

Biological Analysis Report

WAS-SECT-2019-06-05-01

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

Event Description: **NWQI - Alligator Creek**

Request ID: **RQ-2019-06-03-27**

Customer: **WAS-SECT**

Project ID: **SMP**

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Date Certified: 03-JUL-2019 08:01



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: Alligator Creek Upstream of SR 273

Collection Date/Time: 06/05/2019 10:45

Field ID: G3WA0005_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2091923	SM 10200 H (mod.)	Chlorophyll-a, Corrected	11	A	ug/L	P366233	
		Phaeophytin-a	5.4	A	ug/L	P366233	
		Chlorophyll-a, Uncorrected	14	A	ug/L	P366233	
2091927	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	14.5		MPN/100 mL	P365326	
2091931	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P365055	
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P365055	

Sample Location: FIELD BLANK

Collection Date/Time: 06/05/2019 11:08

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2091924	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P366233	
		Phaeophytin-a	0.90	U	ug/L	P366233	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P366233	
2091928	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL	P365326	
2091932	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P365055	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P365055	

Sample Location: Alligator Creek Upstream of Bentley Rd

Collection Date/Time: 06/05/2019 12:02

Field ID: G3WA0004

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2091922	SM 10200 H (mod.)	Chlorophyll-a, Corrected	59		ug/L	P366233	
		Phaeophytin-a	18		ug/L	P366233	
		Chlorophyll-a, Uncorrected	71		ug/L	P366233	
2091926	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	816.4		MPN/100 mL	P365326	
2091930	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P365055	
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P365055	

Sample Location: Alligator Creek Upstream of SR 273

Collection Date/Time: 06/05/2019 10:24

Field ID: G3WA0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2091921	SM 10200 H (mod.)	Chlorophyll-a, Corrected	11		ug/L	P366233	
		Phaeophytin-a	4.7	I	ug/L	P366233	
		Chlorophyll-a, Uncorrected	14		ug/L	P366233	
2091925	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	19.2	A	MPN/100 mL	P365326	
2091929	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P365055	
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P365055	

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P366233

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Reference Method: SM 9223 Quanti-Tray
Batch ID: P365326

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

Reference Method: SOP-PCR-1.0
Batch ID: P365055

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

Reference Method: SOP-PCR-1.4
Batch ID: P365055

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: P366233

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	94.4		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P365055

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	115	134	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P365055

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	90.4	77.0	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P365055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091364	HF183-qPCR	106		P	50 - 175

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P365055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091365	HF183-qPCR	94.4	104	P/P	50 - 175
2091366	HF183-qPCR	103		P	50 - 175
2091463	HF183-qPCR	98.6		P	50 - 175
2091929	HF183-qPCR	94.0		P	50 - 175
2091930	HF183-qPCR	101		P	50 - 175
2091931	HF183-qPCR	104		P	50 - 175
2091932	HF183-qPCR	117		P	50 - 175
2094286	HF183-qPCR	86.3		P	50 - 175
2094706	HF183-qPCR	93.9		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P365055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091364	BacR-qPCR	75.4		P	50 - 175
2091365	BacR-qPCR	77.5	76.4	P/P	50 - 175
2091366	BacR-qPCR	71.7		P	50 - 175
2091463	BacR-qPCR	77.9		P	50 - 175
2091929	BacR-qPCR	65.7		P	50 - 175
2091930	BacR-qPCR	82.9		P	50 - 175
2091931	BacR-qPCR	69.9		P	50 - 175
2091932	BacR-qPCR	90.0		P	50 - 175
2094286	BacR-qPCR	55.9		P	50 - 175
2094706	BacR-qPCR	68.2		P	50 - 175

Quality Assurance Report

Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P366233

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091923	Chlorophyll-a, Corrected	9.90	Sample	P	0 - 25
2091923	Chlorophyll-a, Uncorrected	12.3	Sample	P	0 - 25
2091923	Phaeophytin-a	20.4	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray

Batch ID: P365326

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091452	Escherichia Coli-Quanti-Tray	21.6	Sample	P	0 - 80
2091925	Escherichia Coli-Quanti-Tray	21.9	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0

Batch ID: P365055

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091365	HF183-qPCR	9.32	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.4
Batch ID: P365055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091365	BacR-qPCR	1.49	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: 2091929
Field Sample ID: G3WA0005

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	101	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	91.2	P	50 - 300

Lab Sample ID: 2091930
Field Sample ID: G3WA0004

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	106	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	97.9	P	50 - 300

Lab Sample ID: 2091931
Field Sample ID: G3WA0005_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	104	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	98.0	P	50 - 300

Lab Sample ID: 2091932
Field Sample ID: FIELD BLANK

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	115	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	109	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	94.4						9.90	
	Chlorophyll-a, Uncorrected							12.3	
	Phaeophytin-a							20.4	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray							21.6	21.9
SOP-PCR-1.0	HF183-qPCR	134	115	106	94.4	104			9.32
SOP-PCR-1.4	BacR-qPCR	77.0	90.4	103					
				75.4	77.5	76.4			1.49
				71.7					

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2091921, 2091922, 2091923, 2091924
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2091925, 2091926, 2091927, 2091928
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2091929, 2091930, 2091931, 2091932
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2091929, 2091930, 2091931, 2091932

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	06/05/2019	06/05/2019 16:03	Jennifer Mihalic	06/24/2019 10:23	Carina A. Tull	2091921, 2091922, 2091923, 2091924
SM 9223 Quanti-Tray	06/05/2019	06/05/2019 15:44	Jessica Fetgatter	06/06/2019 10:24	Edwin Gonzalez-Soto	2091925, 2091926, 2091927, 2091928
SOP-PCR-1.0	06/05/2019	06/06/2019 15:15	Angela Smith	06/13/2019 13:05	Mailin Lopez	2091929, 2091930, 2091931, 2091932
SOP-PCR-1.4	06/05/2019	06/06/2019 15:15	Angela Smith	06/14/2019 12:56	Mailin Lopez	2091929, 2091930, 2091931, 2091932