Biological Analysis Report

NE-DIST-2018-05-03-01

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

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

Event Description: **Gville_2018**
Request ID: **RQ-2018-04-23-21**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 15-JUN-2018 13:58

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 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: LAKE ALICE CENTER **Collection Date/Time: 05/02/2018 12:30**

Field ID: 20020052 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1989769	SM 10200 H (mod.)	Chlorophyll-a, Corrected	15		ug/L	P345274	RPD
		Phaeophytin-a	1.2	I	ug/L	P345274	RPD
		Chlorophyll-a, Uncorrected	16		ug/L	P345274	
1989776	EPA 1603	Escherichia coli-Membrane Filter	20	U	cfu/100 mL		

Sample Location: LAKE ALICE OUTLET @ NEWELL **Collection Date/Time: 05/02/2018 11:30**

Field ID: G1NE0898 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1989768	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.65	I	ug/L	P345274	RPD
		Phaeophytin-a	0.45	U	ug/L	P345274	RPD
		Chlorophyll-a, Uncorrected	0.59	I	ug/L	P345274	
1989775	EPA 1603	Escherichia coli-Membrane Filter	1600	B	cfu/100 mL		
1989783	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P345731	
	SOP-PCR-1.2	GULL2-qPCR**	5.6E+03	U	TSC/100 mL	P345731	
	SOP-PCR-1.3	GFD-purified-qPCR**	110	U	TSC/100 mL	P346466	LCS, RPD
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P345731	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
SOP-PCR-1.2: Precision data unavailable for Analytical Batch A84421

Sample Location: LAKE KANAPAHA~300M N OF 56TH **Collection Date/Time: 05/02/2018 13:00**

Field ID: 20030925 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1989770	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.1		ug/L	P345274	RPD
		Phaeophytin-a	1.2		ug/L	P345274	RPD
		Chlorophyll-a, Uncorrected	3.9		ug/L	P345274	
1989777	EPA 1603	Escherichia coli-Membrane Filter	10	U	cfu/100 mL		

Sample Location: LITTLE HATCHETT CR @ SR 24 **Collection Date/Time: 05/02/2018 09:40**

Field ID: 20020109 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1989773	EPA 1603	Escherichia coli-Membrane Filter	360		cfu/100 mL		
1989782	SOP-PCR-1.0	HF183-qPCR**	800	I	GEU/100 mL	P344387	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P345274

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P345274

Component	Result	Code	Units
Phaeophytin-a	0.40	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P344387

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

Reference Method: SOP-PCR-1.0
Batch ID: P345731

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

Reference Method: SOP-PCR-1.2
Batch ID: P345731

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

Reference Method: SOP-PCR-1.3
Batch ID: P346466

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

Reference Method: SOP-PCR-1.4
Batch ID: P345731

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P345274

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	90.2		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P344387

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	116	119	P/P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P345731

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P345731

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	104	133	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P345731

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	134	65.9	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P346466

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	95.5	28.2	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P345731

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	126	65.2	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P344387

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984442	HF183-qPCR	107		P	50 - 175
1984444	HF183-qPCR	103		P	50 - 175
1984445	HF183-qPCR	98.1		P	50 - 175
1989511	HF183-qPCR	96.3		P	50 - 175
1989512	HF183-qPCR	100		P	50 - 175
1989513	HF183-qPCR	97.8		P	50 - 175
1989514	HF183-qPCR	105	105	P/P	50 - 175
1989515	HF183-qPCR	76.5		P	50 - 175
1989516	HF183-qPCR	74.8		P	50 - 175
1989517	HF183-qPCR	78.6		P	50 - 175
1989782	HF183-qPCR	101		P	50 - 175
1989903	HF183-qPCR	97.0		P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P345731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989286	HF183-qPCR	91.2		P	50 - 175
1989729	HF183-qPCR	104		P	50 - 175
1989783	HF183-qPCR	96.8		P	50 - 175
1989842	HF183-qPCR	88.9		P	50 - 175
1989843	HF183-qPCR	101		P	50 - 175
1990326	HF183-qPCR	100		P	50 - 175
1990874	HF183-qPCR	93.6		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P345731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992743	HF183-qPCR	110		P	50 - 175
1992751	HF183-qPCR	93.8		P	50 - 175
1995147	HF183-qPCR	100		P	50 - 175
1995437	HF183-qPCR	92.2		P	50 - 175
1995445	HF183-qPCR	100	98.1	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P345731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989729	GULL2-qPCR	112		P	50 - 300
1989783	GULL2-qPCR	141		P	50 - 300
1989842	GULL2-qPCR	97.4		P	50 - 300
1989843	GULL2-qPCR	115		P	50 - 300
1990326	GULL2-qPCR	108		P	50 - 300
1992743	GULL2-qPCR	105		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P346466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989729	GFD-purified-qPCR	93.1		P	50 - 175
1989783	GFD-purified-qPCR	93.1		P	50 - 175
1989842	GFD-purified-qPCR	69.1		P	50 - 175
1989843	GFD-purified-qPCR	87.0		P	50 - 175
1990326	GFD-purified-qPCR	75.3		P	50 - 175
1990878	GFD-purified-qPCR	90.5		P	50 - 175
1990879	GFD-purified-qPCR	90.9		P	50 - 175
1992313	GFD-purified-qPCR	86.6		P	50 - 175
1992498	GFD-purified-qPCR	53.0	147	P/P	50 - 175
1992743	GFD-purified-qPCR	58.9		P	50 - 175
1993440	GFD-purified-qPCR	81.5		P	50 - 175
1993454	GFD-purified-qPCR	55.9		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P345731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989286	BacR-qPCR	64.3		P	50 - 175
1989729	BacR-qPCR	132		P	50 - 175
1989783	BacR-qPCR	99.9		P	50 - 175
1989842	BacR-qPCR	67.4		P	50 - 175
1989843	BacR-qPCR	90.2		P	50 - 175
1990326	BacR-qPCR	86.9		P	50 - 175
1992743	BacR-qPCR	89.7		P	50 - 175
1995127	BacR-qPCR	69.7		P	50 - 175
1995445	BacR-qPCR	51.0	55.2	P/P	50 - 175

