

Biological Analysis Report

NE-DIST-2017-06-13-02

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
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 1-6/6/17**
Request ID: **RQ-2017-06-05-29**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way W
Suite 100
Jacksonville, FL 32256-7577
Attn: Nicole Frederick

For additional information please contact
Cheryl Swanson - Administrator
J. Marshall Faircloth - Aquatic Toxicology
Jacqueline Savage - Bench Biology
Jacqueline Savage - Microbiology
Daisys Matthews - Molecular Biology
Jennifer Walters - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Jennifer Walters, Environmental Manager

Date Certified: 07-SEP-2017 16:26



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 Outlet @ Gale Lemmeron Rd.

Collection Date/Time: 06/12/2017 11:20

Field ID: G1NE0206 06062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905705	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.9		ug/L	P326889	
		Phaeophytin-a	1.2	I	ug/L	P326889	
		Chlorophyll/Phaeophytin Ratio	1.5			P326889	
		Chlorophyll-a, Uncorrected	3.7		ug/L	P326889	

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.

Sample Location: Lake Alice Outlet @ Gale Lemmeron Rd.

Collection Date/Time: 06/12/2017 11:20

Field ID: G1NE0206 06062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905707	SOP-PCR-1.0	HF183-qPCR**	28	T	GEU/100 mL	P326689	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Lake Alice Outlet @ Gale Lemmeron Rd. DUP

Collection Date/Time: 06/12/2017 11:25

Field ID: G1NE0206 06062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905706	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.0		ug/L	P326889	
		Phaeophytin-a	1.1	I	ug/L	P326889	
		Chlorophyll/Phaeophytin Ratio	1.5			P326889	
		Chlorophyll-a, Uncorrected	3.8		ug/L	P326889	

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.

Sample Location: Lake Alice Outlet @ Gale Lemmeron Rd. DUP

Collection Date/Time: 06/12/2017 11:25

Field ID: G1NE0206 06062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905708	SOP-PCR-1.0	HF183-qPCR**	50	T	GEU/100 mL	P326689	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Tumblin Creek @ SW 14th

Collection Date/Time: 06/12/2017 12:00

Field ID: G1NE0856 06062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905702	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.7		ug/L	P326889	
		Phaeophytin-a	0.40	U	ug/L	P326889	
		Chlorophyll/Phaeophytin Ratio	1.7			P326889	
		Chlorophyll-a, Uncorrected	7.0		ug/L	P326889	

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.

Sample Location: Tumblin Creek @ SW 14th

Collection Date/Time: 06/12/2017 12:00

Field ID: G1NE0856 06062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905709	SOP-PCR-1.0	HF183-qPCR**	2.60E+03	A	GEU/100 mL	P326689	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Little Hatchett Creek @ SR 24

Collection Date/Time: 06/12/2017 10:00

Field ID: G1NE0083 06062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905703	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.2		ug/L	P326889	
		Phaeophytin-a	0.57	U	ug/L	P326889	
		Chlorophyll/Phaeophytin Ratio	1.7			P326889	
		Chlorophyll-a, Uncorrected	7.7		ug/L	P326889	

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.

Sample Location: Little Hatchett Creek @ SR 24

Collection Date/Time: 06/12/2017 10:00

Field ID: G1NE0083 06062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905710	SOP-PCR-1.0	HF183-qPCR**	180	J	GEU/100 mL	P327537	SUR
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: Quality control failure(s) observed. Sample processed with an additional purification step to reduce inhibition, which can reduce overall DNA recovery. See QA report.

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

Collection Date/Time: 06/12/2017 10:35

Field ID: G1NE0568 06122017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905704	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.74	I	ug/L	P326889	
		Phaeophytin-a	0.40	U	ug/L	P326889	
		Chlorophyll/Phaeophytin Ratio	1.6			P326889	
		Chlorophyll-a, Uncorrected	0.85	I	ug/L	P326889	

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.

