Biological Analysis Report

NW-DIST-2022-07-07-02

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

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

Event Description: **Western Lake Run**
Request ID: **RQ-2022-06-27-23**
Customer: **NW-DIST**
Project ID: **SMP**

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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 10-AUG-2022 13:18

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: Pond Creek downstream of HWY 90 **Collection Date/Time: 07/06/2022 12:35**

Field ID: G4NW0506 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2339612	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	199		MPN/100 mL		
2339614	SOP-PCR-1.0	HF183-qPCR**	3.3E+03	U	TSC/100 mL	P416270	
	SOP-PCR-1.4	BacR-qPCR**	3.1E+03	I	TSC/100 mL	P416270	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P416270	

Sample Location: Crescent Lake **Collection Date/Time: 07/06/2022 15:10**

Field ID: G5NW0159 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2339608	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.5		ug/L	P416787	
		Phaeophytin-a	1.6	U	ug/L	P416787	
		Chlorophyll-a, Uncorrected	7.5		ug/L	P416787	

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: Pond Creek West of Headwaters of Blackwater Bay **Collection Date/Time: 07/06/2022 13:05**

Field ID: G4NW0277 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2339611	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	399		MPN/100 mL		
2339613	SOP-PCR-1.0	HF183-qPCR**	3.3E+03	U	TSC/100 mL	P416270	
	SOP-PCR-1.4	BacR-qPCR**	3.3E+03	I	TSC/100 mL	P416270	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P416270	

Sample Location: Locklin Lake Center **Collection Date/Time: 07/06/2022 11:40**

Field ID: G4NW0437 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2339609	SM 10200 H (mod.)	Chlorophyll-a, Corrected	150		ug/L	P416787	
		Phaeophytin-a	12	I	ug/L	P416787	
		Chlorophyll-a, Uncorrected	160		ug/L	P416787	

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: Lake Karick (Center) (also 33040210) **Collection Date/Time: 07/06/2022 09:45**

Field ID: G4NW0274 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2339610	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.2	I	ug/L	P416787	
		Phaeophytin-a	1.8	U	ug/L	P416787	
		Chlorophyll-a, Uncorrected	1.6	I	ug/L	P416787	

Ref. Method and Comment:
SM 10200 H (mod.): Lab dup result is 2.0 I for Chl-a Corrected, 1.5 I for Chl-a Uncorrected, and 1.8 U for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P416787

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: P416270

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

Reference Method: SOP-PCR-1.4
Batch ID: P416270

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

Reference Method: SOP-PCR-1.5
Batch ID: P416270

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: P416787

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.1		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P416270

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	85.6	87.2	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P416270

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	98.5	79.8	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P416270

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	76.5	68.4	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P416270

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2339613	HF183-qPCR	77.3		P	50 - 175
2339614	HF183-qPCR	79.5		P	50 - 175
2339781	HF183-qPCR	84.5	93.5	P/P	50 - 175
2339782	HF183-qPCR	80.0		P	50 - 175
2339783	HF183-qPCR	90.0		P	50 - 175
2339948	HF183-qPCR	79.5		P	50 - 175
2339949	HF183-qPCR	85.0		P	50 - 175
2340010	HF183-qPCR	77.7		P	50 - 175
2340248	HF183-qPCR	70.8		P	50 - 175
2340249	HF183-qPCR	78.0		P	50 - 175
2340341	HF183-qPCR	85.1		P	50 - 175
2340342	HF183-qPCR	88.6		P	50 - 175
2340491	HF183-qPCR	84.5		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P416270

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2339613	BacR-qPCR	50.2		P	50 - 175
2339614	BacR-qPCR	65.4		P	50 - 175
2339781	BacR-qPCR	88.2	88.5	P/P	50 - 175
2339782	BacR-qPCR	81.5		P	50 - 175
2339783	BacR-qPCR	82.8		P	50 - 175
2339948	BacR-qPCR	51.8		P	50 - 175
2339949	BacR-qPCR	63.9		P	50 - 175
2340010	BacR-qPCR	79.4		P	50 - 175
2340248	BacR-qPCR	67.8		P	50 - 175
2340249	BacR-qPCR	61.1		P	50 - 175
2340341	BacR-qPCR	76.8		P	50 - 175
2340342	BacR-qPCR	87.6		P	50 - 175
2340491	BacR-qPCR	67.7		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P416270

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2339613	DG3-qPCR	84.9		P	50 - 175
2339614	DG3-qPCR	77.3		P	50 - 175
2339781	DG3-qPCR	83.7	88.1	P/P	50 - 175
2339782	DG3-qPCR	81.7		P	50 - 175
2339783	DG3-qPCR	86.5		P	50 - 175
2339948	DG3-qPCR	78.8		P	50 - 175
2339949	DG3-qPCR	78.6		P	50 - 175
2340010	DG3-qPCR	75.8		P	50 - 175
2340248	DG3-qPCR	79.7		P	50 - 175
2340249	DG3-qPCR	80.6		P	50 - 175
2340341	DG3-qPCR	77.8		P	50 - 175
2340342	DG3-qPCR	84.2		P	50 - 175
2340491	DG3-qPCR	77.6		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.0
Batch ID: P416270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2339781	HF183-qPCR	10.2	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P416270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2339781	BacR-qPCR	0.275	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P416270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2339781	DG3-qPCR	5.06	Spike	P	0 - 25

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2339613
Field Sample ID: G4NW0277

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	82.8	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	89.8	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	83.3	P	50 - 300

Lab Sample ID: 2339614
Field Sample ID: G4NW0506

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	92.8	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	92.0	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	87.1	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	97.1				
SOP-PCR-1.0	HF183-qPCR	87.2 85.6	77.3 79.5 84.5 93.5			10.2
SOP-PCR-1.4	BacR-qPCR	79.8 98.5	65.4 88.2 88.5 81.5			0.275
SOP-PCR-1.5	DG3-qPCR	68.4 76.5	84.9 77.3 83.7 88.1			5.06

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2339608, 2339609, 2339610
SM 9223 B Quanti-Tray	E. coli by Colilert-18/QT by UWF in Pensacola	2339611, 2339612
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2339613, 2339614
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2339613, 2339614
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2339613, 2339614

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	07/07/2022	07/07/2022 15:23	Tynan A Branch	07/14/2022 08:36	Jillian G Hanley	2339608, 2339609, 2339610
SM 9223 B Quanti-Tray	07/06/2022	07/06/2022 14:55		07/07/2022 11:34	UWF Lab	2339611, 2339612
SOP-PCR-1.0	07/07/2022	07/07/2022 14:00	Claudia Castro	07/14/2022 12:17	DeAsia Armster	2339613, 2339614
SOP-PCR-1.4	07/07/2022	07/07/2022 14:00	Claudia Castro	07/15/2022 09:33	DeAsia Armster	2339613, 2339614
SOP-PCR-1.5	07/07/2022	07/07/2022 14:00	Claudia Castro	07/15/2022 12:01	Roberta Tatti	2339613, 2339614