

Biological Analysis Report

SW-DIST-2018-05-02-01

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 - Tampa
9610 Princess Palm Avenue
Tampa, Florida 33619
DOH Accreditation E84589

Event Description: **Alafia, Delany, Thirtymile**
Request ID: **RQ-2018-04-23-03**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Judy Ashton

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

This Report replaces the previous Report Serial Number: 0104778

Report Comment: Rereported the Sample ID 1989284 for BacR after updating the qualifier from "T" to "U".

Revision certified by: Jacqueline Savage, Environmental Manager

Date Certified: 20-JUN-2018 16:32



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: THIRTY MILE CREEK @ TRAIN TRACK MOSAIC

Collection Date/Time: 05/01/2018 09:45

Field ID: G2SW0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1989286	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P345731	
	SOP-PCR-1.4	BacR-qPCR**	1.08E+06		TSC/100 mL	P345731	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1989291	EPA 1603	Escherichia coli-Membrane Filter**	1800	B	cfu/100 mL		

Sample Location: THIRTY MILE CREEK @ NICHOLS RD

Collection Date/Time: 05/01/2018 10:10

Field ID: G2SW0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1989287	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1989292	EPA 1603	Escherichia coli-Membrane Filter**	72	B	cfu/100 mL		

Sample Location: ALAFIA RIVER @ CENTER AVE

Collection Date/Time: 05/01/2018 11:00

Field ID: G2SW0045

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1989281	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.9		ug/L	P345265	
		Phaeophytin-a	0.45	U	ug/L	P345265	
		Chlorophyll-a, Uncorrected	5.3		ug/L	P345265	
1989288	EPA 1603	Escherichia coli-Membrane Filter**	40	B	cfu/100 mL		

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: DELANY CREEK @ 36TH AVE

Collection Date/Time: 05/01/2018 11:45

Field ID: G1SW0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1989282	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.6		ug/L	P345265	
		Phaeophytin-a	2.3		ug/L	P345265	
		Chlorophyll-a, Uncorrected	5.1		ug/L	P345265	
1989284	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P344387	LCS
1989289	EPA 1603	Escherichia coli-Membrane Filter**	890	B	cfu/100 mL		

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: DELANY CREEK @ MAYDELL DR

Collection Date/Time: 05/01/2018 12:10

Field ID: G1SW0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1989283	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.5	I	ug/L	P345265	
		Phaeophytin-a	0.75	I	ug/L	P345265	
		Chlorophyll-a, Uncorrected	2.0		ug/L	P345265	
1989285	SOP-PCR-1.4	BacR-qPCR**	3.1E+03	I	TSC/100 mL	P344387	LCS
1989290	EPA 1603	Escherichia coli-Membrane Filter**	800	B	cfu/100 mL		

Field ID: G1SW0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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: P345265

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: P345731

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

Reference Method: SOP-PCR-1.4
Batch ID: P344387

Component	Result	Code	Units
BacR-qPCR	3.0E+03	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: P345265

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	98.5		P	84 - 116

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-1.4
Batch ID: P344387

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	140	33.8	P/F	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

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: 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
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-1.4
Batch ID: P344387

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984445	BacR-qPCR	77.2		P	50 - 175
1989284	BacR-qPCR	79.4		P	50 - 175
1989285	BacR-qPCR	77.5		P	50 - 175
1989511	BacR-qPCR	75.7		P	50 - 175
1989512	BacR-qPCR	68.4		P	50 - 175
1989513	BacR-qPCR	72.5		P	50 - 175
1989514	BacR-qPCR	97.0	76.2	P/P	50 - 175
1989515	BacR-qPCR	55.1		P	50 - 175
1989517	BacR-qPCR	89.6		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

Reference Method: SM 10200 H (mod.)
Batch ID: P345265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989498	Chlorophyll-a, Uncorrected	1.26	Sample	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-1.4
Batch ID: P344387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989514	BacR-qPCR	24.0	Spike	P	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: 1989284
Field Sample ID: G1SW0046

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	99.2	P	50 - 300

Lab Sample ID: 1989285
Field Sample ID: G1SW0066

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	103	P	50 - 300

Lab Sample ID: 1989286
Field Sample ID: G2SW0047

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	155	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	145	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	98.5							
	Chlorophyll-a, Uncorrected							1.26	
SOP-PCR-1.0	HF183-qPCR	133	104	91.2	104	88.9			2.16
				101					
SOP-PCR-1.4	BacR-qPCR	33.8	140	77.2	79.4	77.5			24.0
				75.7					
	BacR-qPCR	65.2	126	64.3	132	67.4			7.52
				90.2					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E84589	Escherichia coli by membrane filter method using modified mTEC by Advanced Environmental Tampa Lab for SWD	1989288, 1989289, 1989290, 1989291, 1989292
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1989281, 1989282, 1989283
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1989286
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1989284, 1989285, 1989286
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1989286, 1989287

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	05/01/2018	05/01/2018 17:00		05/02/2018 16:30	AEL - Tampa	1989288, 1989289, 1989290, 1989291, 1989292
SM 10200 H (mod.)	05/02/2018	05/02/2018 14:20	Mariam Hanna	05/08/2018 09:05	Carina A. Tull	1989281, 1989282, 1989283
SOP-PCR-1.0	05/02/2018	05/02/2018 14:10	Puja Jasrotia	06/01/2018 08:57	Mailin Lopez	1989286
SOP-PCR-1.4	05/02/2018	05/02/2018 14:10	Puja Jasrotia	05/04/2018 15:46	Sarah Menz	1989284, 1989285
	05/02/2018	05/02/2018 14:10	Puja Jasrotia	06/01/2018 17:12	Mailin Lopez	1989286
SOP-PCR-4.0	05/02/2018	05/02/2018 14:10	Angela Smith	05/22/2018 13:40	Puja Jasrotia	1989286, 1989287