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

Collection Date/Time: 06/12/2017 10:35

Field ID: G1NE0568 06122017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905711	SOP-PCR-1.0	HF183-qPCR**	64	T	GEU/100 mL	P326689	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Lake Alice Outlet

Collection Date/Time: 06/12/2017 11:20

Field ID: G1NE0206

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913858	EPA 1603	Escherichia coli-Membrane Filter	944	B	cfu/100 mL		

Sample Location: Lake Alice Outlet Dup

Collection Date/Time: 06/12/2017 11:25

Field ID: G1NE0206 06062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913859	EPA 1603	Escherichia coli-Membrane Filter	940	B	cfu/100 mL		

Sample Location: 21030089 Blues Creek @ 71st

Collection Date/Time: 06/12/2017 10:35

Field ID: G1NE0568 06122017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913860	EPA 1603	Escherichia coli-Membrane Filter	1000	B	cfu/100 mL		

Sample Location: Little Hatchet Cr @ SR 24

Collection Date/Time: 06/12/2017 10:00

Field ID: G1NE0083

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913861	EPA 1603	Escherichia coli-Membrane Filter	310		cfu/100 mL		

Sample Location: Tumblin Cr @ SW 9th

Collection Date/Time: 06/12/2017 12:00

Field ID: G1NE0994

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913862	EPA 1603	Escherichia coli-Membrane Filter	2940	B	cfu/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P326889

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: P326689

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

Reference Method: SOP-PCR-1.0
 Batch ID: P327537

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
 Batch ID: P326889

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P326889

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.9		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P326689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	94.0	94.5	P/P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P327537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	68.6	72.8	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P326689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905707	HF183-qPCR	94.6		P	50 - 175
1905708	HF183-qPCR	71.5		P	50 - 175
1905709	HF183-qPCR	70.4	86.3	P/P	50 - 175
1905711	HF183-qPCR	62.7		P	50 - 175
1905908	HF183-qPCR	82.0		P	50 - 175
1905909	HF183-qPCR	76.9		P	50 - 175
1905989	HF183-qPCR	82.0		P	50 - 175
1905991	HF183-qPCR	87.5		P	50 - 175
1905992	HF183-qPCR	82.6		P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P327537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905710	HF183-qPCR	81.0		P	50 - 175
1905990	HF183-qPCR	78.4		P	50 - 175
1908006	HF183-qPCR	83.8		P	50 - 175
1908009	HF183-qPCR	80.5	71.9	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P326689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905709	HF183-qPCR	2.70	Sample	P	0 - 25
1905709	HF183-qPCR	20.3	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P327537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908009	HF183-qPCR	11.2	Spike	P	0 - 25
1908009	HF183-qPCR	7.05	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: 1905707
 Field Sample ID: G1NE0206 06062017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	143	P	50 - 300

Lab Sample ID: 1905708
 Field Sample ID: G1NE0206 06062017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	149	P	50 - 300

Lab Sample ID: 1905709
 Field Sample ID: G1NE0856 06062017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	155	P	50 - 300

Lab Sample ID: 1905710
 Field Sample ID: G1NE0083 06062017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	8.58	F	30 - 300

Lab Sample ID: 1905711
 Field Sample ID: G1NE0568 06122017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	91.6	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.) SOP-PCR-1.0	Chlorophyll-a, Corrected	97.9							
	HF183-qPCR	94.5	94.0	82.0	94.6	71.5		2.70	20.3
	HF183-qPCR	72.8	68.6	81.0	78.4	83.8			7.05 11.2
				80.5					

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	1913858, 1913859, 1913860, 1913861, 1913862
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1905702, 1905703, 1905704, 1905705, 1905706
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1905707, 1905708, 1905709, 1905710, 1905711
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1905707, 1905708, 1905709, 1905710, 1905711

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	06/12/2017			06/12/2017 14:38	AEL - Gainesville	1913858, 1913859, 1913860, 1913861, 1913862
SM 10200 H (mod.)	06/13/2017	06/13/2017 13:35	Cathy Sherrer	06/14/2017	Kim M. Spencer	1905702, 1905703, 1905704, 1905705, 1905706
SOP-PCR-1.0	06/13/2017	06/13/2017 13:14	Avril Wood	06/30/2017	Puja Jasrotia	1905710
	06/13/2017	06/13/2017 13:14	Puja Jasrotia	06/27/2017	Puja Jasrotia	1905707, 1905708, 1905709, 1905711
SOP-PCR-4.0	06/13/2017	06/13/2017 13:14	Puja Jasrotia	07/20/2017	Puja Jasrotia	1905707, 1905708, 1905711
	06/13/2017	06/13/2017 13:14	Puja Jasrotia	07/26/2017	Puja Jasrotia	1905709, 1905710