

Biological Analysis Report

NW-DIST-2019-10-02-01

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: **PENS/CANT RUN**
Request ID: **RQ-2019-09-23-23**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 Government Center
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Date Certified: 15-NOV-2019 13:48



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: Jones Creek upstream of N Navy Blvd

Collection Date/Time: 10/01/2019 10:25

Field ID: G4NW0429

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2123978	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	20		MPN/100 mL		
2123985	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P371626	

Sample Location: Carpenter Creek upstream of 9th Avenue

Collection Date/Time: 10/01/2019 11:35

Field ID: G4NW0415

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2123972	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.0	U	ug/L	P372103	
		Phaeophytin-a	1.1	U	ug/L	P372103	
		Chlorophyll-a, Uncorrected	0.75	U	ug/L	P372103	
2123975	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	259		MPN/100 mL		
2123983	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P371626	
	SOP-PCR-1.2	GULL2-qPCR**	5.6E+03	U	TSC/100 mL	P371626	MS
	SOP-PCR-1.3	GFD-purified-qPCR**	110	UJ	TSC/100 mL	P372558	MS
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P371626	
	SOP-PCR-1.5	DG3-qPCR**	860	UJ	TSC/100 mL	P371626	LCS, MS

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-1.2: Precision data unavailable for Analysis Batch A95175

SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A94955.

SOP-PCR-1.5: Precision data unavailable for Analysis Batch A94974. Quality control failure(s) observed. See QA report for details.

Sample Location: Carpenter Creek upstream of 9th Avenue

Collection Date/Time: 10/01/2019 11:55

Field ID: G4NW0415_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2123973	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P372103	
		Phaeophytin-a	0.90	U	ug/L	P372103	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P372103	
2123976	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	364		MPN/100 mL		
2123984	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P371626	
	SOP-PCR-1.2	GULL2-qPCR**	5.6E+03	U	TSC/100 mL	P371626	MS
	SOP-PCR-1.3	GFD-purified-qPCR**	1.84E+03	J	TSC/100 mL	P372558	MS
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P371626	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P371626	LCS, MS

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-1.2: Precision data unavailable for Analysis Batch A95175

SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A94955.

SOP-PCR-1.5: Precision data unavailable for Analysis Batch A94974.

Sample Location: Direct Runoff-Graveyard Branch @ Tradewinds Dr.

Collection Date/Time: 10/01/2019 12:25

Field ID: G4NW0176

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2123974	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P372103	
		Phaeophytin-a	0.90	U	ug/L	P372103	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P372103	
2123977	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	631		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: P372103

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.96	U	ug/L
Chlorophyll-a, Uncorrected	0.70	U	ug/L
Phaeophytin-a	1.0	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P371626

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

Reference Method: SOP-PCR-1.2
Batch ID: P371626

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

Reference Method: SOP-PCR-1.3
Batch ID: P372558

Component	Result	Code	Units
GFD-purified-qPCR	340	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P371626

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

Reference Method: SOP-PCR-1.5
Batch ID: P371626

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P372103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.7		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P371626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	151	90.1	P/P	50 - 175
HF183-qPCR	148	100	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P371626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	111	205	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P372558

