Biological Analysis Report

NW-DIST-2021-01-28-01

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: **Santa Rosa Run**
Request ID: **RQ-2021-01-25-55**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 17-FEB-2021 10:26

Cheryl Swanson

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: Dean Creek, West Head at Natalie Lane **Collection Date/Time: 01/27/2021 10:40**

Field ID: G4NW0278 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2222086	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	309		MPN/100 mL		

Sample Location: Williams Creek upstream of Hwy 98 **Collection Date/Time: 01/27/2021 11:20**

Field ID: G4NW0531 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2222083	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.0		ug/L	P393286	
		Phaeophytin-a	0.90	U	ug/L	P393286	
		Chlorophyll-a, Uncorrected	3.4		ug/L	P393286	
2222085	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	355		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.

Sample Location: Tom King Creek **Collection Date/Time: 01/27/2021 12:10**

Field ID: G4NW0193 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2222087	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	712		MPN/100 mL		

Sample Location: Discharge From Tiger Point Golf Course At Maplewood Drive **Collection Date/Time: 01/27/2021 12:45**

Field ID: G4NW0211 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2222082	SM 10200 H (mod.)	Chlorophyll-a, Corrected	43		ug/L	P393286	
		Phaeophytin-a	3.4		ug/L	P393286	
		Chlorophyll-a, Uncorrected	47		ug/L	P393286	
2222084	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	213		MPN/100 mL		
2222088	SOP-PCR-1.0	HF183-qPCR**	140	UJ	GEU/100 mL	P392614	MS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P392614	
	SOP-PCR-1.5	DG3-qPCR**	4.7E+03	I	TSC/100 mL	P392614	

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.
SOP-PCR-1.0: Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P393286

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

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P392614

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

Reference Method: SOP-PCR-1.4
Batch ID: P392614

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

Reference Method: SOP-PCR-1.5
Batch ID: P392614

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: P393286

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	111		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P392614

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	132	98.8	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P392614

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	97.0	71.0	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P392614

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	67.8	94.4	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P392614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220204	HF183-qPCR	101	93.0	P/P	50 - 175
2220205	HF183-qPCR	91.1		P	50 - 175
2220231	HF183-qPCR	89.3		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P392614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220509	HF183-qPCR	106		P	50 - 175
2220510	HF183-qPCR	99.1		P	50 - 175
2220598	HF183-qPCR	82.9		P	50 - 175
2221252	HF183-qPCR	92.7		P	50 - 175
2221253	HF183-qPCR	79.9		P	50 - 175
2221347	HF183-qPCR	82.3		P	50 - 175
2221348	HF183-qPCR	107		P	50 - 175
2221349	HF183-qPCR	102		P	50 - 175
2221978	HF183-qPCR	51.5		P	50 - 175
2222088	HF183-qPCR	35.7		F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P392614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220204	BacR-qPCR	84.5	91.6	P/P	50 - 175
2220205	BacR-qPCR	85.9		P	50 - 175
2220231	BacR-qPCR	97.4		P	50 - 175
2220509	BacR-qPCR	86.2		P	50 - 175
2220510	BacR-qPCR	86.4		P	50 - 175
2220598	BacR-qPCR	62.2		P	50 - 175
2221252	BacR-qPCR	82.4		P	50 - 175
2221253	BacR-qPCR	66.7		P	50 - 175
2221347	BacR-qPCR	82.2		P	50 - 175
2221348	BacR-qPCR	83.5		P	50 - 175
2221349	BacR-qPCR	89.7		P	50 - 175
2221978	BacR-qPCR	80.3		P	50 - 175
2222088	BacR-qPCR	77.4		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P392614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220204	DG3-qPCR	112	101	P/P	50 - 175
2220205	DG3-qPCR	93.9		P	50 - 175
2220231	DG3-qPCR	95.1		P	50 - 175
2221252	DG3-qPCR	100		P	50 - 175
2221253	DG3-qPCR	77.7		P	50 - 175
2221347	DG3-qPCR	93.5		P	50 - 175
2221348	DG3-qPCR	83.8		P	50 - 175
2221349	DG3-qPCR	89.1		P	50 - 175
2222088	DG3-qPCR	88.9		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P393286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P393286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222011	Chlorophyll-a, Corrected	1.55	Sample	P	0 - 25
2222011	Chlorophyll-a, Uncorrected	1.16	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P392614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220204	HF183-qPCR	8.55	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P392614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220204	BacR-qPCR	8.06	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P392614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220204	DG3-qPCR	10.8	Spike	P	0 - 25

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2222088
Field Sample ID: G4NW0211

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	58.9	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	66.6	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	82.6	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	111			1.55	
	Chlorophyll-a, Uncorrected				1.16	
SOP-PCR-1.0	HF183-qPCR	98.8 132	101 93.0 91.1 89.3			8.55
SOP-PCR-1.4	BacR-qPCR	71.0 97.0	84.5 91.6 85.9 97.4			8.06

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.5	DG3-qPCR	94.4 67.8	112 101 93.9 95.1			10.8

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2222082, 2222083
SM 9223 B Quanti-Tray	E. coli by Colilert-18/QT by UWF in Pensacola	2222084, 2222085, 2222086, 2222087
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2222088
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2222088
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2222088

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	01/28/2021	01/28/2021 15:26	Jessica Sherman	02/01/2021 14:08	Yuliya Danyuk	2222082, 2222083
SM 9223 B Quanti-Tray	01/27/2021	01/27/2021 14:40		01/28/2021 11:50	UWF Lab	2222084, 2222085, 2222086, 2222087
SOP-PCR-1.0	01/28/2021	01/28/2021 13:00	DeAsia Armster	01/29/2021 11:30	Lauren Campbell	2222088
SOP-PCR-1.4	01/28/2021	01/28/2021 13:00	DeAsia Armster	01/29/2021 16:04	Lauren Campbell	2222088
SOP-PCR-1.5	01/28/2021	01/28/2021 13:00	DeAsia Armster	01/31/2021 09:02	Mailin Lopez	2222088