2017	Sarah Menz	1940825, 1940826, 1940827
SOP-PCR-4.0	10/27/2017	10/27/2017 14:00	Sarah Menz	11/22/2017	Puja Jasrotia	1940825, 1940826, 1940827