

Biological Analysis Report

WQAP-2017-04-07-01

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

Event Description: **Pinellas LR2**
Request ID: **RQ-2017-04-03-53**
Customer: **WQAP**
Project ID: **SMP**

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Certified by: Jacqueline Savage, Environmental Specialist III

Date Certified: 05-JUL-2017 17:09

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: Rattlesnake @ end of Farview

Collection Date/Time: 04/06/2017 13:23

Field ID: G5SW0140

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1886655	SOP-PCR-1.0	HF183-qPCR**	18	T	GEU/100 mL	P325771	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Rattlesnake Crk

Collection Date/Time: 04/06/2017 12:57

Field ID: G5SW0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1886656	SOP-PCR-1.0	HF183-qPCR**	20	T	GEU/100 mL	P325771	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Bee Branch @ CVS

Collection Date/Time: 04/06/2017 11:04

Field ID: G5SW0133

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1886657	SOP-PCR-1.0	HF183-qPCR**	28	T	GEU/100 mL	P326360	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Curlew Crk

Collection Date/Time: 04/06/2017 10:25

Field ID: G5SW0132

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1886658	SOP-PCR-1.0	HF183-qPCR**	27	IJ	GEU/100 mL	P326776	LCS, SUR
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: Quality control failure(s) observed. Sample processed with an additional purification step to reduce inhibition, which can reduce overall DNA recovery. See QA report.

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0

Batch ID: P325771

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

Reference Method: SOP-PCR-1.0

Batch ID: P326360

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

Reference Method: SOP-PCR-1.0

Batch ID: P326776

Component	Result	Code	Units
HF183-qPCR	47	U	GEU/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P325771

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	85.4	69.8	P/P	50 - 175

Reference Method: SOP-PCR-1.0
 Batch ID: P326360

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	97.6	84.0	P/P	50 - 175

Reference Method: SOP-PCR-1.0
 Batch ID: P326776

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	70.7	8.33	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P325771

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886655	HF183-qPCR	94.5		P	50 - 175
1886656	HF183-qPCR	99.6		P	50 - 175
1886705	HF183-qPCR	59.5		P	50 - 175
1895817	HF183-qPCR	79.7		P	50 - 175
1899395	HF183-qPCR	81.5		P	50 - 175
1901218	HF183-qPCR	94.3		P	50 - 175
1901482	HF183-qPCR	107		P	50 - 175
1902623	HF183-qPCR	90.7		P	50 - 175
1902624	HF183-qPCR	92.1		P	50 - 175
1902625	HF183-qPCR	98.6		P	50 - 175
1904119	HF183-qPCR	76.0	70.3	P/P	50 - 175

Reference Method: SOP-PCR-1.0
 Batch ID: P326360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886657	HF183-qPCR	122		P	50 - 175
1904189	HF183-qPCR	110		P	50 - 175
1904191	HF183-qPCR	96.5	113	P/P	50 - 175
1904428	HF183-qPCR	116		P	50 - 175
1904434	HF183-qPCR	112		P	50 - 175
1904435	HF183-qPCR	89.9		P	50 - 175
1904518	HF183-qPCR	93.2		P	50 - 175
1904519	HF183-qPCR	123		P	50 - 175
1904999	HF183-qPCR	102		P	50 - 175
1905000	HF183-qPCR	97.8		P	50 - 175
1905378	HF183-qPCR	87.5		P	50 - 175
1905467	HF183-qPCR	95.6		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P326776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886658	HF183-qPCR	106		P	50 - 175
1904429	HF183-qPCR	101		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P325771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904119	HF183-qPCR	7.78	Spike	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P326360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904191	HF183-qPCR	15.8	Spike	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P326776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908009	HF183-qPCR	7.05	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: 1886655
 Field Sample ID: G5SW0140

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	79.8	P	50 - 300

Lab Sample ID: 1886656
 Field Sample ID: G5SW0001

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	77.1	P	50 - 300

Lab Sample ID: 1886657
 Field Sample ID: G5SW0133

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	107	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 1886658
 Field Sample ID: G5SW0132

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	9.06	F	30 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
SOP-PCR-1.0	HF183-qPCR	69.8	85.4	107	90.7	92.1		7.78
	HF183-qPCR	84.0	97.6	110	96.5	113		15.8
	HF183-qPCR	8.33	70.7	106	101			7.05

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	1886655, 1886656, 1886657, 1886658
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1886655, 1886656, 1886657, 1886658

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SOP-PCR-1.0	04/07/2017	04/07/2017 13:26	Avril Wood	06/12/2017	Puja Jasrotia	1886655, 1886656
	04/07/2017	04/07/2017 13:26	Avril Wood	06/16/2017	Puja Jasrotia	1886657
	04/07/2017	04/07/2017 13:26	Sarah Menz	06/30/2017	Puja Jasrotia	1886658
SOP-PCR-4.0	04/07/2017	04/07/2017 13:26	Avril Wood	06/06/2017	Puja Jasrotia	1886655, 1886656, 1886657, 1886658