

Biological Analysis Report

NE-DIST-2019-09-12-02

Florida Department of Environmental Protection
Central Laboratory
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

Overflow Analyses Performed By:
ALS Environmental - Jacksonville
9143 Philips Highway, Suite 200
Jacksonville, FL 32256
DOH Accreditation E82502

Event Description: **Suwannee North**
Request ID: **RQ-2019-09-02-32**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 21-OCT-2019 15:46



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: CANNON CR @ CANNON CR RD/BUSINESS
 PARK POINT W CR 47**

Collection Date/Time: 09/11/2019 11:00

Field ID: 21030138

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2118479	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	U	ug/L	P371936	
		Phaeophytin-a	1.8	U	ug/L	P371936	
		Chlorophyll-a, Uncorrected	1.2	U	ug/L	P371936	
2118502	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	2419.6	J	MPN/100 mL		
2118519	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P370477	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P370477	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	UJ	TSC/100 mL	P371838	MS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P370477	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P370477	

Ref. Method and Comment:

SM 10200 H (mod.): Lab dup result is 1.6 U for Chl-a Corrected, 1.2 U 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.

SM 9223 B Quanti-Tray: All Quanti-Tray wells were positive. Result may be higher than reported.

SOP-PCR-1.0: Precision data unavailable for Analysis Batch A94731

SOP-PCR-1.2: Precision data unavailable for Analysis Batch A95000

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

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A94809.

Sample Location: LITTLE CREEK AT US 441

Collection Date/Time: 09/11/2019 09:45

Field ID: 21010033

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2118480	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P371936	
		Phaeophytin-a	0.90	U	ug/L	P371936	
		Chlorophyll-a, Uncorrected	0.61	I	ug/L	P371936	
2118503	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	184		MPN/100 mL		
2118520	SOP-PCR-1.0	HF183-qPCR**	190	U	GEU/100 mL	P370477	
	SOP-PCR-1.2	GULL2-qPCR**	1.1E+04	U	TSC/100 mL	P370477	
	SOP-PCR-1.3	GFD-purified-qPCR**	110	UJ	TSC/100 mL	P371838	MS
	SOP-PCR-1.4	BacR-qPCR**	2.0E+03	UJ	TSC/100 mL	P370477	
	SOP-PCR-1.5	DG3-qPCR**	1.7E+03	UJ	TSC/100 mL	P370477	SUR

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: Precision data unavailable for Analysis Batch A94731

SOP-PCR-1.2: Precision data unavailable for Analysis Batch A95000

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

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A94744. Refer to the Lab Analysis Report for an explanation of QC Codes.

SOP-PCR-1.5: Quality control failure(s) observed. See QA report for details.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P371936

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: P370477

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

Reference Method: SOP-PCR-1.2
Batch ID: P370477

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

Reference Method: SOP-PCR-1.3
Batch ID: P371838

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

Reference Method: SOP-PCR-1.4
Batch ID: P370477

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

Reference Method: SOP-PCR-1.5
Batch ID: P370477

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: P371936

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	86.4		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P370477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	106	85.8	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P370477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	109	70.6	P/P	50 - 300

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.3
 Batch ID: P371838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	94.5	90.6	P/P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P370477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	132	65.3	P/P	50 - 175
BacR-qPCR	120	96.6	P/P	50 - 175

Reference Method: SOP-PCR-1.5
 Batch ID: P370477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	113	172	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P370477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118213	HF183-qPCR	87.2		P	50 - 175
2118307	HF183-qPCR	86.2		P	50 - 175
2118519	HF183-qPCR	82.3		P	50 - 175
2118520	HF183-qPCR	90.1		P	50 - 175
2119036	HF183-qPCR	91.8		P	50 - 175
2119037	HF183-qPCR	80.1		P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P370477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118519	GULL2-qPCR	82.6		P	50 - 300
2118520	GULL2-qPCR	85.7		P	50 - 300
2119036	GULL2-qPCR	87.8		P	50 - 300
2119037	GULL2-qPCR	65.5		P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P371838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117509	GFD-purified-qPCR	331		F	50 - 175
2117917	GFD-purified-qPCR	335		F	50 - 175
2118519	GFD-purified-qPCR	248		F	50 - 175
2118520	GFD-purified-qPCR	290		F	50 - 175
2119036	GFD-purified-qPCR	291		F	50 - 175
2119037	GFD-purified-qPCR	302		F	50 - 175
2119038	GFD-purified-qPCR	248		F	50 - 175
2119186	GFD-purified-qPCR	304		F	50 - 175
2124376	GFD-purified-qPCR	358		F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3

