

Biological Analysis Report

WAS-SECT-2019-07-24-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **G1 Streams**
Request ID: **RQ-2019-07-22-11**
Customer: **WAS-SECT**
Project ID: **SMP**

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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 27-AUG-2019 16:13



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, Microbiology and Molecular.

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Caney Creek Downstream of 158A

Collection Date/Time: 07/24/2019 09:00

Field ID: G1WA0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105832	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.6		ug/L	P368321	
		Phaeophytin-a	5.8		ug/L	P368321	
		Chlorophyll-a, Uncorrected	9.3		ug/L	P368321	
2105837	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1553.1		MPN/100 mL	P368071	
2105841	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P367741	

Ref. Method and Comment:

SOP-PCR-1.4: Precision data unavailable for Analysis batch A93238

Sample Location: Quincy Creek upstream of SR 65

Collection Date/Time: 07/24/2019 14:39

Field ID: G1WA0049

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105833	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.4	I	ug/L	P368321	
		Phaeophytin-a	1.8	U	ug/L	P368321	
		Chlorophyll-a, Uncorrected	2.9	I	ug/L	P368321	
2105838	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	751.0	A	MPN/100 mL	P368071	

Sample Location: Tanyard Branch 100 meters upstream of Ralph Strong Rd

Collection Date/Time: 07/24/2019 13:07

Field ID: G1WA0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105834	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.8	U	ug/L	P368321	
		Phaeophytin-a	2.0	U	ug/L	P368321	
		Chlorophyll-a, Uncorrected	1.3	U	ug/L	P368321	
2105839	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	307.6		MPN/100 mL	P368071	

Sample Location: Quincy Creek 100 meters upstream of Ralph Strong Rd

Collection Date/Time: 07/24/2019 13:32

Field ID: G1WA0018

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105830	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.1	U	ug/L	P368321	
		Phaeophytin-a	4.5	U	ug/L	P368321	
		Chlorophyll-a, Uncorrected	3.9	I	ug/L	P368321	
2105835	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	920.8		MPN/100 mL	P368071	
2105840	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P367741	LCS

Ref. Method and Comment:

SOP-PCR-1.0: Precision data unavailable for Analysis batch A93200

Sample Location: Swamp Creek upstream of Railroad

Collection Date/Time: 07/24/2019 11:16

Field ID: G1WA0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105831	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.1	U	ug/L	P368321	
		Phaeophytin-a	4.5	U	ug/L	P368321	
		Chlorophyll-a, Uncorrected	3.0	U	ug/L	P368321	

Field ID: G1WA0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105836	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1299.7		MPN/100 mL	P368071	

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P368321

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.89	U	ug/L
Chlorophyll-a, Uncorrected	0.65	U	ug/L
Phaeophytin-a	0.98	U	ug/L

Reference Method: SM 9223 Quanti-Tray
Batch ID: P368071

Component	Result	Code	Units
Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL

Reference Method: SOP-PCR-1.0
Batch ID: P367741

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

Reference Method: SOP-PCR-1.4
Batch ID: P367741

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: P368321

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	88.8		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P367741

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	100	294	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P367741

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	88.9	102	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P367741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2100797	HF183-qPCR	75.2		P	50 - 175
2105472	HF183-qPCR	81.1		P	50 - 175
2105473	HF183-qPCR	78.8		P	50 - 175
2105474	HF183-qPCR	69.0		P	50 - 175
2105647	HF183-qPCR	62.7		P	50 - 175
2105648	HF183-qPCR	71.7		P	50 - 175
2105840	HF183-qPCR	70.7		P	50 - 175
2106039	HF183-qPCR	78.2		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P367741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2100797	BacR-qPCR	63.4		P	50 - 175
2105428	BacR-qPCR	59.5		P	50 - 175
2105647	BacR-qPCR	50.5		P	50 - 175
2105648	BacR-qPCR	76.7		P	50 - 175
2105841	BacR-qPCR	56.5		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P368321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106051	Chlorophyll-a, Corrected	6.82	Sample	P	0 - 25
2106051	Chlorophyll-a, Uncorrected	5.89	Sample	P	0 - 25
2106051	Phaeophytin-a	0.748	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray

Batch ID: P368071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105437	Escherichia Coli-Quanti-Tray	23.8	Sample	P	0 - 80
2105838	Escherichia Coli-Quanti-Tray	14.4	Sample	P	0 - 80

* 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: 2105840

Field Sample ID: G1WA0018

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	109	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 2105841
 Field Sample ID: G1WA0060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	95.7	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision		
							LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	88.8					6.82		
	Chlorophyll-a, Uncorrected						5.89		
	Phaeophytin-a						0.748		
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray						23.8	14.4	
SOP-PCR-1.0	HF183-qPCR	294	100	75.2	81.1	78.8			
SOP-PCR-1.4	BacR-qPCR	102	88.9	69.0					
				63.4	59.5	50.5			
				76.7					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2105830, 2105831, 2105832, 2105833, 2105834
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2105835, 2105836, 2105837, 2105838, 2105839
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2105840
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2105841

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	07/24/2019	07/24/2019 16:35	Edwin Gonzalez-Soto	08/01/2019 09:57	Yuliya Danyuk	2105830, 2105831, 2105832, 2105833, 2105834
SM 9223 Quanti-Tray	07/24/2019	07/24/2019 16:57	Carina A. Tull	07/25/2019 11:35	Carina A. Tull	2105835, 2105836, 2105837, 2105838, 2105839
SOP-PCR-1.0	07/24/2019	07/25/2019 15:30	Sarah Menz	08/01/2019 08:40	Mailin Lopez	2105840
SOP-PCR-1.4	07/24/2019	07/25/2019 15:30	Sarah Menz	08/02/2019 13:03	Mailin Lopez	2105841