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	163	137	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P371626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	104	120	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P371626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	157	208	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P371626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123785	HF183-qPCR	101		P	50 - 175
2123786	HF183-qPCR	117	112	P/P	50 - 175
2123983	HF183-qPCR	119		P	50 - 175
2123984	HF183-qPCR	114		P	50 - 175
2123985	HF183-qPCR	121		P	50 - 175
2124016	HF183-qPCR	100		P	50 - 175
2124017	HF183-qPCR	97.1		P	50 - 175
2124376	HF183-qPCR	114		P	50 - 175
2124432	HF183-qPCR	114		P	50 - 175
2124433	HF183-qPCR	110		P	50 - 175
2124434	HF183-qPCR	114		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P371626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2124578	HF183-qPCR	90.9		P	50 - 175
2124677	HF183-qPCR	94.5		P	50 - 175
2124678	HF183-qPCR	92.0		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P371626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123983	GULL2-qPCR	99.2		P	50 - 300
2123984	GULL2-qPCR	106		P	50 - 300
2124432	GULL2-qPCR	110		P	50 - 300
2124433	GULL2-qPCR	105		P	50 - 300
2124434	GULL2-qPCR	104		P	50 - 300
2124578	GULL2-qPCR	25.3		F	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P372558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123207	GFD-purified-qPCR	343		F	50 - 175
2123983	GFD-purified-qPCR	415		F	50 - 175
2123984	GFD-purified-qPCR	377		F	50 - 175
2126456	GFD-purified-qPCR	107		P	50 - 175
2127162	GFD-purified-qPCR	330		F	50 - 175
2127750	GFD-purified-qPCR	331		F	50 - 175
2129915	GFD-purified-qPCR	377		F	50 - 175
2129917	GFD-purified-qPCR	385	366	F/F	50 - 175
2132423	GFD-purified-qPCR	367		F	50 - 175
2132424	GFD-purified-qPCR	372		F	50 - 175
2132425	GFD-purified-qPCR	325		F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P371626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123983	BacR-qPCR	127		P	50 - 175
2123984	BacR-qPCR	122		P	50 - 175
2124016	BacR-qPCR	89.0		P	50 - 175
2124017	BacR-qPCR	89.7		P	50 - 175
2124376	BacR-qPCR	119		P	50 - 175
2124432	BacR-qPCR	102		P	50 - 175
2124433	BacR-qPCR	102		P	50 - 175
2124434	BacR-qPCR	114		P	50 - 175
2124578	BacR-qPCR	99.4		P	50 - 175
2124677	BacR-qPCR	109		P	50 - 175
2124678	BacR-qPCR	105		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P371626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123983	DG3-qPCR	178		F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.5
Batch ID: P371626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123984	DG3-qPCR	162		P	50 - 175
2124432	DG3-qPCR	170		P	50 - 175
2124433	DG3-qPCR	159		P	50 - 175
2124434	DG3-qPCR	154		P	50 - 175
2124578	DG3-qPCR	140		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P372103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2124081	Chlorophyll-a, Corrected	0.775	Sample	P	0 - 25
2124081	Chlorophyll-a, Uncorrected	0.884	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P371626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123786	HF183-qPCR	5.02	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P372558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2129917	GFD-purified-qPCR	5.25	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2123983
Field Sample ID: G4NW0415

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	101	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	89.5	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	90.5	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	120	P	50 - 300

Lab Sample ID: 2123984
Field Sample ID: G4NW0415_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	92.9	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 2123984
Field Sample ID: G4NW0415_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.2	SKETA-qPCR	87.4	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	87.6	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	118	P	50 - 300

Lab Sample ID: 2123985
Field Sample ID: G4NW0429

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	98.4	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	97.7							0.775	
	Chlorophyll-a, Uncorrected								0.884	
SOP-PCR-1.0	HF183-qPCR	151	100	148	117	112	119			5.02
		90.1			114					
SOP-PCR-1.2	GULL2-qPCR	205	111		99.2	106	110			
					105					
SOP-PCR-1.3	GFD-purified-qPCR	137	163		415	377	377			5.25
					385					
SOP-PCR-1.4	BacR-qPCR	120	104		127	122	89.0			
					89.7					
SOP-PCR-1.5	DG3-qPCR	208	157		178	162	170			
					159					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2123972, 2123973, 2123974
SM 9223 B Quanti-Tray / E71969	E. coli by Colilert-18/QT by UWF in Pensacola	2123975, 2123976, 2123977, 2123978
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2123983, 2123984, 2123985
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2123983, 2123984
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2123983, 2123984
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2123983, 2123984
SOP-PCR-1.5 / E31780	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2123983, 2123984

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	10/02/2019	10/02/2019 14:45	Yuliya Danyuk	10/07/2019 14:02	Yuliya Danyuk	2123972, 2123973, 2123974
SM 9223 B Quanti-Tray	10/01/2019	10/01/2019 14:00		10/02/2019 11:24	UWF Lab	2123975, 2123976, 2123977, 2123978
SOP-PCR-1.0	10/02/2019	10/02/2019 14:00	Angela Smith	10/14/2019 12:26	Lauren Campbell	2123983, 2123984, 2123985
SOP-PCR-1.2	10/02/2019	10/02/2019 14:00	Angela Smith	10/23/2019 10:03	Mailin Lopez	2123983, 2123984
SOP-PCR-1.3	10/02/2019	10/02/2019 14:00	Lauren Campbell	11/01/2019 08:15	Mailin Lopez	2123983, 2123984
SOP-PCR-1.4	10/02/2019	10/02/2019 14:00	Angela Smith	10/14/2019 14:51	Lauren Campbell	2123983, 2123984
SOP-PCR-1.5	10/02/2019	10/02/2019 14:00	Angela Smith	10/15/2019 12:15	Lauren Campbell	2123983, 2123984