Batch ID: P371838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2124432	GFD-purified-qPCR	326		F	50 - 175
2124433	GFD-purified-qPCR	339		F	50 - 175
2124434	GFD-purified-qPCR	398		F	50 - 175
2124578	GFD-purified-qPCR	321	317	F/F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P370477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118213	BacR-qPCR	67.7		P	50 - 175
2118519	BacR-qPCR	81.6		P	50 - 175
2118520	BacR-qPCR	60.7		P	50 - 175
2119036	BacR-qPCR	98.0		P	50 - 175
2119037	BacR-qPCR	88.4		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P370477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117975	DG3-qPCR	109		P	50 - 175
2117976	DG3-qPCR	112		P	50 - 175
2117977	DG3-qPCR	111		P	50 - 175
2117978	DG3-qPCR	113	115	P/P	50 - 175
2117979	DG3-qPCR	101		P	50 - 175
2117981	DG3-qPCR	107		P	50 - 175
2118519	DG3-qPCR	103		P	50 - 175
2118520	DG3-qPCR	91.9		P	50 - 175
2119036	DG3-qPCR	124		P	50 - 175
2119037	DG3-qPCR	106		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.3

Batch ID: P371838

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2124578	GFD-purified-qPCR	1.35	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5

Batch ID: P370477

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117978	DG3-qPCR	1.71	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2118519
 Field Sample ID: 21030138

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	93.7	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	123	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	103	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	55.9	P	50 - 300

Lab Sample ID: 2118520
 Field Sample ID: 21010033

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	103	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	132	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	76.8	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	49.2	F	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	86.4							
SOP-PCR-1.0	HF183-qPCR	85.8	106	87.2	86.2	82.3			
				90.1					
SOP-PCR-1.2	GULL2-qPCR	70.6	109	82.6	85.7	87.8			
				65.5					
SOP-PCR-1.3	GFD-purified-qPCR	90.6	94.5	358	326	339			1.35
				398					
SOP-PCR-1.4	BacR-qPCR	132	96.6	120	81.6	67.7	60.7		
		65.3			98.0				
SOP-PCR-1.5	DG3-qPCR	172	113	109	112	111			1.71
				113					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2118479, 2118480
SM 9223 B Quanti-Tray / E82502	E. coli by Colilert/QT by ALS in Jacksonville	2118502, 2118503
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2118519, 2118520
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2118519, 2118520
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2118519, 2118520
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2118519, 2118520
SOP-PCR-1.5 / E31780	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2118519, 2118520

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	09/12/2019	09/12/2019 14:05	Yuliya Danyuk	09/17/2019 16:05	Yuliya Danyuk	2118479, 2118480
SM 9223 B Quanti-Tray	09/11/2019	09/11/2019 14:10		09/12/2019 15:15	ALS Environmental, Jax	2118502, 2118503
SOP-PCR-1.0	09/12/2019	09/12/2019 17:30	Angela Smith	10/04/2019 11:37	Lauren Campbell	2118519, 2118520
SOP-PCR-1.2	09/12/2019	09/12/2019 17:30	Angela Smith	10/16/2019 08:13	Mailin Lopez	2118519, 2118520
SOP-PCR-1.3	09/12/2019	09/12/2019 17:30	Angela Smith	10/17/2019 12:31	Mailin Lopez	2118519, 2118520
SOP-PCR-1.4	09/12/2019	09/12/2019 17:30	Angela Smith	10/04/2019 14:26	Lauren Campbell	2118520
	09/12/2019	09/12/2019 17:30	Angela Smith	10/08/2019 15:08	Lauren Campbell	2118519
SOP-PCR-1.5	09/12/2019	09/12/2019 17:30	Angela Smith	10/08/2019 12:19	Lauren Campbell	2118519, 2118520