

Biological Analysis Report

NW-DIST-2022-06-02-01

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: **Milton North Run**
Request ID: **RQ-2022-05-16-31**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 W Government Street
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Certified by: Sarah Menz, Environmental Administrator

Date Certified: 19-JUL-2022 13:17

A handwritten signature in dark ink, appearing to be 'Sarah Menz', written in a cursive 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 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: Pace Mill Creek upstream of Hwy 90

Collection Date/Time: 05/31/2022 09:40

Field ID: G4NW0481

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2331398	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	131		MPN/100 mL		
2331406	SOP-PCR-1.0	HF183-qPCR**	3.3E+03	UQ	TSC/100 mL	P414646	LCS
	SOP-PCR-1.2	GULL2-qPCR**	3.6E+03	UQ	TSC/100 mL	P414646	LCS
	SOP-PCR-1.3	GFD-qPCR**	720	UQ	TSC/100 mL	P414646	LCS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	UQ	TSC/100 mL	P414646	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	UQ	TSC/100 mL	P414646	

Sample Location: Jacobs Creek Upstream of Bagwell Rd

Collection Date/Time: 05/31/2022 10:00

Field ID: G4NW0003

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2331399	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	52		MPN/100 mL		
2331407	SOP-PCR-1.0	HF183-qPCR**	1.7E+03	UQ	TSC/100 mL	P414646	LCS
	SOP-PCR-1.2	GULL2-qPCR**	1.8E+03	UQ	TSC/100 mL	P414646	LCS
	SOP-PCR-1.3	GFD-qPCR**	360	UQ	TSC/100 mL	P414646	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	UQ	TSC/100 mL	P414646	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	UQ	TSC/100 mL	P416471	

Ref. Method and Comment:
 SOP-PCR-1.5: Precision data unavailable for DG3-qPCR component.

Sample Location: Pace Mill Creek end of Rodella St

Collection Date/Time: 05/31/2022 10:15

Field ID: G4NW0146

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2331400	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	75		MPN/100 mL		
2331408	SOP-PCR-1.0	HF183-qPCR**	3.3E+03	UQ	TSC/100 mL	P414646	LCS
	SOP-PCR-1.2	GULL2-qPCR**	3.6E+03	UQ	TSC/100 mL	P414646	LCS
	SOP-PCR-1.3	GFD-qPCR**	720	UQ	TSC/100 mL	P414646	LCS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	UQ	TSC/100 mL	P414646	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	UQ	TSC/100 mL	P414646	

Sample Location: Collins Mill Creek upstream of Conecuh Street

Collection Date/Time: 05/31/2022 10:50

Field ID: G4NW0507

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2331393	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.5	IQ	ug/L	P415016	
		Phaeophytin-a	1.6	UQ	ug/L	P415016	
		Chlorophyll-a, Uncorrected	1.2	IQ	ug/L	P415016	
2331397	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	74		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

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P415016

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: P414646

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

Reference Method: SOP-PCR-1.2
Batch ID: P414646

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

Reference Method: SOP-PCR-1.3
Batch ID: P414646

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

Reference Method: SOP-PCR-1.4
Batch ID: P414646

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

Reference Method: SOP-PCR-1.5
Batch ID: P414646

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

Reference Method: SOP-PCR-1.5
Batch ID: P416471

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: P415016

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	88.3		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P414646

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	82.9	3.77	P/F	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P414646

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	97.9	3.22	P/F	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P414646

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	96.5	3.61	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P414646

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	108	87.5	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P414646

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	97.1	86.9	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P416471

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	94.9	68.2	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P414646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2331406	HF183-qPCR	74.6	77.0	P/P	50 - 175
2331407	HF183-qPCR	77.5		P	50 - 175
2331408	HF183-qPCR	79.5		P	50 - 175
2331654	HF183-qPCR	82.8		P	50 - 175
2331691	HF183-qPCR	87.4		P	50 - 175
2331692	HF183-qPCR	83.0		P	50 - 175
2331745	HF183-qPCR	77.8		P	50 - 175
2332397	HF183-qPCR	78.2		P	50 - 175
2332949	HF183-qPCR	99.0		P	50 - 175
2332970	HF183-qPCR	84.8		P	50 - 175
2333119	HF183-qPCR	101		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.2

