

Biological Analysis Report

NW-DIST-2019-07-09-02

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: **PENS/CANT RUN**
Request ID: **RQ-2019-07-08-32**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
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Pensacola, FL 32502-5794
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Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 06-AUG-2019 11:18



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: Jones Creek upstream of N Navy Blvd

Collection Date/Time: 07/08/2019 09:15

Field ID: G4NW0429

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2100799	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.5	I	ug/L	P367432	
		Phaeophytin-a	1.8	U	ug/L	P367432	
		Chlorophyll-a, Uncorrected	2.3	I	ug/L	P367432	
2100810	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	228		MPN/100 mL		
2100818	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P366693	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P366693	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	UJ	TSC/100 mL	P367347	MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P366693	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold			P366861	

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

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A92844

Sample Location: Jackson Creek upstream of Old Corry Field Road

Collection Date/Time: 07/08/2019 09:30

Field ID: G4NW0430

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2100813	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1081		MPN/100 mL		
2100819	SOP-PCR-1.0	HF183-qPCR**	530	I	GEU/100 mL	P366693	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold			P366861	

Sample Location: Carpenter Creek upstream of 9th Avenue

Collection Date/Time: 07/08/2019 10:00

Field ID: G4NW0415

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2100798	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.3	I	ug/L	P367432	
		Phaeophytin-a	0.90	U	ug/L	P367432	
		Chlorophyll-a, Uncorrected	1.2	I	ug/L	P367432	

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: Marcus Creek upstream of Marcus Pointe Blvd

Collection Date/Time: 07/08/2019 10:30

Field ID: G4NW0179

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2100800	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.4	U	ug/L	P367432	
		Phaeophytin-a	1.5	U	ug/L	P367432	
		Chlorophyll-a, Uncorrected	1.0	U	ug/L	P367432	
2100811	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	288		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: Direct Runoff-Graveyard Branch @ Tradewinds Dr

Collection Date/Time: 07/08/2019 11:35

Field ID: G4NW0176

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2100801	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.7	I	ug/L	P367432	
		Phaeophytin-a	0.92	U	ug/L	P367432	
		Chlorophyll-a, Uncorrected	1.5	I	ug/L	P367432	
2100812	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	762		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: Carpenter Creek upstream of 9th Avenue

Collection Date/Time: 07/10/2019 14:00

Field ID: G4NW0415

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2102887	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	537		MPN/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P367432

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.89	U	ug/L
Chlorophyll-a, Uncorrected	0.65	U	ug/L
Phaeophytin-a	0.98	U	ug/L

Reference Method: SOP-PCR-1.0

Batch ID: P366693

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

Reference Method: SOP-PCR-1.2

Batch ID: P366693

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

Reference Method: SOP-PCR-1.3

Batch ID: P367347

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

Reference Method: SOP-PCR-1.4

Batch ID: P366693

Component	Result	Code	Units
BacR-qPCR	3.0E+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: P367432

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	91.2		P	84 - 116

Reference Method: SOP-PCR-1.0
 Batch ID: P366693

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	131	174	P/P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P366693

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	220	197	P/P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P367347

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	106	54.0	P/P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P366693

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	96.9	71.0	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P366693

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098288	HF183-qPCR	105		P	50 - 175
2098810	HF183-qPCR	119		P	50 - 175
2098811	HF183-qPCR	115		P	50 - 175
2098812	HF183-qPCR	116		P	50 - 175
2098958	HF183-qPCR	102	97.5	P/P	50 - 175
2100818	HF183-qPCR	88.3		P	50 - 175
2100819	HF183-qPCR	117		P	50 - 175
2101175	HF183-qPCR	118		P	50 - 175
2101341	HF183-qPCR	107		P	50 - 175
2101342	HF183-qPCR	95.8		P	50 - 175
2101343	HF183-qPCR	101		P	50 - 175
2101411	HF183-qPCR	99.2		P	50 - 175
2101593	HF183-qPCR	79.5		P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P366693

