

Biological Analysis Report

NW-DIST-2021-09-23-01

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-2021-08-30-16**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
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Date Certified: 08-OCT-2021 17:11



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: Dead River near mouth of pond

Collection Date/Time: 09/22/2021 09:45

Field ID: G4NW0536

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2277940	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	63		MPN/100 mL		

Sample Location: Yellow River at Oak Grove Boat Ramp

Collection Date/Time: 09/22/2021 12:20

Field ID: G4NW0526

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2277941	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	450		MPN/100 mL		
2277942	SOP-PCR-1.0	HF183-qPCR**	3.3E+03	U	TSC/100 mL	P403882	
	SOP-PCR-1.2	GULL2-qPCR**	3.6E+03	U	TSC/100 mL	P403882	
	SOP-PCR-1.3	GFD-qPCR**	720	U	TSC/100 mL	P403882	
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P403882	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P403882	

Sample Location: Yellow River below Malone Creek

Collection Date/Time: 09/22/2021 13:20

Field ID: G4NW0373

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2277939	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	233		MPN/100 mL		

Sample Location: Yellow River upstream of Miller Bluff Landing

Collection Date/Time: 09/22/2021 11:10

Field ID: G4NW0534

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2277937	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.1	U	ug/L	P404465	
		Phaeophytin-a	4.5	U	ug/L	P404465	
		Chlorophyll-a, Uncorrected	3.0	U	ug/L	P404465	
2277938	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	199		MPN/100 mL		

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P404465

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: P403882

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.2
Batch ID: P403882

Component	Result	Code	Units
GULL2-qPCR	3.6E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.3
Batch ID: P403882

Component	Result	Code	Units
GFD-qPCR	720	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P403882

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

Reference Method: SOP-PCR-1.5
Batch ID: P403882

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: P404465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	96.5		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P403882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	94.5	98.0	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P403882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	97.0	109	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P403882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	93.7	98.8	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P403882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P403882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	104	99.0	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P403882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	97.9	99.2	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P403882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276473	HF183-qPCR	77.9	74.5	P/P	50 - 175
2276868	HF183-qPCR	95.5		P	50 - 175
2276869	HF183-qPCR	87.2		P	50 - 175
2276870	HF183-qPCR	83.5		P	50 - 175
2276871	HF183-qPCR	81.9		P	50 - 175
2277942	HF183-qPCR	75.7		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P403882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276473	GULL2-qPCR	87.0	84.5	P/P	50 - 300
2276868	GULL2-qPCR	97.1		P	50 - 300
2276869	GULL2-qPCR	65.8		P	50 - 300
2276870	GULL2-qPCR	71.4		P	50 - 300
2276871	GULL2-qPCR	62.1		P	50 - 300
2276963	GULL2-qPCR	60.7		P	50 - 300
2276964	GULL2-qPCR	71.9		P	50 - 300
2276965	GULL2-qPCR	69.7		P	50 - 300
2277942	GULL2-qPCR	64.0		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P403882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276473	GFD-qPCR	82.5	94.6	P/P	50 - 175
2276868	GFD-qPCR	112		P	50 - 175
2276869	GFD-qPCR	106		P	50 - 175
2276870	GFD-qPCR	98.9		P	50 - 175
2276871	GFD-qPCR	94.2		P	50 - 175
2276963	GFD-qPCR	87.6		P	50 - 175
2276964	GFD-qPCR	94.9		P	50 - 175
2276965	GFD-qPCR	85.0		P	50 - 175
2277942	GFD-qPCR	90.3		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P403882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276473	BacR-qPCR	87.7	90.6	P/P	50 - 175
2276868	BacR-qPCR	79.1		P	50 - 175
2276869	BacR-qPCR	59.5		P	50 - 175
2276870	BacR-qPCR	68.7		P	50 - 175
2276871	BacR-qPCR	69.9		P	50 - 175
2276963	BacR-qPCR	74.0		P	50 - 175
2276964	BacR-qPCR	71.8		P	50 - 175
2276965	BacR-qPCR	70.7		P	50 - 175
2277942	BacR-qPCR	59.9		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P403882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276473	DG3-qPCR	85.8	89.6	P/P	50 - 175
2276868	DG3-qPCR	81.2		P	50 - 175
2276869	DG3-qPCR	85.9		P	50 - 175
2276870	DG3-qPCR	79.2		P	50 - 175
2276871	DG3-qPCR	78.0		P	50 - 175
2276963	DG3-qPCR	75.7		P	50 - 175
2276964	DG3-qPCR	85.4		P	50 - 175
2276965	DG3-qPCR	81.5		P	50 - 175
2277942	DG3-qPCR	76.7		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P404465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278106	Chlorophyll-a, Corrected	3.86	Sample	P	0 - 25
2278106	Chlorophyll-a, Uncorrected	3.52	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P403882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276473	HF183-qPCR	4.45	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P403882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276473	GULL2-qPCR	2.85	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.3
 Batch ID: P403882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276473	GFD-qPCR	13.7	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P403882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276473	BacR-qPCR	3.35	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
 Batch ID: P403882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276473	DG3-qPCR	4.32	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2277942
 Field Sample ID: G4NW0526

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	82.7	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	91.0	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	87.2	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	85.6	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	87.0	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	96.5						3.86	
	Chlorophyll-a, Uncorrected							3.52	
SOP-PCR-1.0	HF183-qPCR	98.0	94.5	77.9	74.5	95.5			4.45
				87.2					
SOP-PCR-1.2	GULL2-qPCR	109	97.0	87.0	84.5	97.1			2.85
				65.8					
SOP-PCR-1.3	GFD-qPCR	98.8	93.7	82.5	94.6	112			13.7
				106					
SOP-PCR-1.4	BacR-qPCR	99.0	104	87.7	90.6	79.1			3.35
				59.5					
SOP-PCR-1.5	DG3-qPCR	99.2	97.9	85.8	89.6	81.2			4.32
				85.9					

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2277937
SM 9223 B Quanti-Tray	E. coli by Colilert-18/QT by UWF in Pensacola	2277938, 2277939, 2277940, 2277941
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2277942
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2277942
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2277942
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2277942
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2277942

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	09/23/2021	09/23/2021 16:15	Jillian G Hanley	09/30/2021 14:25	Joel Wharton	2277937
SM 9223 B Quanti-Tray	09/22/2021	09/22/2021 15:55		09/23/2021 12:55	UWF Lab	2277938, 2277939, 2277940, 2277941
SOP-PCR-1.0	09/23/2021	09/23/2021 14:45	Mailin Lopez	09/27/2021 08:43	DeAsia Armster	2277942
SOP-PCR-1.2	09/23/2021	09/23/2021 14:45	Mailin Lopez	09/28/2021 14:14	DeAsia Armster	2277942
SOP-PCR-1.3	09/23/2021	09/23/2021 14:45	Mailin Lopez	09/29/2021 08:09	Mailin Lopez	2277942
SOP-PCR-1.4	09/23/2021	09/23/2021 14:45	Mailin Lopez	09/27/2021 13:50	DeAsia Armster	2277942
SOP-PCR-1.5	09/23/2021	09/23/2021 14:45	Mailin Lopez	09/28/2021 08:55	DeAsia Armster	2277942