

Biological Analysis Report

WAS-SECT-2019-02-13-01

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-2019-02-11-23**
Customer: **WAS-SECT**
Project ID: **SMP**

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Date Certified: 26-MAR-2019 14:42



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: 02/13/2019 09:04

Field ID: G1WA0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062379	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.5	I	ug/L	P359473	
		Phaeophytin-a	1.4	I	ug/L	P359473	
		Chlorophyll-a, Uncorrected	2.4		ug/L	P359473	
2062387	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1413.6		MPN/100 mL	P359162	
2062394	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P358856	

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: Alford Arm Tributary At Miccosukee

Collection Date/Time: 02/13/2019 10:23

Field ID: G1WA0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062382	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.0		ug/L	P359473	
		Phaeophytin-a	1.4	I	ug/L	P359473	
		Chlorophyll-a, Uncorrected	6.0		ug/L	P359473	
2062390	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	161.6		MPN/100 mL	P359162	

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: 02/13/2019 12:02

Field ID: G1WA0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062378	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.4		ug/L	P359473	
		Phaeophytin-a	1.8	I	ug/L	P359473	
		Chlorophyll-a, Uncorrected	4.6		ug/L	P359473	
2062386	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	613.1		MPN/100 mL	P359162	

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: 02/13/2019 15:00

Field ID: G1WA0049

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062380	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.8	A	ug/L	P359473	
		Phaeophytin-a	1.1	I	ug/L	P359473	
		Chlorophyll-a, Uncorrected	2.5	A	ug/L	P359473	
2062388	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	411.0		MPN/100 mL	P359162	

Ref. Method and Comment:

SM 10200 H (mod.): Laboratory duplicate result is 1.0 I for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

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

Collection Date/Time: 02/13/2019 13:21

Field ID: G1WA0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062381	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.7	I	ug/L	P359473	
		Phaeophytin-a	0.60	U	ug/L	P359473	
		Chlorophyll-a, Uncorrected	1.9		ug/L	P359473	
2062389	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	185.0		MPN/100 mL	P359162	

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 100 meters Upstream of Ralph Strong Rd

Collection Date/Time: 02/13/2019 13:45

Field ID: G1WA0018

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062377	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.2	I	ug/L	P359472	
		Phaeophytin-a	1.2	U	ug/L	P359472	
		Chlorophyll-a, Uncorrected	2.8		ug/L	P359472	
2062385	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	387.3	A	MPN/100 mL	P359162	
2062393	SOP-PCR-1.0	HF183-qPCR**	320	I	GEU/100 mL	P358856	LCS

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

Collection Date/Time: 02/13/2019 13:45

Field ID: G1WA0018_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062383	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.3	I	ug/L	P359473	
		Phaeophytin-a	1.2	U	ug/L	P359473	
		Chlorophyll-a, Uncorrected	2.9		ug/L	P359473	
2062391	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	261.3		MPN/100 mL	P359162	
2062395	SOP-PCR-1.0	HF183-qPCR**	800	I	GEU/100 mL	P358856	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.

Sample Location: Field Blank

Collection Date/Time: 02/13/2019 09:31

Field ID: FB_02132019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062384	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P359473	
		Phaeophytin-a	0.60	U	ug/L	P359473	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P359473	
2062392	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL	P359162	
2062396	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P358856	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.

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P359472

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: P359473

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 9223 Quanti-Tray
Batch ID: P359162

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

Reference Method: SOP-PCR-1.0
Batch ID: P358856

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

Reference Method: SOP-PCR-1.4
Batch ID: P358856

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: P359472

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

Reference Method: SM 10200 H (mod.)
Batch ID: P359473

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	110		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P358856

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	121	190	P/F	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.4

Batch ID: P358856

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	92.2	94.2	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P358856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054958	HF183-qPCR	113		P	50 - 175
2054959	HF183-qPCR	99.4		P	50 - 175
2058044	HF183-qPCR	103		P	50 - 175
2058045	HF183-qPCR	103		P	50 - 175
2058046	HF183-qPCR	115		P	50 - 175
2062018	HF183-qPCR	94.2		P	50 - 175
2062393	HF183-qPCR	115		P	50 - 175
2062395	HF183-qPCR	101		P	50 - 175
2062396	HF183-qPCR	123		P	50 - 175
2062623	HF183-qPCR	94.6		P	50 - 175
2062624	HF183-qPCR	112		P	50 - 175
2062985	HF183-qPCR	89.0		P	50 - 175
2063185	HF183-qPCR	115	109	P/P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P358856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062394	BacR-qPCR	71.6		P	50 - 175
2063185	BacR-qPCR	79.7	75.0	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P359472

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062621	Chlorophyll-a, Corrected	3.07	Sample	P	0 - 25
2062621	Chlorophyll-a, Uncorrected	2.53	Sample	P	0 - 25
2062621	Phaeophytin-a	0.870	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)

Batch ID: P359473

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062380	Chlorophyll-a, Corrected	1.14	Sample	P	0 - 25
2062380	Chlorophyll-a, Uncorrected	1.52	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SM 9223 Quanti-Tray
Batch ID: P359162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062385	Escherichia Coli-Quanti-Tray	0.0	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P358856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063185	HF183-qPCR	5.92	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P358856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063185	BacR-qPCR	6.16	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: 2062393
Field Sample ID: G1WA0018

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	101	P	50 - 300

Lab Sample ID: 2062394
Field Sample ID: G1WA0060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	96.7	P	50 - 300

Lab Sample ID: 2062395
Field Sample ID: G1WA0018_DUP

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

Lab Sample ID: 2062396
Field Sample ID: FB_02132019

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	104	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	105						3.07	
	Chlorophyll-a, Corrected	110						1.14	
	Chlorophyll-a, Uncorrected							2.53	
	Chlorophyll-a, Uncorrected							1.52	
	Phaeophytin-a							0.870	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray							0.0	
SOP-PCR-1.0	HF183-qPCR	190	121	94.2	115	101			5.92
				123					
SOP-PCR-1.4	BacR-qPCR	94.2	92.2	71.6	79.7	75.0			6.16

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2062377, 2062378, 2062379, 2062380, 2062381, 2062382, 2062383, 2062384
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2062385, 2062386, 2062387, 2062388, 2062389, 2062390, 2062391, 2062392
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2062393, 2062395, 2062396
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2062394

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	02/13/2019	02/14/2019 13:30	Jennifer Mihalic	02/21/2019 08:50	Carina A. Tull	2062377
	02/13/2019	02/14/2019 13:30	Jennifer Mihalic	02/22/2019 08:25	Carina A. Tull	2062378, 2062379, 2062380, 2062381, 2062382, 2062383, 2062384
SM 9223 Quanti-Tray	02/13/2019	02/13/2019 16:50	Peterson Janvier	02/14/2019 11:40	Peterson Janvier	2062385, 2062386, 2062387, 2062388, 2062389, 2062390, 2062391, 2062392
SOP-PCR-1.0	02/13/2019	02/14/2019 12:45	Angela Smith	02/20/2019 13:41	Mailin Lopez	2062393, 2062395, 2062396
SOP-PCR-1.4	02/13/2019	02/14/2019 12:45	Angela Smith	02/27/2019 12:19	Mailin Lopez	2062394