

Biological Analysis Report

WAS-SECT-2019-06-28-02

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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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 30-JUL-2019 14:25



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: Wilson Mill Creek Upstream of 274

Collection Date/Time: 06/27/2019 13:47

Field ID: G2WA0020

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099213	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P367184	
		Phaeophytin-a	0.90	U	ug/L	P367184	
		Chlorophyll-a, Uncorrected	0.60	I	ug/L	P367184	
2099215	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	235.9	Q	MPN/100 mL	P366752	
2099217	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P366320	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P366320	

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 A92577

Sample Location: Stone Mill Creek Upstream of Dianna St.

Collection Date/Time: 06/27/2019 15:02

Field ID: G2WA0012

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099214	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.1	U	ug/L	P367184	
		Phaeophytin-a	4.5	U	ug/L	P367184	
		Chlorophyll-a, Uncorrected	3.0	U	ug/L	P367184	
2099216	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	88.0	Q	MPN/100 mL	P366752	
2099218	SOP-PCR-1.0	HF183-purified-qPCR**	31	IJ	GEU/100 mL	P366837	LCS, SUR
	SOP-PCR-1.4	BacR-purified-qPCR**	250	UJ	TSC/100 mL	P366837	LCS, SUR

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-1.0: Precision data unavailable for Analysis Batch A92850. Quality control failure(s) observed. See QA report for details.

SOP-PCR-1.4: Quality control failure(s) observed. See QA report for details. Precision data unavailable for Analysis Batch A92859

Quality Assurance Report

Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P367184

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: P366752

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

Reference Method: SOP-PCR-1.0

Batch ID: P366320

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P366837

Component	Result	Code	Units
HF183-purified-qPCR	47	U	GEU/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P366320

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P366837

Component	Result	Code	Units
BacR-purified-qPCR	510	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P367184

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	90.1		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P366320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	111	205	P/F	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P366837

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-purified-qPCR	131	21.1	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P366320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	86.3	86.4	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P366837

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-purified-qPCR	91.1	22.4	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P366320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095801	HF183-qPCR	80.3		P	50 - 175
2098564	HF183-qPCR	85.8		P	50 - 175
2098709	HF183-qPCR	104	101	P/P	50 - 175
2098783	HF183-qPCR	90.4		P	50 - 175
2098815	HF183-qPCR	93.6		P	50 - 175
2098816	HF183-qPCR	93.5		P	50 - 175
2099128	HF183-qPCR	92.0		P	50 - 175
2099129	HF183-qPCR	87.8		P	50 - 175
2099217	HF183-qPCR	90.5		P	50 - 175

Reference Method: SOP-PCR-1.0

Batch ID: P366837

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098814	HF183-purified-qPCR	136		P	50 - 175
2099218	HF183-purified-qPCR	127		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P366320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095801	BacR-qPCR	59.9		P	50 - 175
2098815	BacR-qPCR	78.6		P	50 - 175
2098816	BacR-qPCR	83.1		P	50 - 175
2099128	BacR-qPCR	62.2		P	50 - 175
2099129	BacR-qPCR	81.8		P	50 - 175
2099217	BacR-qPCR	61.9		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P366837

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098814	BacR-purified-qPCR	97.4		P	50 - 175
2099218	BacR-purified-qPCR	79.1		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 9223 Quanti-Tray

Batch ID: P366752

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2099200	Escherichia Coli-Quanti-Tray	45.5	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0

Batch ID: P366320

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098709	HF183-qPCR	2.67	Spike	P	0 - 25

Quality Assurance Report Precision

* 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: 2099217
Field Sample ID: G2WA0020

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	96.6	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	99.2	P	50 - 300

Lab Sample ID: 2099218
Field Sample ID: G2WA0012

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	19.0	F	30 - 300
SOP-PCR-1.4	SKETA-qPCR	15.4	F	30 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	90.1							
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray							45.5	
SOP-PCR-1.0	HF183-purified-qPCR	21.1	131	136	127				
	HF183-qPCR	205	111	85.8	104	101			2.67
				90.4					
SOP-PCR-1.4	BacR-purified-qPCR	22.4	91.1	97.4	79.1				
	BacR-qPCR	86.4	86.3	78.6	83.1	62.2			
				81.8					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2099213, 2099214
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2099215, 2099216
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2099217
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2099218
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2099217
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2099218

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	06/28/2019	06/28/2019 12:01	Yuliya Danyuk	07/09/2019 15:04	Yuliya Danyuk	2099213, 2099214
SM 9223 Quanti-Tray	06/28/2019	06/28/2019 15:41	Jessica Fetgatter	06/29/2019 13:28	Peterson Janvier	2099215, 2099216
SOP-PCR-1.0	06/28/2019	06/28/2019 09:50	Angela Smith	07/02/2019 11:37	Mailin Lopez	2099217
	06/28/2019	06/28/2019 09:50	Mailin Lopez	07/17/2019 11:26	Mailin Lopez	2099218
SOP-PCR-1.4	06/28/2019	06/28/2019 09:50	Angela Smith	07/05/2019 14:43	Mailin Lopez	2099217
	06/28/2019	06/28/2019 09:50	Mailin Lopez	07/18/2019 09:47	Mailin Lopez	2099218