

Biological Analysis Report

NE-DIST-2017-02-09-02

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

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

Event Description: **Gainesville 1**
Request ID: **RQ-2017-02-06-17**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Daisys Matthews,

Date Certified: 16-MAR-2017 08:19

A handwritten signature in black ink that reads "D Matthews". The signature is written in a cursive style with a large, stylized "D" and a clear, legible "Matthews".

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: Little Hatchett Creek @ SR 24

Collection Date/Time: 02/08/2017 09:50

Field ID: G1NE0083

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1871163	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.0		ug/L	P319878	
		Phaeophytin-a	0.97	I	ug/L	P319878	
		Chlorophyll/Phaeophytin Ratio	1.5			P319878	
		Chlorophyll-a, Uncorrected	2.7		ug/L	P319878	
1871231	EPA 1603	Escherichia coli-Membrane Filter	1820	B	cfu/100 mL		
1871240	SOP-PCR-1.0	HF183-qPCR**	92	T	GEU/100 mL	P320541	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Blues Creek @ NW 71st St. Gainesville

Collection Date/Time: 02/08/2017 10:15

Field ID: 21030089 02082017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1871164	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.75	I	ug/L	P319878	
		Phaeophytin-a	0.40	U	ug/L	P319878	
		Chlorophyll/Phaeophytin Ratio	1.6			P319878	
		Chlorophyll-a, Uncorrected	0.85	I	ug/L	P319878	
1871232	EPA 1603	Escherichia coli-Membrane Filter	916	B	cfu/100 mL		
1871241	SOP-PCR-1.0	HF183-qPCR**	37	T	GEU/100 mL	P320541	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Tumblin Creek @ SW 14TH

Collection Date/Time: 02/08/2017 10:55

Field ID: G1NE0856 02082017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1871165	SM 10200 H (mod.)	Chlorophyll-a, Corrected	26		ug/L	P319878	
		Phaeophytin-a	0.66	I	ug/L	P319878	
		Chlorophyll/Phaeophytin Ratio	1.7			P319878	
		Chlorophyll-a, Uncorrected	27		ug/L	P319878	
1871233	EPA 1603	Escherichia coli-Membrane Filter	1190	B	cfu/100 mL		
1871242	SOP-PCR-1.0	HF183-qPCR**	250	I	GEU/100 mL	P320541	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Lake Alice Outlet @ Gale Lemmeron Rd.

Collection Date/Time: 02/08/2017 11:15

Field ID: G1NE0206 02082017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1871166	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.9		ug/L	P319878	
		Phaeophytin-a	2.0		ug/L	P319878	
		Chlorophyll/Phaeophytin Ratio	1.5			P319878	
		Chlorophyll-a, Uncorrected	8.4		ug/L	P319878	
1871234	EPA 1603	Escherichia coli-Membrane Filter	1340	B	cfu/100 mL		
1871243	SOP-PCR-1.0	HF183-qPCR**	84	T	GEU/100 mL	P320541	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Hogtown Creek @ SW 20th Ave.

Collection Date/Time: 02/08/2017 11:45

Field ID: G1NE0871 02082017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1871239	EPA 1603	Escherichia coli-Membrane Filter	632	B	cfu/100 mL		
1871248	SOP-PCR-1.0	HF183-qPCR**	87	T	GEU/100 mL	P320541	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P319878

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

Reference Method: SOP-PCR-1.0

Batch ID: P320541

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)

Batch ID: P319878

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	93.1		P	84 - 116

Reference Method: SOP-PCR-1.0

Batch ID: P320541

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	81.9	105	P/P	50 - 175
HF183-qPCR	97.1	82.5	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P320541

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1871240	HF183-qPCR	73.4		P	50 - 175
1871241	HF183-qPCR	95.2		P	50 - 175
1871242	HF183-qPCR	93.4		P	50 - 175
1871243	HF183-qPCR	61.8		P	50 - 175
1871248	HF183-qPCR	65.9		P	50 - 175
1872963	HF183-qPCR	86.1	86.6	P/P	50 - 175
1872964	HF183-qPCR	85.5		P	50 - 175
1872965	HF183-qPCR	90.8		P	50 - 175
1875946	HF183-qPCR	73.0		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P320541

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875947	HF183-qPCR	84.6		P	50 - 175
1875948	HF183-qPCR	107		P	50 - 175
1875949	HF183-qPCR	81.9		P	50 - 175
1875950	HF183-qPCR	84.7		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P319878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1871105	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1871105	Chlorophyll-a, Corrected	6.11	Sample	P	0 - 25
1871105	Chlorophyll-a, Uncorrected	5.32	Sample	P	0 - 25
1871105	Phaeophytin-a	5.03	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P320541

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1872963	HF183-qPCR	0.524	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: 1871240
Field Sample ID: G1NE0083

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	84.1	P	50 - 300

Lab Sample ID: 1871241
Field Sample ID: 21030089 02082017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	100	P	50 - 300

Lab Sample ID: 1871242
Field Sample ID: G1NE0856 02082017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	87.2	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 1871243
Field Sample ID: G1NE0206 02082017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	88.0	P	50 - 300

Lab Sample ID: 1871248
Field Sample ID: G1NE0871 02082017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	53.4	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio								0.0	
	Chlorophyll-a, Corrected	93.1							6.11	
	Chlorophyll-a, Uncorrected								5.32	
	Phaeophytin-a								5.03	
SOP-PCR-1.0	HF183-qPCR	81.9	82.5	97.1	73.4	95.2	93.4			0.524
		105			61.8					

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	1871231, 1871232, 1871233, 1871234, 1871239
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1871163, 1871164, 1871165, 1871166
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1871240, 1871241, 1871242, 1871243, 1871248
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1871240, 1871241, 1871242, 1871243, 1871248

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	02/08/2017			02/08/2017 17:25	AEL - Gainesville	1871231, 1871232, 1871233, 1871234, 1871239
SM 10200 H (mod.)	02/09/2017	02/09/2017 13:45	Carina A. Tull	02/14/2017	Brian Cumbie	1871163, 1871164, 1871165, 1871166
SOP-PCR-1.0	02/09/2017	02/09/2017 13:00	Daisys Matthews	03/02/2017	Sarah Menz	1871240, 1871241, 1871242, 1871243, 1871248
SOP-PCR-4.0	02/09/2017	02/09/2017 13:00	Avril Wood	02/24/2017	Daisys Matthews	1871240, 1871241, 1871242, 1871243, 1871248