

Biological Analysis Report

NE-DIST-2018-03-15-02

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: **Alachua Co Sampling-March 18**
Request ID: **RQ-2018-03-12-17**
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
Puja Jasrotia, Ph.D. - Molecular Biology
Cheryl Swanson - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 03-MAY-2018 11:17



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: Tumblin Creek - W of US 441

Collection Date/Time: 03/14/2018 09:50

Field ID: G1NE0902

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975211	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.74	I	ug/L	P341975	
		Phaeophytin-a	0.40	U	ug/L	P341975	
		Chlorophyll-a, Uncorrected	0.77	I	ug/L	P341975	
1975214	EPA 1603	Escherichia coli-Membrane Filter	410	Q	cfu/100 mL		
1975217	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P342672	
	SOP-PCR-1.4	BacR-qPCR**	220	T	TSC/100 mL	P342672	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

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: No amplification of HF183 marker.

Sample Location: Bivens Arm Lake - West of US 441, and South of SW 16th Street

Collection Date/Time: 03/14/2018 10:40

Field ID: G1NE0904

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975212	SM 10200 H (mod.)	Chlorophyll-a, Corrected	120		ug/L	P341975	
		Phaeophytin-a	12		ug/L	P341975	
		Chlorophyll-a, Uncorrected	130		ug/L	P341975	
1975215	EPA 1603	Escherichia coli-Membrane Filter	20	B	cfu/100 mL		
1975218	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

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-S of SW 5th Ave

Collection Date/Time: 03/14/2018 13:15

Field ID: G1NE0914

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975213	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.91	I	ug/L	P341975	
		Phaeophytin-a	0.40	U	ug/L	P341975	
		Chlorophyll-a, Uncorrected	1.1	I	ug/L	P341975	
1975216	EPA 1603	Escherichia coli-Membrane Filter	90	B	cfu/100 mL		
1975219	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

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.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P341975

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P342672

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

Reference Method: SOP-PCR-1.4
Batch ID: P342672

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P341975

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	99.8		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P342672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	95.6	70.8	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P342672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	65.1	79.0	P/P	50 - 175
BacR-qPCR	69.9	99.2	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P342672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1971367	HF183-qPCR	83.9		P	50 - 175
1973484	HF183-qPCR	89.7	92.8	P/P	50 - 175
1974754	HF183-qPCR	92.3		P	50 - 175
1974755	HF183-qPCR	91.0		P	50 - 175
1975217	HF183-qPCR	78.0		P	50 - 175
1981244	HF183-qPCR	115		P	50 - 175
1981705	HF183-qPCR	78.8		P	50 - 175
1981706	HF183-qPCR	83.1		P	50 - 175
1981851	HF183-qPCR	78.1		P	50 - 175
1982097	HF183-qPCR	90.7		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
 Batch ID: P342672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1973484	BacR-qPCR	92.4	95.8	P/P	50 - 175
1974755	BacR-qPCR	80.1		P	50 - 175
1975217	BacR-qPCR	87.4		P	50 - 175
1981244	BacR-qPCR	61.5		P	50 - 175
1981851	BacR-qPCR	63.3		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P341975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975413	Chlorophyll-a, Corrected	6.21	Sample	P	0 - 25
1975413	Chlorophyll-a, Uncorrected	0.571	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P342672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973484	HF183-qPCR	3.37	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P342672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973484	BacR-qPCR	3.62	Spike	P	0 - 25
1981252	BacR-qPCR	16.9	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: 1975217
 Field Sample ID: G1NE0902

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	112	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	98.3	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision	MS
				LCS SMP	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	99.8							6.21	
	Chlorophyll-a, Uncorrected								0.571	
SOP-PCR-1.0	HF183-qPCR	70.8	95.6		89.7	92.8	92.3			3.37
					91.0					
SOP-PCR-1.4	BacR-qPCR	65.1	99.2	69.9	61.5	92.4	95.8			16.9
		79.0			80.1					3.62

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	1975214, 1975215, 1975216
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1975211, 1975212, 1975213
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1975217
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1975217
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1975217, 1975218, 1975219

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	03/14/2018	03/14/2018 18:24		03/15/2018 19:35	AEL - Gainesville	1975214, 1975215, 1975216
SM 10200 H (mod.)	03/15/2018	03/15/2018 14:05	Carina A. Tull	03/21/2018 10:30	Kim M. Spencer	1975211, 1975212, 1975213
SOP-PCR-1.0	03/15/2018	03/15/2018 14:30	Puja Jasrotia	04/09/2018 15:43	Mailin Lopez	1975217
SOP-PCR-1.4	03/15/2018	03/15/2018 14:30	Puja Jasrotia	04/18/2018 11:33	Sarah Menz	1975217
SOP-PCR-4.0	03/15/2018	03/15/2018 14:30	Sarah Menz	04/03/2018 14:29	Puja Jasrotia	1975217, 1975218, 1975219