Biological Analysis Report

NE-DIST-2019-08-07-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
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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-2019-08-05-22**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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8800 Baymeadows Way West
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Date Certified: 04-SEP-2019 12:49

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: 08/06/2019 13:55**

Field ID: 21030138 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2109106	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.91	I	ug/L	P368961	
		Phaeophytin-a	0.98	U	ug/L	P368961	
		Chlorophyll-a, Uncorrected	1.0	I	ug/L	P368961	
2109107	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	583		MPN/100 mL		
2109108	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P368498	MS
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P368498	LCS, MS
	SOP-PCR-1.3	GFD-purified-qPCR**	480	I	TSC/100 mL	P369452	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P368498	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P368498	

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: Duplicate was analyzed and result is 170 U.

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P368961

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: P368498

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

Reference Method: SOP-PCR-1.2
Batch ID: P368498

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

Reference Method: SOP-PCR-1.3
Batch ID: P369452

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

Reference Method: SOP-PCR-1.4
Batch ID: P368498

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

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.5
Batch ID: P368498

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: P368961

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	90.0		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P368498

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	88.3	99.4	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P368498

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	72.6	89.8	P/P	50 - 300
GULL2-qPCR	42.4	85.1	F/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P369452

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	55.0	45.1	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P368498

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	92.2	78.3	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P368498

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	94.7	84.8	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P368498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2109108	HF183-qPCR	70.3	79.4	P/P	50 - 175
2109152	HF183-qPCR	49.6		F	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P368498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2109426	HF183-qPCR	81.8		P	50 - 175
2109427	HF183-qPCR	89.2		P	50 - 175
2109428	HF183-qPCR	64.7		P	50 - 175
2109620	HF183-qPCR	60.5		P	50 - 175
2109621	HF183-qPCR	73.7		P	50 - 175
2109622	HF183-qPCR	93.7		P	50 - 175
2109623	HF183-qPCR	80.6		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P368498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108495	GULL2-qPCR	76.9		P	50 - 300
2108496	GULL2-qPCR	77.4		P	50 - 300
2108497	GULL2-qPCR	81.0		P	50 - 300
2109108	GULL2-qPCR	63.8	81.5	P/P	50 - 300
2109426	GULL2-qPCR	76.3		P	50 - 300
2109427	GULL2-qPCR	96.3		P	50 - 300
2109428	GULL2-qPCR	28.5		F	50 - 300
2109620	GULL2-qPCR	21.8		F	50 - 300
2109621	GULL2-qPCR	53.7		P	50 - 300
2109622	GULL2-qPCR	78.7		P	50 - 300
2109623	GULL2-qPCR	51.2		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P369452

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105159	GFD-purified-qPCR	194		F	50 - 175
2105231	GFD-purified-qPCR	123		P	50 - 175
2105233	GFD-purified-qPCR	136		P	50 - 175
2105879	GFD-purified-qPCR	180		F	50 - 175
2108088	GFD-purified-qPCR	186		F	50 - 175
2109108	GFD-purified-qPCR	160	174	P/P	50 - 175
2109620	GFD-purified-qPCR	154		P	50 - 175
2109621	GFD-purified-qPCR	139		P	50 - 175
2109622	GFD-purified-qPCR	206		F	50 - 175
2109623	GFD-purified-qPCR	139		P	50 - 175
2109797	GFD-purified-qPCR	149		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P368498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2109108	BacR-qPCR	77.0	75.6	P/P	50 - 175
2109152	BacR-qPCR	57.9		P	50 - 175
2109426	BacR-qPCR	80.5		P	50 - 175
2109427	BacR-qPCR	80.3		P	50 - 175
2109428	BacR-qPCR	59.5		P	50 - 175
2109620	BacR-qPCR	53.4		P	50 - 175
2109621	BacR-qPCR	64.0		P	50 - 175
2109622	BacR-qPCR	83.1		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P368498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2109623	BacR-qPCR	68.7		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P368498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108006	DG3-qPCR	88.7		P	50 - 175
2108495	DG3-qPCR	90.9		P	50 - 175
2108496	DG3-qPCR	92.2		P	50 - 175
2108497	DG3-qPCR	82.6		P	50 - 175
2109108	DG3-qPCR	94.4	83.8	P/P	50 - 175
2109426	DG3-qPCR	90.5		P	50 - 175
2109427	DG3-qPCR	91.5		P	50 - 175
2109428	DG3-qPCR	79.3		P	50 - 175
2109620	DG3-qPCR	79.8		P	50 - 175
2109621	DG3-qPCR	79.9		P	50 - 175
2109622	DG3-qPCR	92.6		P	50 - 175
2109623	DG3-qPCR	91.7		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P368961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109092	Chlorophyll-a, Corrected	7.34	Sample	P	0 - 25
2109092	Chlorophyll-a, Uncorrected	9.59	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P368498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109108	HF183-qPCR	12.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P368498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109108	GULL2-qPCR	24.4	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P369452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109108	GFD-purified-qPCR	8.14	Spike	P	0 - 25

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.4
Batch ID: P368498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109108	BacR-qPCR	1.84	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P368498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109108	DG3-qPCR	12.0	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: 2109108
Field Sample ID: 21030138

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	115	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	108	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	150	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	107	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	90.0			7.34	
	Chlorophyll-a, Uncorrected				9.59	
SOP-PCR-1.0	HF183-qPCR	99.4 88.3	70.3 79.4 49.6 81.8			12.1
SOP-PCR-1.2	GULL2-qPCR	72.6 85.1 42.4 89.8	76.9 77.4 81.0 76.3			24.4
SOP-PCR-1.3	GFD-purified-qPCR	45.1 55.0	123 136 180 160			8.14
SOP-PCR-1.4	BacR-qPCR	78.3 92.2	77.0 75.6 57.9 80.5			1.84
SOP-PCR-1.5	DG3-qPCR	84.8 94.7	90.9 92.2 82.6 88.7			12.0

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2109106
SM 9223 B Quanti-Tray / E82502	E. coli by Colilert/QT by ALS in Jacksonville	2109107
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2109108

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2109108
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2109108
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2109108
SOP-PCR-1.5 / E31780	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2109108

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	08/07/2019	08/07/2019 12:00	Peterson Janvier	08/13/2019 11:08	Yuliya Danyuk	2109106
SM 9223 B Quanti-Tray	08/06/2019	08/06/2019 16:14		08/07/2019 16:22	ALS Environmental, Jax	2109107
SOP-PCR-1.0	08/07/2019	08/07/2019 16:00	Sarah Menz	08/20/2019 08:20	Mailin Lopez	2109108
SOP-PCR-1.2	08/07/2019	08/07/2019 16:00	Sarah Menz	08/22/2019 11:54	Mailin Lopez	2109108
SOP-PCR-1.3	08/07/2019	08/07/2019 16:00	Mailin Lopez	08/27/2019 08:19	Mailin Lopez	2109108
SOP-PCR-1.4	08/07/2019	08/07/2019 16:00	Sarah Menz	08/21/2019 12:09	Mailin Lopez	2109108
SOP-PCR-1.5	08/07/2019	08/07/2019 16:00	Sarah Menz	08/21/2019 14:57	Mailin Lopez	2109108