

Biological Analysis Report

NW-DIST-2019-11-20-03

Florida Department of Environmental Protection
Central Laboratory
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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: **Pens/Cant Run**
Request ID: **RQ-2019-11-18-28**
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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Date Certified: 20-DEC-2019 15:04



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: Carpenter Creek upstream of 9th Avenue

Collection Date/Time: 11/19/2019 11:16

Field ID: G4NW0415

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2137579	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P375326	
		Phaeophytin-a	0.90	U	ug/L	P375326	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P375326	
2137582	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	292		MPN/100 mL		
2137585	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P374488	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P374488	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	U	TSC/100 mL	P375118	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P374488	LCS
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P374488	

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: Carpenter Creek upstream of 9th Avenue

Collection Date/Time: 11/19/2019 11:30

Field ID: G4NW0415_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2137581	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P375326	
		Phaeophytin-a	0.90	U	ug/L	P375326	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P375326	
2137584	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	246		MPN/100 mL		
2137586	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P374488	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P374488	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	U	TSC/100 mL	P375118	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P374488	LCS
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P374488	

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: Direct Runoff-Graveyard Branch @ Tradewinds Dr

Collection Date/Time: 11/19/2019 13:50

Field ID: G4NW0176

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2137580	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P375326	
		Phaeophytin-a	0.90	U	ug/L	P375326	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P375326	
2137583	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	201		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: P375326

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: P374488

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

Reference Method: SOP-PCR-1.2
Batch ID: P374488

Component	Result	Code	Units
GULL2-qPCR	1.7E+04	U	TSC/100 mL

Reference Method: SOP-PCR-1.3
Batch ID: P375118

Component	Result	Code	Units
GFD-purified-qPCR	2.0E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P374488

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

Reference Method: SOP-PCR-1.5
Batch ID: P374488

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: P375326

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: P374488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	113	105	P/P	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.2
 Batch ID: P374488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	96.7	122	P/P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P375118

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	123	34.9	P/F	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P374488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	129	248	P/F	50 - 175

Reference Method: SOP-PCR-1.5
 Batch ID: P374488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	87.8	130	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P374488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137227	HF183-qPCR	101		P	50 - 175
2137228	HF183-qPCR	97.8		P	50 - 175
2137229	HF183-qPCR	99.1		P	50 - 175
2137246	HF183-qPCR	86.9		P	50 - 175
2137247	HF183-qPCR	123	117	P/P	50 - 175
2137385	HF183-qPCR	98.5		P	50 - 175
2137436	HF183-qPCR	108		P	50 - 175
2137437	HF183-qPCR	91.3		P	50 - 175
2137438	HF183-qPCR	104		P	50 - 175
2137585	HF183-qPCR	103		P	50 - 175
2137586	HF183-qPCR	107		P	50 - 175
2137728	HF183-qPCR	115		P	50 - 175
2137729	HF183-qPCR	108		P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P374488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137436	GULL2-qPCR	63.7		P	50 - 300
2137437	GULL2-qPCR	83.0		P	50 - 300
2137585	GULL2-qPCR	89.6		P	50 - 300
2137586	GULL2-qPCR	85.0		P	50 - 300

