

Biological Analysis Report

NW-DIST-2021-02-09-01

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

Overflow Analyses Performed By:
University of West Florida
11000 University Parkway
Pensacola, FL 32514
DOH Accreditation E71969

Event Description: **Yellow River Run**
Request ID: **RQ-2021-02-08-43**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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Certified by: Puja Jasrotia, Environmental Administrator

Date Certified: 05-MAR-2021 07:33



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 groups are included in this report: Chlorophyll/Grain Size/BOD, Molecular and Overflow.

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 Below Malone Creek

Collection Date/Time: 02/08/2021 13:30

Field ID: G4NW0373

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2224722	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	134		MPN/100 mL		

Sample Location: Yellow River upstream of Hwy 2

Collection Date/Time: 02/08/2021 14:45

Field ID: G4NW0526

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2224377	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	377		MPN/100 mL		
2224378	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P393505	
	SOP-PCR-1.4	BacR-qPCR**	7.6E+03		TSC/100 mL	P393505	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P393505	

Sample Location: Yellow River upstream of Miller Bluff Landing

Collection Date/Time: 02/08/2021 10:00

Field ID: G4NW0534

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2224375	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.3	I	ug/L	P394282	
		Phaeophytin-a	0.90	U	ug/L	P394282	
		Chlorophyll-a, Uncorrected	1.6	I	ug/L	P394282	
2224376	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	75		MPN/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P394282

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Reference Method: SOP-PCR-1.0

Batch ID: P393505

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

Reference Method: SOP-PCR-1.4

Batch ID: P393505

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

Reference Method: SOP-PCR-1.5

Batch ID: P393505

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P394282

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	100		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P393505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	103	101	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P393505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	94.4	79.0	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P393505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	103	78.9	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P393505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224089	HF183-qPCR	97.7		P	50 - 175
2224090	HF183-qPCR	98.8		P	50 - 175
2224378	HF183-qPCR	98.4		P	50 - 175
2224662	HF183-qPCR	98.2	98.0	P/P	50 - 175
2224663	HF183-qPCR	96.1		P	50 - 175
2224664	HF183-qPCR	77.8		P	50 - 175
2224665	HF183-qPCR	93.1		P	50 - 175
2224666	HF183-qPCR	83.5		P	50 - 175
2224667	HF183-qPCR	90.4		P	50 - 175
2224668	HF183-qPCR	82.7		P	50 - 175
2224669	HF183-qPCR	96.9		P	50 - 175
2224993	HF183-qPCR	83.4		P	50 - 175
2224994	HF183-qPCR	77.0		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P393505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224089	BacR-qPCR	79.0		P	50 - 175
2224090	BacR-qPCR	78.7		P	50 - 175
2224378	BacR-qPCR	54.5		P	50 - 175
2224662	BacR-qPCR	72.4	71.7	P/P	50 - 175
2224663	BacR-qPCR	73.8		P	50 - 175
2224664	BacR-qPCR	68.5		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P393505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224665	BacR-qPCR	77.1		P	50 - 175
2224666	BacR-qPCR	69.5		P	50 - 175
2224667	BacR-qPCR	81.2		P	50 - 175
2224668	BacR-qPCR	58.9		P	50 - 175
2224669	BacR-qPCR	67.1		P	50 - 175
2224993	BacR-qPCR	52.8		P	50 - 175
2224994	BacR-qPCR	58.8		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P393505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224089	DG3-qPCR	101		P	50 - 175
2224090	DG3-qPCR	101		P	50 - 175
2224378	DG3-qPCR	104		P	50 - 175
2224662	DG3-qPCR	92.4	92.6	P/P	50 - 175
2224663	DG3-qPCR	99.3		P	50 - 175
2224664	DG3-qPCR	92.4		P	50 - 175
2224665	DG3-qPCR	98.4		P	50 - 175
2224666	DG3-qPCR	88.9		P	50 - 175
2224667	DG3-qPCR	85.6		P	50 - 175
2224668	DG3-qPCR	95.5		P	50 - 175
2224669	DG3-qPCR	93.6		P	50 - 175
2224993	DG3-qPCR	82.3		P	50 - 175
2224994	DG3-qPCR	89.1		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P394282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224317	Chlorophyll-a, Corrected	0.744	Sample	P	0 - 25
2224317	Chlorophyll-a, Uncorrected	0.682	Sample	P	0 - 25
2224317	Phaeophytin-a	0.465	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P393505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224662	HF183-qPCR	0.194	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P393505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224662	BacR-qPCR	0.957	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.5
 Batch ID: P393505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224662	DG3-qPCR	0.219	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2224378
 Field Sample ID: G4NW0526

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	92.5	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	97.9	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	93.1	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	100						0.744	
	Chlorophyll-a, Uncorrected							0.682	
	Phaeophytin-a							0.465	
SOP-PCR-1.0	HF183-qPCR	101	103	97.7	98.8	98.4			0.194
SOP-PCR-1.4	BacR-qPCR	79.0	94.4	79.0	78.7	54.5			0.957
SOP-PCR-1.5	DG3-qPCR	78.9	103	101	101	104			0.219
				92.4					

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2224375
SM 9223 B Quanti-Tray	E. coli by Colilert-18/QT by UWF in Pensacola	2224376, 2224377, 2224722
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2224378
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2224378
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2224378

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	02/09/2021	02/09/2021 13:49	Jessica Sherman	02/16/2021 10:15	Carina A. Tull	2224375
SM 9223 B Quanti-Tray	02/08/2021	02/08/2021 17:00		02/09/2021 13:02	UWF Lab	2224376, 2224377, 2224722
SOP-PCR-1.0	02/09/2021	02/09/2021 13:25	DeAsia Armster	02/15/2021 11:49	Mailin Lopez	2224378
SOP-PCR-1.4	02/09/2021	02/09/2021 13:25	DeAsia Armster	02/15/2021 12:53	Mailin Lopez	2224378
SOP-PCR-1.5	02/09/2021	02/09/2021 13:25	DeAsia Armster	02/16/2021 08:45	Mailin Lopez	2224378