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.2

Batch ID: P366693

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098288	GULL2-qPCR	175		P	50 - 300
2098810	GULL2-qPCR	121		P	50 - 300
2098811	GULL2-qPCR	177		P	50 - 300
2098812	GULL2-qPCR	178		P	50 - 300
2100818	GULL2-qPCR	124		P	50 - 300
2101175	GULL2-qPCR	146		P	50 - 300
2101593	GULL2-qPCR	164		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P367347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098288	GFD-purified-qPCR	204		F	50 - 175
2098810	GFD-purified-qPCR	170		P	50 - 175
2098811	GFD-purified-qPCR	217		F	50 - 175
2098812	GFD-purified-qPCR	204		F	50 - 175
2099579	GFD-purified-qPCR	195		F	50 - 175
2100818	GFD-purified-qPCR	221		F	50 - 175
2103315	GFD-purified-qPCR	247	230	F/F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P366693

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098288	BacR-qPCR	80.2		P	50 - 175
2098810	BacR-qPCR	80.4		P	50 - 175
2098811	BacR-qPCR	91.9		P	50 - 175
2098812	BacR-qPCR	89.9		P	50 - 175
2100818	BacR-qPCR	65.3		P	50 - 175
2101175	BacR-qPCR	85.9		P	50 - 175
2101341	BacR-qPCR	86.2		P	50 - 175
2101342	BacR-qPCR	70.6		P	50 - 175
2101343	BacR-qPCR	75.1		P	50 - 175
2101593	BacR-qPCR	68.9		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P367432

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2100690	Chlorophyll-a, Corrected	0.0496	Sample	P	0 - 25
2100690	Chlorophyll-a, Uncorrected	2.51	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0

Batch ID: P366693

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P366693

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098958	HF183-qPCR	4.53	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
 Batch ID: P366693

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101595	GULL2-qPCR	17.5	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P367347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2103315	GFD-purified-qPCR	7.21	Spike	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
 Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 2100818
 Field Sample ID: G4NW0429

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	76.3	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	78.9	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	83.8	P	50 - 300

Lab Sample ID: 2100819
 Field Sample ID: G4NW0430

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	98.6	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	91.2						0.0496	
	Chlorophyll-a, Uncorrected							2.51	
SOP-PCR-1.0	HF183-qPCR	174	131	119	115	116			4.53
				102					
SOP-PCR-1.2	GULL2-qPCR	197	220	121	177	178			17.5
				175					
SOP-PCR-1.3	GFD-purified-qPCR	54.0	106	247	230	204			7.21
				170					
SOP-PCR-1.4	BacR-qPCR	71.0	96.9	80.4	91.9	89.9			
				65.3					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2100798, 2100799, 2100800, 2100801
SM 9223 B Quanti-Tray / E71969	E. coli by Colilert-18/QT by UWF in Pensacola	2100810, 2100811, 2100812, 2100813, 2102887
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2100818, 2100819
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2100818
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2100818
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2100818
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2100818, 2100819

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	07/09/2019	07/09/2019 13:01	Yuliya Danyuk	07/17/2019 09:52	Yuliya Danyuk	2100798, 2100799, 2100800, 2100801
SM 9223 B Quanti-Tray	07/08/2019	07/08/2019 17:10		07/09/2019 14:18	UWF Lab	2100810, 2100811, 2100812, 2100813
	07/10/2019	07/10/2019 15:25		07/11/2019 11:10	UWF Lab	2102887
SOP-PCR-1.0	07/09/2019	07/09/2019 15:30	Sarah Menz	07/17/2019 08:29	Mailin Lopez	2100818, 2100819
SOP-PCR-1.2	07/09/2019	07/09/2019 15:30	Sarah Menz	07/18/2019 13:00	Mailin Lopez	2100818
SOP-PCR-1.3	07/09/2019	07/09/2019 15:30	Angela Smith	07/25/2019 11:09	Mailin Lopez	2100818
SOP-PCR-1.4	07/09/2019	07/09/2019 15:30	Sarah Menz	07/17/2019 14:49	Mailin Lopez	2100818
SOP-PCR-4.0	07/09/2019	07/09/2019 15:30	Angela Smith	07/15/2019 09:21	Sarah Menz	2100818, 2100819