Biological Analysis Report

NE-DIST-2019-08-28-01

Florida Department of Environmental Protection
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DOH Accreditation E31780

Overflow Analyses Performed By:
Advanced Environmental Laboratories - Gainesville
6815 SW Archer Road
Gainesville, Florida 32608
DOH Accreditation E82001

Event Description: **Alachua County August SMP**
Request ID: **RQ-2019-08-05-90**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 10-OCT-2019 11:10

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: Hogtown Creek - North of CR 30 **Collection Date/Time: 08/27/2019 10:15**

Field ID: G1NE0901 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115103	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.4	I	ug/L	P370187	
		Phaeophytin-a	1.5	U	ug/L	P370187	
		Chlorophyll-a, Uncorrected	1.6	I	ug/L	P370187	
2115105	EPA 1603	Escherichia coli-Membrane Filter	870	B	cfu/100 mL		
2115107	SOP-PCR-1.0	HF183-qPCR**	410	I	GEU/100 mL	P369828	
	SOP-PCR-1.4	BacR-qPCR**	2.5E+03	I	TSC/100 mL	P369828	
	SOP-PCR-1.5	DG3-qPCR**	2.0E+03	I	TSC/100 mL	P369828	

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 A94297.
SOP-PCR-1.4: Precision data unavailable for Analysis Batch A94447

Sample Location: Hogtown Creek - Ring Park, N of NW 16th Ave **Collection Date/Time: 08/27/2019 11:10**

Field ID: G1NE0912 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115104	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.4	I	ug/L	P370187	
		Phaeophytin-a	1.6	I	ug/L	P370187	
		Chlorophyll-a, Uncorrected	3.5		ug/L	P370187	
2115106	EPA 1603	Escherichia coli-Membrane Filter	770		cfu/100 mL		
2115108	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P369832	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P369832	MS
	SOP-PCR-1.3	GFD-purified-qPCR**	500	I J	TSC/100 mL	P371426	MS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P369832	RPD
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P369832	LCS

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-1.5: Precision data unavailable for analysis batch A94654.

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P370187

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.69	U	ug/L
Chlorophyll-a, Uncorrected	0.50	U	ug/L
Phaeophytin-a	0.75	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P369828

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

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P369832

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

Reference Method: SOP-PCR-1.2
Batch ID: P369832

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

Reference Method: SOP-PCR-1.3
Batch ID: P371426

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

Reference Method: SOP-PCR-1.4
Batch ID: P369828

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

Reference Method: SOP-PCR-1.4
Batch ID: P369832

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

Reference Method: SOP-PCR-1.5
Batch ID: P369828

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

Reference Method: SOP-PCR-1.5
Batch ID: P369832

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: P370187

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	90.8		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P369828

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P369828

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	148	166	P/P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P369832

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	139	167	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P369832

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	217	99.2	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P371426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	81.0	135	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P369828

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	136	171	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P369832

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	96.4	106	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P369828

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	99.5	154	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P369832

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	19.5	137	F/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P369828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P369828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115107	HF183-qPCR	121		P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P369832

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115108	HF183-qPCR	103		P	50 - 175
2115210	HF183-qPCR	115		P	50 - 175
2115211	HF183-qPCR	93.6		P	50 - 175
2115354	HF183-qPCR	131		P	50 - 175
2115355	HF183-qPCR	111		P	50 - 175
2115356	HF183-qPCR	115		P	50 - 175
2115357	HF183-qPCR	120	120	P/P	50 - 175
2115358	HF183-qPCR	120		P	50 - 175
2115563	HF183-qPCR	104		P	50 - 175
2115564	HF183-qPCR	102		P	50 - 175
2115732	HF183-qPCR	112		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P369832

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115108	GULL2-qPCR	144		P	50 - 300
2115210	GULL2-qPCR	119		P	50 - 300
2115211	GULL2-qPCR	56.0		P	50 - 300
2115354	GULL2-qPCR	114		P	50 - 300
2115355	GULL2-qPCR	107		P	50 - 300
2115356	GULL2-qPCR	123		P	50 - 300
2115357	GULL2-qPCR	139	124	P/P	50 - 300
2115358	GULL2-qPCR	318		F	50 - 300
2115732	GULL2-qPCR	171		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P371426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115108	GFD-purified-qPCR	326		F	50 - 175
2115210	GFD-purified-qPCR	243		F	50 - 175
2115211	GFD-purified-qPCR	242		F	50 - 175
2116588	GFD-purified-qPCR	424		F	50 - 175
2122833	GFD-purified-qPCR	421		F	50 - 175
2122834	GFD-purified-qPCR	394		F	50 - 175
2122835	GFD-purified-qPCR	387		F	50 - 175
2122836	GFD-purified-qPCR	405		F	50 - 175
2122837	GFD-purified-qPCR	394		F	50 - 175
2123301	GFD-purified-qPCR	414		F	50 - 175
2123302	GFD-purified-qPCR	340		F	50 - 175
2123303	GFD-purified-qPCR	369		F	50 - 175
2123304	GFD-purified-qPCR	421	386	F/F	50 - 175
2123305	GFD-purified-qPCR	325		F	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P369828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115107	BacR-qPCR	89.6		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P369832

