

Biological Analysis Report

SW-DIST-2018-10-17-01

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: **Mattress Drain, Blackwater, New, Hills #4**
Request ID: **RQ-2018-10-15-06**
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: Ben Paswater

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Certified by: Jacqueline Savage, Environmental Manager

Date Certified: 30-NOV-2018 13:24



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: Hillsborough River in State Park

Collection Date/Time: 10/16/2018 12:35

Field ID: G2SW0062

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033477	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P353957	
		Phaeophytin-a	0.60	U	ug/L	P353957	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P353957	
2033485	EPA 1603	Escherichia coli-Membrane Filter**	48	B	cfu/100 mL		

Sample Location: Hillsborough River by Fort Foster

Collection Date/Time: 10/16/2018 13:20

Field ID: G2SW0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033478	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P353957	
		Phaeophytin-a	0.60	U	ug/L	P353957	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P353957	
2033486	EPA 1603	Escherichia coli-Membrane Filter**	68	B	cfu/100 mL		

Sample Location: New River @ Morris Bridge Rd.

Collection Date/Time: 10/16/2018 11:40

Field ID: G2SW0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033479	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P354413	
	SOP-PCR-1.4	BacR-qPCR**	4.46E+06		TSC/100 mL	P354413	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
2033585	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.6		ug/L	P354000	
		Phaeophytin-a	1.8	I	ug/L	P354000	
		Chlorophyll-a, Uncorrected	5.8		ug/L	P354000	
2033586	EPA 1603	Escherichia coli-Membrane Filter**	550		cfu/100 mL		

Ref. Method and Comment:

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A87868

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: New River @ SR54

Collection Date/Time: 10/16/2018 11:20

Field ID: G2SW0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033480	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Blackwater Creek in County Park

Collection Date/Time: 10/16/2018 14:40

Field ID: G2SW0065

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033481	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2040874	EPA 1603	Escherichia coli-Membrane Filter**	96		cfu/100 mL		

Sample Location: Mattress Drain @ Rockeridge Rd.

Collection Date/Time: 10/16/2018 10:00

Field ID: G4SW0092

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G4SW0092

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033475	SM 10200 H (mod.)	Chlorophyll-a, Corrected	19		ug/L	P353957	
		Phaeophytin-a	9.3		ug/L	P353957	
		Chlorophyll-a, Uncorrected	26		ug/L	P353957	
2033484	EPA 1603	Escherichia coli-Membrane Filter**	600		cfu/100 mL		

Sample Location: Blackwater Cr @ CR39

Collection Date/Time: 10/16/2018 14:15

Field ID: G2SW0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033482	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2040875	EPA 1603	Escherichia coli-Membrane Filter**	140		cfu/100 mL		

Sample Location: Field_Blank_10162018

Collection Date/Time: 10/16/2018 10:05

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033476	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P353957	
		Phaeophytin-a	0.60	U	ug/L	P353957	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P353957	

Sample Location: New River @ SR54

Collection Date/Time: 10/16/2018 11:20

Field ID: G2SW0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2040873	EPA 1603	Escherichia coli-Membrane Filter**	36	B	cfu/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P353957

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.60	U	ug/L

Reference Method: SM 10200 H (mod.)

Batch ID: P354000

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.62	U	ug/L
Chlorophyll-a, Uncorrected	0.45	U	ug/L
Phaeophytin-a	0.68	U	ug/L

Reference Method: SOP-PCR-1.0

Batch ID: P354413

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.4
 Batch ID: P354413

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: P353957

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	98.0		P	84 - 116

Reference Method: SM 10200 H (mod.)
 Batch ID: P354000

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	105		P	84 - 116

Reference Method: SOP-PCR-1.0
 Batch ID: P354413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	95.6	154	P/P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P354413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	117	141	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P354413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033479	HF183-qPCR	81.4		P	50 - 175
2034496	HF183-qPCR	113	98.2	P/P	50 - 175
2034498	HF183-qPCR	68.3		P	50 - 175
2034499	HF183-qPCR	69.4		P	50 - 175
2034929	HF183-qPCR	88.9		P	50 - 175
2035204	HF183-qPCR	111		P	50 - 175
2035205	HF183-qPCR	89.6		P	50 - 175
2035356	HF183-qPCR	91.7		P	50 - 175
2035358	HF183-qPCR	85.1		P	50 - 175
2036158	HF183-qPCR	65.3		P	50 - 175
2036159	HF183-qPCR	110		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P354413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033479	BacR-qPCR	56.0		P	50 - 175
2034498	BacR-qPCR	59.3		P	50 - 175
2034499	BacR-qPCR	61.3		P	50 - 175
2034929	BacR-qPCR	86.1		P	50 - 175
2035204	BacR-qPCR	90.0		P	50 - 175
2035205	BacR-qPCR	95.5		P	50 - 175
2035356	BacR-qPCR	93.9		P	50 - 175
2035358	BacR-qPCR	88.6		P	50 - 175
2036158	BacR-qPCR	59.5		P	50 - 175
2036159	BacR-qPCR	86.4		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P353957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033393	Chlorophyll-a, Corrected	6.62	Sample	P	0 - 25
2033393	Chlorophyll-a, Uncorrected	6.22	Sample	P	0 - 25
2033393	Phaeophytin-a	1.11	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P354000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033845	Chlorophyll-a, Corrected	1.80	Sample	P	0 - 25
2033845	Chlorophyll-a, Uncorrected	1.38	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P354413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034496	HF183-qPCR	14.1	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: 2033479
Field Sample ID: G2SW0061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	108	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	106	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision		MS
								SMP		
SM 10200 H (mod.)	Chlorophyll-a, Corrected	98.0						6.62		
	Chlorophyll-a, Corrected	105						1.80		
	Chlorophyll-a, Uncorrected							6.22		
	Chlorophyll-a, Uncorrected							1.38		
	Phaeophytin-a							1.11		
SOP-PCR-1.0	HF183-qPCR	154	95.6	89.6	91.7	85.1				14.1
SOP-PCR-1.4	BacR-qPCR	141	117	81.4						
				90.0	95.5	93.9				
				88.6						

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E84589	Escherichia coli by membrane filter Advanced Environmental Laboratory in Tampa	2033484, 2033485, 2033486, 2033586, 2040873, 2040874, 2040875
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2033475, 2033476, 2033477, 2033478, 2033585
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2033479
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2033479
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2033479, 2033480, 2033481, 2033482

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	10/16/2018	10/16/2018 16:45		10/17/2018 15:45	AEL - Tampa	2033484, 2033485, 2033486, 2033586, 2040873, 2040874, 2040875
SM 10200 H (mod.)	10/17/2018	10/17/2018 15:58	Mariam Hanna	10/29/2018 08:15	Peterson Janvier	2033475, 2033476, 2033477, 2033478
	10/17/2018	10/17/2018 15:58	Mariam Hanna	10/29/2018 10:25	Peterson Janvier	2033585
SOP-PCR-1.0	10/17/2018	10/17/2018 14:00	Sarah Menz	11/19/2018 09:26	Mailin Lopez	2033479
SOP-PCR-1.4	10/17/2018	10/17/2018 14:00	Sarah Menz	11/19/2018 13:20	Mailin Lopez	2033479
SOP-PCR-4.0	10/17/2018	10/17/2018 14:00	Angela Smith	11/13/2018 15:55	Puja Jasrotia	2033479, 2033480, 2033481
	10/17/2018	10/17/2018 14:30	Angela Smith	11/13/2018 15:55	Puja Jasrotia	2033482