Batch ID: P414646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2331406	GULL2-qPCR	77.3	82.3	P/P	50 - 300
2331407	GULL2-qPCR	69.7		P	50 - 300
2331408	GULL2-qPCR	80.3		P	50 - 300
2331654	GULL2-qPCR	66.7		P	50 - 300
2332949	GULL2-qPCR	67.3		P	50 - 300
2332970	GULL2-qPCR	63.0		P	50 - 300
2333119	GULL2-qPCR	68.2		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P414646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2331406	GFD-qPCR	80.4	84.3	P/P	50 - 175
2331407	GFD-qPCR	81.6		P	50 - 175
2331408	GFD-qPCR	87.4		P	50 - 175
2331654	GFD-qPCR	85.3		P	50 - 175
2332949	GFD-qPCR	91.4		P	50 - 175
2332970	GFD-qPCR	79.2		P	50 - 175
2333119	GFD-qPCR	86.9		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P414646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2331406	BacR-qPCR	75.3	77.8	P/P	50 - 175
2331407	BacR-qPCR	75.8		P	50 - 175
2331408	BacR-qPCR	84.9		P	50 - 175
2331654	BacR-qPCR	57.1		P	50 - 175
2331691	BacR-qPCR	59.2		P	50 - 175
2331692	BacR-qPCR	50.0		P	50 - 175
2331745	BacR-qPCR	71.2		P	50 - 175
2332397	BacR-qPCR	72.0		P	50 - 175
2332949	BacR-qPCR	86.0		P	50 - 175
2332970	BacR-qPCR	71.4		P	50 - 175
2333117	BacR-qPCR	33.5		F	50 - 175
2333119	BacR-qPCR	76.1		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P414646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2331406	DG3-qPCR	83.2	82.8	P/P	50 - 175
2331407	DG3-qPCR	88.4		P	50 - 175
2331408	DG3-qPCR	88.4		P	50 - 175
2331691	DG3-qPCR	82.8		P	50 - 175
2332397	DG3-qPCR	79.2		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P416471

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2331407	DG3-qPCR	85.8		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P414646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331406	HF183-qPCR	3.19	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P414646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331406	GULL2-qPCR	6.27	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P414646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331406	GFD-qPCR	4.83	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P414646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331406	BacR-qPCR	3.26	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P414646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331406	DG3-qPCR	0.521	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2331406
Field Sample ID: G4NW0481

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	109	P	50 - 300
SOP-PCR-1.0	SKETA-qPCR	110	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	123	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	125	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	112	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	113	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	114	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	116	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	122	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	116	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 2331407
 Field Sample ID: G4NW0003

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	104	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	119	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	100	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	61.2	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	89.6	P	50 - 300

Lab Sample ID: 2331408
 Field Sample ID: G4NW0146

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	105	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	113	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	104	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	108	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	122	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	88.3							
SOP-PCR-1.0	HF183-qPCR	3.77	82.9	74.6	77.0	77.5			3.19
SOP-PCR-1.2	GULL2-qPCR	3.22	97.9	77.3	82.3	69.7			6.27
SOP-PCR-1.3	GFD-qPCR	3.61	96.5	80.4	84.3	81.6			4.83
SOP-PCR-1.4	BacR-qPCR	87.5	108	75.3	77.8	75.8			3.26
SOP-PCR-1.5	DG3-qPCR	86.9	97.1	88.4	83.2	82.8			0.521
	DG3-qPCR	68.2	94.9	85.8					

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2331393
SM 9223 B Quanti-Tray	E. coli by Colilert-18/QT by UWF in Pensacola	2331397, 2331398, 2331399, 2331400
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2331406, 2331407, 2331408
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2331406, 2331407, 2331408
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2331406, 2331407, 2331408
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2331406, 2331407, 2331408
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2331406, 2331407, 2331408

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	06/02/2022	06/02/2022 14:50	Amber S. Eells	06/09/2022 09:35	Joel Wharton	2331393
SM 9223 B Quanti-Tray	05/31/2022	05/31/2022 14:00		06/01/2022 11:03	UWF Lab	2331397, 2331398, 2331399, 2331400
SOP-PCR-1.0	06/02/2022	06/02/2022 13:20	Claudia Castro	07/01/2022 14:34	Roberta Tatti	2331406, 2331407, 2331408
SOP-PCR-1.2	06/02/2022	06/02/2022 13:20	Claudia Castro	07/06/2022 14:24	Roberta Tatti	2331406, 2331407, 2331408
SOP-PCR-1.3	06/02/2022	06/02/2022 13:20	Claudia Castro	07/07/2022 10:03	Roberta Tatti	2331406, 2331407, 2331408
SOP-PCR-1.4	06/02/2022	06/02/2022 13:20	Claudia Castro	07/05/2022 12:22	Roberta Tatti	2331406, 2331407, 2331408
SOP-PCR-1.5	06/02/2022	06/02/2022 13:20	Claudia Castro	07/06/2022 12:14	Roberta Tatti	2331406, 2331408
	06/02/2022	06/02/2022 13:20	Claudia Castro	07/11/2022 14:16	Roberta Tatti	2331407