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115108	BacR-qPCR	50.8		P	50 - 175
2115210	BacR-qPCR	72.0		P	50 - 175
2115211	BacR-qPCR	56.1		P	50 - 175
2115354	BacR-qPCR	87.3		P	50 - 175
2115355	BacR-qPCR	74.0		P	50 - 175
2115356	BacR-qPCR	84.9		P	50 - 175
2115357	BacR-qPCR	104	74.4	P/P	50 - 175
2115358	BacR-qPCR	75.4		P	50 - 175
2115563	BacR-qPCR	54.5		P	50 - 175
2115564	BacR-qPCR	61.9		P	50 - 175
2115732	BacR-qPCR	65.2		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P369828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115107	DG3-qPCR	70.1		P	50 - 175
2115221	DG3-qPCR	82.5		P	50 - 175
2115222	DG3-qPCR	71.9		P	50 - 175
2115223	DG3-qPCR	69.6		P	50 - 175
2115224	DG3-qPCR	71.7		P	50 - 175
2115225	DG3-qPCR	71.2		P	50 - 175
2115226	DG3-qPCR	75.1		P	50 - 175
2115227	DG3-qPCR	71.3	76.0	P/P	50 - 175
2115228	DG3-qPCR	66.8		P	50 - 175
2115229	DG3-qPCR	63.3		P	50 - 175
2115230	DG3-qPCR	60.7		P	50 - 175
2115231	DG3-qPCR	70.8		P	50 - 175
2115243	DG3-qPCR	71.5		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P369832

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115108	DG3-qPCR	120		P	50 - 175
2115210	DG3-qPCR	119		P	50 - 175
2115211	DG3-qPCR	107		P	50 - 175
2115571	DG3-qPCR	117		P	50 - 175
2115572	DG3-qPCR	128		P	50 - 175

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P370187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115118	Chlorophyll-a, Corrected	0.282	Sample	P	0 - 25
2115118	Chlorophyll-a, Uncorrected	0.428	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P369832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115357	HF183-qPCR	0.0939	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P369832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115357	GULL2-qPCR	11.4	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P371426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123304	GFD-purified-qPCR	8.61	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P369832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115357	BacR-qPCR	33.5	Spike	F	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P369828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115227	DG3-qPCR	6.46	Spike	P	0 - 25

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2115107
Field Sample ID: G1NE0901

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	104	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	81.6	P	50 - 300

Quality Assurance Report
Surrogates

Lab Sample ID: 2115107
Field Sample ID: G1NE0901

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.5	SKETA-qPCR	89.0	P	50 - 300

Lab Sample ID: 2115108
Field Sample ID: G1NE0912

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	122	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	103	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	54.0	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	88.9	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	90.8			0.282	
	Chlorophyll-a, Uncorrected				0.428	
SOP-PCR-1.0	HF183-qPCR	166 148	121			
	HF183-qPCR	167 139	115 93.6 131 111			0.0939
SOP-PCR-1.2	GULL2-qPCR	99.2 217	119 56.0 114 123			11.4
SOP-PCR-1.3	GFD-purified-qPCR	135 81.0	424 421 394 387			8.61
SOP-PCR-1.4	BacR-qPCR	171 136	89.6			
	BacR-qPCR	106 96.4	72.0 56.1 87.3 74.0			33.5
SOP-PCR-1.5	DG3-qPCR	154 99.5	82.5 71.9 69.6 71.7			6.46
	DG3-qPCR	137 19.5	119 107 120 117			

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E82001	E. coli by MF by AEL in Gainesville	2115105, 2115106
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2115103, 2115104
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2115107, 2115108
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2115108
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2115108
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2115107, 2115108
SOP-PCR-1.5 / E31780	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2115107, 2115108

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	08/27/2019	08/27/2019 14:45		08/28/2019 12:45	AEL - Gainesville	2115105, 2115106
SM 10200 H (mod.)	08/28/2019	08/28/2019 13:40	Peterson Janvier	09/04/2019 15:07	Peterson Janvier	2115103, 2115104
SOP-PCR-1.0	08/28/2019	08/28/2019 13:30	Mailin Lopez	09/17/2019 15:14	Mailin Lopez	2115107
	08/28/2019	08/28/2019 13:30	Mailin Lopez	09/26/2019 14:57	Mailin Lopez	2115108
SOP-PCR-1.2	08/28/2019	08/28/2019 13:30	Mailin Lopez	10/03/2019 12:28	Mailin Lopez	2115108
SOP-PCR-1.3	08/28/2019	08/28/2019 13:30	Mailin Lopez	10/07/2019 12:27	Mailin Lopez	2115108
SOP-PCR-1.4	08/28/2019	08/28/2019 13:30	Mailin Lopez	09/23/2019 14:03	Mailin Lopez	2115107
	08/28/2019	08/28/2019 13:30	Mailin Lopez	09/27/2019 14:30	Lauren Campbell	2115108
SOP-PCR-1.5	08/28/2019	08/28/2019 13:30	Mailin Lopez	09/25/2019 09:55	Mailin Lopez	2115107
	08/28/2019	08/28/2019 13:30	Mailin Lopez	10/01/2019 14:19	Lauren Campbell	2115108