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P345274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989772	Chlorophyll-a, Corrected	75.9	Sample	F	0 - 25
1989772	Chlorophyll-a, Uncorrected	1.62	Sample	P	0 - 25
1989772	Phaeophytin-a	124	Sample	F	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P344387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989514	HF183-qPCR	0.553	Spike	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P345731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995445	HF183-qPCR	2.16	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P346466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992498	GFD-purified-qPCR	94.0	Spike	F	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P345731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995445	BacR-qPCR	7.52	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: 1989782
Field Sample ID: 20020109

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	123	P	50 - 300

Lab Sample ID: 1989783
Field Sample ID: G1NE0898

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	140	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	101	P	50 - 300

Quality Assurance Report
Surrogates

Lab Sample ID: 1989783
Field Sample ID: G1NE0898

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	138	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	90.2			75.9	
	Chlorophyll-a, Uncorrected				1.62	
	Phaeophytin-a				124	
SOP-PCR-1.0	HF183-qPCR	119 116	107 103 98.1 96.3			0.553
	HF183-qPCR	133 104	91.2 104 88.9 101			2.16
SOP-PCR-1.2	GULL2-qPCR	65.9 134	112 97.4 115 108			
SOP-PCR-1.3	GFD-purified-qPCR	28.2 95.5	93.1 93.1 69.1 87.0			94.0
SOP-PCR-1.4	BacR-qPCR	65.2 126	64.3 132 67.4 90.2			7.52

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E82001	Escherichia coli by membrane filter method using modified mTEC by Advanced Environmental Gainesville Overflow Laboratories for NED	1989773, 1989775, 1989776, 1989777
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1989768, 1989769, 1989770
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1989782, 1989783
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1989783
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1989783
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1989783
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1989782, 1989783

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	05/02/2018	05/02/2018 17:22		05/03/2018 19:00	AEL - Gainesville	1989773, 1989775, 1989776, 1989777
SM 10200 H (mod.)	05/03/2018	05/03/2018 14:20	Edwin Gonzalez-Soto	05/09/2018 09:05	Carina A. Tull	1989768, 1989769, 1989770
SOP-PCR-1.0	05/03/2018	05/03/2018 12:45	Puja Jasrotia	05/04/2018 13:01	Mailin Lopez	1989782
	05/03/2018	05/03/2018 12:45	Puja Jasrotia	06/01/2018 08:57	Mailin Lopez	1989783
SOP-PCR-1.2	05/03/2018	05/03/2018 12:45	Puja Jasrotia	06/07/2018 10:05	Mailin Lopez	1989783
SOP-PCR-1.3	05/03/2018	05/03/2018 12:45	Sarah Menz	06/11/2018 15:16	Sarah Menz	1989783
SOP-PCR-1.4	05/03/2018	05/03/2018 12:45	Puja Jasrotia	06/01/2018 17:12	Mailin Lopez	1989783
SOP-PCR-4.0	05/03/2018	05/03/2018 12:45	Angela Smith	05/31/2018 09:11	Puja Jasrotia	1989782, 1989783