

Biological Analysis Report

WAS-SECT-2019-09-18-01

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-2019-05-06-26**
Customer: **WAS-SECT**
Project ID: **SMP**

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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 18-OCT-2019 15:57



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: Quincy Creek 100 meters upstream of Ralph Strong Rd

Collection Date/Time: 09/18/2019 12:04

Field ID: G1WA0018

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2120835	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.79	I	ug/L	P371607	
		Phaeophytin-a	2.2	I	ug/L	P371607	
		Chlorophyll-a, Uncorrected	2.1		ug/L	P371607	
2120842	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	328.2		MPN/100 mL	P371663	RPD
2120849	SOP-PCR-1.0	HF183-qPCR**	290	I	GEU/100 mL	P370882	

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: Swamp Creek upstream of Railroad

Collection Date/Time: 09/18/2019 10:21

Field ID: G1WA0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2120836	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.98	U	ug/L	P371607	
		Phaeophytin-a	1.1	U	ug/L	P371607	
		Chlorophyll-a, Uncorrected	0.82	I	ug/L	P371607	
2120843	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	228.2		MPN/100 mL	P371663	RPD

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: Caney Creek Downstream of 158A

Collection Date/Time: 09/18/2019 08:31

Field ID: G1WA0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2120837	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.98	U	ug/L	P371607	
		Phaeophytin-a	1.1	U	ug/L	P371607	
		Chlorophyll-a, Uncorrected	1.0	I	ug/L	P371607	
2120844	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	307.6	Q	MPN/100 mL	P371663	RPD
2120850	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P370882	LCS

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-1.4: Precision data unavailable for Analysis Batch A94945.

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

Collection Date/Time: 09/18/2019 12:36

Field ID: G1WA0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2120838	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.0	I	ug/L	P371607	
		Phaeophytin-a	0.75	U	ug/L	P371607	
		Chlorophyll-a, Uncorrected	2.1		ug/L	P371607	
2120845	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	77.1		MPN/100 mL	P371663	RPD

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: Quincy Creek upstream of SR 65

Collection Date/Time: 09/18/2019 13:19

Field ID: G1WA0049

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2120839	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.72	I	ug/L	P371607	
		Phaeophytin-a	0.75	U	ug/L	P371607	
		Chlorophyll-a, Uncorrected	0.86	I	ug/L	P371607	
2120846	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	231.0		MPN/100 mL	P371663	RPD

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 River at Highbridge Road

Collection Date/Time: 09/18/2019 13:59

Field ID: G1WA0086

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2120840	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.5	I	ug/L	P371517	
		Phaeophytin-a	0.79	U	ug/L	P371517	
		Chlorophyll-a, Uncorrected	1.6	I	ug/L	P371517	
2120847	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	107.6		MPN/100 mL	P371663	RPD

Ref. Method and Comment:

SM 10200 H (mod.): Laboratory duplicate result is 1.2 I for Chlorophyll-a Corrected, 1.5 I for Chlorophyll-a Uncorrected, and 0.79 U for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: Willacoochee Creek at 161

Collection Date/Time: 09/18/2019 11:19

Field ID: G1WA0087

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2120841	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.89	I	ug/L	P371517	
		Phaeophytin-a	0.75	U	ug/L	P371517	
		Chlorophyll-a, Uncorrected	1.3	I	ug/L	P371517	
2120848	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	310.2	A	MPN/100 mL	P371663	RPD

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: P371517

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: SM 10200 H (mod.)

Batch ID: P371607

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.69	U	ug/L
Chlorophyll-a, Uncorrected	0.50	U	ug/L
Phaeophytin-a	0.75	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 9223 Quanti-Tray
Batch ID: P371663

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

Reference Method: SOP-PCR-1.0
Batch ID: P370882

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

Reference Method: SOP-PCR-1.4
Batch ID: P370882

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: P371517

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	86.4		P	84 - 116

Reference Method: SM 10200 H (mod.)
Batch ID: P371607

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.5		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P370882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	115	90.1	P/P	50 - 175
HF183-qPCR	114	117	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P370882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	95.1	226	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P370882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2120245	HF183-qPCR	117	117	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P370882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2120849	HF183-qPCR	113		P	50 - 175
2121101	HF183-qPCR	121		P	50 - 175
2121102	HF183-qPCR	121		P	50 - 175
2121310	HF183-qPCR	116		P	50 - 175
2121621	HF183-qPCR	88.1		P	50 - 175
2121622	HF183-qPCR	87.8		P	50 - 175
2121671	HF183-qPCR	106		P	50 - 175
2121672	HF183-qPCR	115		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P370882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2120850	BacR-qPCR	69.8		P	50 - 175
2121672	BacR-qPCR	82.0		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P371607

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2120722	Chlorophyll-a, Corrected	6.81	Sample	P	0 - 25
2120722	Chlorophyll-a, Uncorrected	6.54	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
Batch ID: P371663

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2120042	Escherichia Coli-Quanti-Tray	29.8	Sample	P	0 - 80
2120352	Escherichia Coli-Quanti-Tray	0.0	Sample	P	0 - 80
2120610	Escherichia Coli-Quanti-Tray	93.2	Sample	F	0 - 80
2120848	Escherichia Coli-Quanti-Tray	22.3	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P370882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2120245	HF183-qPCR	0.178	Spike	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Quality Assurance Report Surrogates

Lab Sample ID: 2120849
 Field Sample ID: G1WA0018

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	102	P	50 - 300

Lab Sample ID: 2120850
 Field Sample ID: G1WA0060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	79.3	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	86.4								
	Chlorophyll-a, Corrected	97.5							6.81	
	Chlorophyll-a, Uncorrected								6.54	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray								29.8	0.0
									93.2	22.3
SOP-PCR-1.0	HF183-qPCR	115	117	114	117	117	113			0.178
		90.1			121					
SOP-PCR-1.4	BacR-qPCR	226	95.1		69.8	82.0				

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2120835, 2120836, 2120837, 2120838, 2120839, 2120840, 2120841
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2120842, 2120843, 2120844, 2120845, 2120846, 2120847, 2120848
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2120849
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2120850

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	09/18/2019	09/19/2019 13:50	Yuliya Danyuk	09/26/2019 08:12	Peterson Janvier	2120835, 2120836, 2120837, 2120838, 2120839
	09/18/2019	09/19/2019 13:50	Yuliya Danyuk	09/26/2019 09:45	Peterson Janvier	2120840, 2120841
SM 9223 Quanti-Tray	09/18/2019	09/18/2019 16:51	Jessica Sherman	09/19/2019 11:00	Jessica Fetgatter	2120842, 2120843, 2120844, 2120845, 2120846, 2120847, 2120848
SOP-PCR-1.0	09/18/2019	09/19/2019 12:00	Angela Smith	10/10/2019 15:12	Lauren Campbell	2120849
SOP-PCR-1.4	09/18/2019	09/19/2019 12:00	Angela Smith	10/11/2019 12:14	Lauren Campbell	2120850