Biological Analysis Report

NW-DIST-2022-03-16-03

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

Event Description: **Yellow River Run**
Request ID: **RQ-2022-02-28-43**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 Government Center
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Certified by: Puja Jasrotia, Environmental Administrator

Date Certified: 02-MAY-2022 10:26

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Yellow River at Oak Grove Boat Ramp **Collection Date/Time: 03/15/2022 10:45**

Field ID: G4NW0526 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2312676	SOP-PCR-1.0	HF183-qPCR**	1.7E+03	U	TSC/100 mL	P411176	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	I	TSC/100 mL	P411176	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P411176	

Ref. Method and Comment:
SOP-PCR-1.4: Duplicate was analyzed and result is 1.5E+03.

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P411176

Component	Result	Code	Units
HF183-qPCR	3.3E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P411176

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.5
Batch ID: P411176

Component	Result	Code	Units
DG3-qPCR	2.6E+03	U	TSC/100 mL

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P411176

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	48.1	114	F/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P411176

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	65.7	61.3	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P411176

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	95.2	69.9	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P411176

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312494	HF183-qPCR	94.7		P	50 - 175
2312676	HF183-qPCR	89.2	87.5	P/P	50 - 175
2312857	HF183-qPCR	102		P	50 - 175
2312922	HF183-qPCR	153		P	50 - 175
2312923	HF183-qPCR	81.3		P	50 - 175
2313078	HF183-qPCR	11.5		F	50 - 175
2313364	HF183-qPCR	76.7		P	50 - 175
2314003	HF183-qPCR	86.5		P	50 - 175
2314038	HF183-qPCR	81.5		P	50 - 175
2314039	HF183-qPCR	91.1		P	50 - 175
2314040	HF183-qPCR	93.1		P	50 - 175
2314041	HF183-qPCR	98.5		P	50 - 175
2314087	HF183-qPCR	79.1		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P411176

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312494	BacR-qPCR	77.1		P	50 - 175
2312676	BacR-qPCR	63.5	63.4	P/P	50 - 175
2312857	BacR-qPCR	75.1		P	50 - 175
2312922	BacR-qPCR	69.1		P	50 - 175
2312923	BacR-qPCR	52.4		P	50 - 175
2313364	BacR-qPCR	44.1		F	50 - 175
2314003	BacR-qPCR	75.4		P	50 - 175
2314038	BacR-qPCR	70.6		P	50 - 175
2314039	BacR-qPCR	63.2		P	50 - 175
2314040	BacR-qPCR	50.1		P	50 - 175
2314041	BacR-qPCR	59.6		P	50 - 175
2314087	BacR-qPCR	59.2		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P411176

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312494	DG3-qPCR	81.0		P	50 - 175
2312676	DG3-qPCR	77.4	82.3	P/P	50 - 175
2312857	DG3-qPCR	55.1		P	50 - 175
2312922	DG3-qPCR	84.9		P	50 - 175
2312923	DG3-qPCR	82.0		P	50 - 175
2313364	DG3-qPCR	78.0		P	50 - 175
2314003	DG3-qPCR	81.4		P	50 - 175
2314038	DG3-qPCR	79.5		P	50 - 175
2314039	DG3-qPCR	65.2		P	50 - 175
2314040	DG3-qPCR	84.1		P	50 - 175
2314041	DG3-qPCR	73.9		P	50 - 175
2314087	DG3-qPCR	80.5		P	50 - 175

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.0
Batch ID: P411176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312676	HF183-qPCR	1.95	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P411176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312676	BacR-qPCR	0.180	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P411176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312676	DG3-qPCR	6.23	Spike	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Surrogates

Lab Sample ID: 2312676
Field Sample ID: G4NW0526

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	110	P	50 - 300
SOP-PCR-1.0	SKETA-qPCR	109	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	105	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	107	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	93.8	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	90.2	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.0	HF183-qPCR	114 48.1	89.2 87.5 94.7 102			1.95
SOP-PCR-1.4	BacR-qPCR	61.3 65.7	63.5 63.4 77.1 75.1			0.180
SOP-PCR-1.5	DG3-qPCR	69.9 95.2	81.4 79.5 65.2 84.1			6.23

Reference Method Descriptions

Method	Description	Associated Samples
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2312676

Reference Method Descriptions

Method	Description	Associated Samples
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2312676
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2312676

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SOP-PCR-1.0	03/16/2022	03/16/2022 14:00	Roberta Tatti	04/19/2022 14:32	Roberta Tatti	2312676
SOP-PCR-1.4	03/16/2022	03/16/2022 14:00	Roberta Tatti	04/20/2022 15:24	DeAsia Armster	2312676
SOP-PCR-1.5	03/16/2022	03/16/2022 14:00	Roberta Tatti	04/21/2022 10:03	DeAsia Armster	2312676