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3

Batch ID: P375118

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137436	GFD-purified-qPCR	106		P	50 - 175
2137437	GFD-purified-qPCR	139		P	50 - 175
2137585	GFD-purified-qPCR	122		P	50 - 175
2137586	GFD-purified-qPCR	147		P	50 - 175
2139250	GFD-purified-qPCR	67.3		P	50 - 175
2140043	GFD-purified-qPCR	101	85.8	P/P	50 - 175
2140186	GFD-purified-qPCR	62.7		P	50 - 175
2140207	GFD-purified-qPCR	112		P	50 - 175
2140208	GFD-purified-qPCR	65.3		P	50 - 175
2144308	GFD-purified-qPCR	85.9		P	50 - 175
2144309	GFD-purified-qPCR	87.1		P	50 - 175
2144310	GFD-purified-qPCR	100		P	50 - 175
2144311	GFD-purified-qPCR	124		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P374488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137227	BacR-qPCR	91.5		P	50 - 175
2137228	BacR-qPCR	99.3		P	50 - 175
2137229	BacR-qPCR	79.4		P	50 - 175
2137246	BacR-qPCR	82.6		P	50 - 175
2137247	BacR-qPCR	96.7	104	P/P	50 - 175
2137385	BacR-qPCR	78.9		P	50 - 175
2137436	BacR-qPCR	101		P	50 - 175
2137437	BacR-qPCR	111		P	50 - 175
2137438	BacR-qPCR	91.4		P	50 - 175
2137585	BacR-qPCR	103		P	50 - 175
2137586	BacR-qPCR	117		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P374488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137436	DG3-qPCR	113		P	50 - 175
2137437	DG3-qPCR	94.8		P	50 - 175
2137438	DG3-qPCR	91.7		P	50 - 175
2137585	DG3-qPCR	87.5		P	50 - 175
2137586	DG3-qPCR	84.2		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0

Batch ID: P374488

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137247	HF183-qPCR	5.29	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.2
Batch ID: P374488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138824	GULL2-qPCR	1.83	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P375118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140043	GFD-purified-qPCR	16.8	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P374488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137247	BacR-qPCR	7.48	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P374488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138824	DG3-qPCR	16.0	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2137585
Field Sample ID: G4NW0415

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	93.9	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	89.8	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	94.9	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	86.1	P	50 - 300

Lab Sample ID: 2137586
Field Sample ID: G4NW0415_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	96.1	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	93.1	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	98.3	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	100	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision	
							LCS	SMP
SM 10200 H (mod.)	Chlorophyll-a, Corrected	97.1						
SOP-PCR-1.0	HF183-qPCR	105	113	101	97.8	99.1		5.29
				86.9				
SOP-PCR-1.2	GULL2-qPCR	122	96.7	63.7	83.0	89.6		1.83
				85.0				
SOP-PCR-1.3	GFD-purified-qPCR	34.9	123	101	85.8	62.7		16.8
				112				
SOP-PCR-1.4	BacR-qPCR	248	129	91.5	99.3	79.4		7.48
				82.6				
SOP-PCR-1.5	DG3-qPCR	130	87.8	113	94.8	91.7		16.0
				87.5				

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2137579, 2137580, 2137581
SM 9223 B Quanti-Tray / E71969	E. coli by Colilert-18/QT by UWF in Pensacola	2137582, 2137583, 2137584
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2137585, 2137586
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2137585, 2137586
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2137585, 2137586
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2137585, 2137586
SOP-PCR-1.5 / E31780	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2137585, 2137586

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	11/20/2019	11/20/2019 13:00	Peterson Janvier	12/04/2019 10:40	Yuliya Danyuk	2137579, 2137580, 2137581
SM 9223 B Quanti-Tray	11/19/2019	11/19/2019 15:15		11/20/2019 11:45	UWF Lab	2137582, 2137583, 2137584
SOP-PCR-1.0	11/20/2019	11/20/2019 13:30	Angela Smith	12/09/2019 14:37	Lauren Campbell	2137585, 2137586
SOP-PCR-1.2	11/20/2019	11/20/2019 13:30	Angela Smith	12/12/2019 13:01	Mailin Lopez	2137585, 2137586
SOP-PCR-1.3	11/20/2019	11/20/2019 13:30	Angela Smith	12/18/2019 08:41	Mailin Lopez	2137585, 2137586
SOP-PCR-1.4	11/20/2019	11/20/2019 13:30	Angela Smith	12/10/2019 10:42	Lauren Campbell	2137585, 2137586
SOP-PCR-1.5	11/20/2019	11/20/2019 13:30	Angela Smith	12/10/2019 14:48	Lauren Campbell	2137585, 2137586