

Biological Analysis Report

NE-DIST-2017-08-30-01

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 2**
Request ID: **RQ-2017-08-28-09**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 10-JAN-2018 16:06



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: Hatchett Crk @ SR 26

Collection Date/Time: 08/29/2017 09:30

Field ID: G1NE0096 08282017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1926376	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P331609	
		Phaeophytin-a	0.40	U	ug/L	P331609	
		Chlorophyll-a, Uncorrected	0.45	I	ug/L	P331609	
1926377	EPA 1603	Escherichia coli-Membrane Filter	333		cfu/100 mL		

Sample Location: Hatchett Crk @ SR 26

Collection Date/Time: 08/29/2017 09:30

Field ID: G1NE0096 08282017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1926394	SOP-PCR-1.0	HF183-purified-qPCR**	16	UJ	GEU/100 mL	P331151	LCS, SUR
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of PURHF marker. Quality control failure(s) observed. See QA report for details.

Sample Location: Lake Forest Crk @ University Ave.

Collection Date/Time: 08/29/2017 09:50

Field ID: G1NE0098 08282017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1926374	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P331609	
		Phaeophytin-a	0.40	U	ug/L	P331609	
		Chlorophyll-a, Uncorrected	0.49	I	ug/L	P331609	

Sample Location: Lake Forest Crk @ University Ave.

Collection Date/Time: 08/29/2017 09:50

Field ID: G1NE0098 08282017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1926379	EPA 1603	Escherichia coli-Membrane Filter	450		cfu/100 mL		
1926395	SOP-PCR-1.0	HF183-qPCR**	170	T	GEU/100 mL	P330991	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Sweetwater Creek above wetland

Collection Date/Time: 08/29/2017 10:45

Field ID: G1NE0001 08282017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1926380	EPA 1603	Escherichia coli-Membrane Filter	410		cfu/100 mL		
1926396	SOP-PCR-1.0	HF183-qPCR**	130	I	GEU/100 mL	P330991	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Bivens Arm Outlet @ SR 331

Collection Date/Time: 08/29/2017 11:05

Field ID: G1NE0208 08282017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1926375	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.1		ug/L	P331609	
		Phaeophytin-a	0.40	U	ug/L	P331609	
		Chlorophyll-a, Uncorrected	7.3		ug/L	P331609	

Sample Location: Sweetwater Creek above wetland

Collection Date/Time: 08/29/2017 10:50

Field ID: G1NE0001 08282017 DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1926397	SOP-PCR-1.0	HF183-qPCR**	190	I	GEU/100 mL	P330991	

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P331609

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: P330991

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

Reference Method: SOP-PCR-1.0
Batch ID: P331151

Component	Result	Code	Units
HF183-purified-qPCR	47	U	GEU/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P331609

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	108		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P330991

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	98.1	97.1	P/P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P331151

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-purified-qPCR	112	1.92	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P330991

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1925978	HF183-qPCR	110		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P330991

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1925979	HF183-qPCR	87.1		P	50 - 175
1925981	HF183-qPCR	95.9	86.5	P/P	50 - 175
1925982	HF183-qPCR	84.3		P	50 - 175
1925983	HF183-qPCR	99.9		P	50 - 175
1925984	HF183-qPCR	89.6		P	50 - 175
1926251	HF183-qPCR	74.2		P	50 - 175
1926395	HF183-qPCR	84.4		P	50 - 175
1926396	HF183-qPCR	86.9		P	50 - 175
1926397	HF183-qPCR	96.6		P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P331151

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920846	HF183-purified-qPCR	104		P	50 - 175
1925833	HF183-purified-qPCR	103		P	50 - 175
1926394	HF183-purified-qPCR	97.7		P	50 - 175
1928591	HF183-purified-qPCR	110	101	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P331609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926231	Chlorophyll-a, Corrected	5.56	Sample	P	0 - 25
1926231	Chlorophyll-a, Uncorrected	5.44	Sample	P	0 - 25
1926231	Phaeophytin-a	4.48	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P330991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1925981	HF183-qPCR	10.3	Spike	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P331151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928591	HF183-purified-qPCR	7.76	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

Quality Assurance Report Surrogates

Lab Sample ID: 1926394
Field Sample ID: G1NE0096 08282017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	6.88	F	30 - 300

Lab Sample ID: 1926395
Field Sample ID: G1NE0098 08282017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	76.3	P	50 - 300

Lab Sample ID: 1926396
Field Sample ID: G1NE0001 08282017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	78.1	P	50 - 300

Lab Sample ID: 1926397
Field Sample ID: G1NE0001 08282017 DUPLICATE

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	88.7	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	108			5.56	
	Chlorophyll-a, Uncorrected				5.44	
	Phaeophytin-a				4.48	
SOP-PCR-1.0	HF183-purified-qPCR	1.92 112	103 97.7 104			7.76
			110			
	HF183-qPCR	97.1 98.1	110 87.1 95.9			10.3
			86.5			

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	1926377, 1926379, 1926380
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1926374, 1926375, 1926376
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1926394
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1926395, 1926396, 1926397
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1926394, 1926395, 1926396

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	08/29/2017	08/29/2017 15:50		08/30/2017 15:30	AEL - Gainesville	1926377, 1926379, 1926380
SM 10200 H (mod.)	08/30/2017	08/30/2017 13:51	Elizabeth Lovern	09/13/2017	Kim M. Spencer	1926374, 1926375, 1926376
SOP-PCR-1.0	08/30/2017	08/30/2017 13:00	Puja Jasrotia	09/06/2017	Sarah Menz	1926395, 1926396, 1926397
	08/30/2017	08/30/2017 13:00	Puja Jasrotia	09/20/2017	Sarah Menz	1926394
SOP-PCR-4.0	08/30/2017	08/30/2017 13:00	Avril Wood	09/22/2017	Puja Jasrotia	1926394, 1926395, 1926396