

Biological Analysis Report

WAS-SECT-2018-02-07-01

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

Event Description: **Alligator Creek NWQI**

Request ID: **RQ-2018-02-05-34**

Customer: **WAS-SECT**

Project ID: **NWQI**

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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 07-MAR-2018 11:50



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 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: Minnow Creek At Lovewood Rd

Collection Date/Time: 02/07/2018 09:35

Field ID: G3WA0008

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965573	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.8		ug/L	P340032	
		Phaeophytin-a	0.40	U	ug/L	P340032	
		Chlorophyll-a, Uncorrected	2.8		ug/L	P340032	

Sample Location: Minnow Creek At Lovewood Rd

Collection Date/Time: 02/07/2018 09:35

Field ID: G3WA0008

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965578	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	344.8		MPN/100 mL	P339765	

Sample Location: Alligator Creek upstream of SR 273

Collection Date/Time: 02/07/2018 10:20

Field ID: G3WA0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965574	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.3		ug/L	P340032	
		Phaeophytin-a	0.89	I	ug/L	P340032	
		Chlorophyll-a, Uncorrected	4.9		ug/L	P340032	

Sample Location: Alligator Creek upstream of SR 273

Collection Date/Time: 02/07/2018 10:20

Field ID: G3WA0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965579	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	727.0		MPN/100 mL	P339765	

Sample Location: Alligator Creek upstream of SR 273

Collection Date/Time: 02/07/2018 10:20

Field ID: G3WA0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965581	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P339080	
	SOP-PCR-1.4	BacR-qPCR**	5.4E+04		TSC/100 mL	P339080	

Ref. Method and Comment:
 SOP-PCR-1.0: No amplification of HF183 marker.

Sample Location: Alligator Creek upstream of SR 273 DUP

Collection Date/Time: 02/07/2018 10:20

Field ID: G3WA0005_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965575	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.7		ug/L	P340032	
		Phaeophytin-a	1.0	I	ug/L	P340032	
		Chlorophyll-a, Uncorrected	5.5		ug/L	P340032	

Sample Location: Field Blank

Collection Date/Time: 02/07/2018 10:20

Field ID: Blank_02072018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965576	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P340032	

Field ID: Blank_02072018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965576	SM 10200 H (mod.)	Phaeophytin-a	0.40	U	ug/L	P340032	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P340032	

Sample Location: Little Alligator Creek at SR 273

Collection Date/Time: 02/07/2018 11:00

Field ID: G3WA0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965577	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.9		ug/L	P340032	
		Phaeophytin-a	0.40	U	ug/L	P340032	
		Chlorophyll-a, Uncorrected	2.2		ug/L	P340032	

Sample Location: Little Alligator Creek at SR 273

Collection Date/Time: 02/07/2018 11:00

Field ID: G3WA0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965580	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1732.9		MPN/100 mL	P339765	

Sample Location: Little Alligator Creek at SR 273

Collection Date/Time: 02/07/2018 11:00

Field ID: G3WA0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965582	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P339080	
	SOP-PCR-1.4	BacR-qPCR**	2.61E+04		TSC/100 mL	P339080	

Ref. Method and Comment:
SOP-PCR-1.0: No amplification of HF183 marker.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P340032

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Reference Method: SM 9223 Quanti-Tray
Batch ID: P339765

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

Reference Method: SOP-PCR-1.0
Batch ID: P339080

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.4
Batch ID: P339080

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P340032

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	101		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P339080

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	112	87.7	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P339080

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	105	111	P/P	50 - 175
BacR-qPCR	100	113	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P339080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960211	HF183-qPCR	86.4		P	50 - 175
1960432	HF183-qPCR	98.3		P	50 - 175
1960444	HF183-qPCR	86.7		P	50 - 175
1960445	HF183-qPCR	82.7		P	50 - 175
1960446	HF183-qPCR	89.5		P	50 - 175
1963189	HF183-qPCR	99.1	82.3	P/P	50 - 175
1963190	HF183-qPCR	81.9		P	50 - 175
1963377	HF183-qPCR	90.5		P	50 - 175
1964711	HF183-qPCR	96.8		P	50 - 175
1965581	HF183-qPCR	84.2		P	50 - 175
1965582	HF183-qPCR	83.5		P	50 - 175
1965800	HF183-qPCR	78.1		P	50 - 175
1965801	HF183-qPCR	85.5		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P339080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960444	BacR-qPCR	63.1		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P339080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960445	BacR-qPCR	75.3		P	50 - 175
1960446	BacR-qPCR	73.3		P	50 - 175
1961602	BacR-qPCR	83.6		P	50 - 175
1963137	BacR-qPCR	57.2		P	50 - 175
1963138	BacR-qPCR	58.3		P	50 - 175
1963189	BacR-qPCR	64.7	72.9	P/P	50 - 175
1963190	BacR-qPCR	66.0		P	50 - 175
1963377	BacR-qPCR	83.5		P	50 - 175
1964711	BacR-qPCR	72.0		P	50 - 175
1965581	BacR-qPCR	67.6		P	50 - 175
1965582	BacR-qPCR	79.5		P	50 - 175
1965801	BacR-qPCR	74.9		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P340032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1965517	Chlorophyll-a, Corrected	7.00	Sample	P	0 - 25
1965517	Chlorophyll-a, Uncorrected	9.04	Sample	P	0 - 25
1965517	Phaeophytin-a	15.4	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
Batch ID: P339765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1965197	Escherichia Coli-Quanti-Tray	33.3	Sample	P	0 - 80
1965522	Escherichia Coli-Quanti-Tray	12.0	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P339080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963189	HF183-qPCR	18.5	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P339080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963189	BacR-qPCR	11.8	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: 1965581
 Field Sample ID: G3WA0005

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	125	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	110	P	50 - 300

Lab Sample ID: 1965582
 Field Sample ID: G3WA0006

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	122	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	106	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	101							7.00	
	Chlorophyll-a, Uncorrected								9.04	
	Phaeophytin-a								15.4	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray								33.3	12.0
SOP-PCR-1.0	HF183-qPCR	87.7	112		99.1	82.3	81.9			18.5
					90.5					
SOP-PCR-1.4	BacR-qPCR	105	113	100	57.2	58.3	64.7			11.8
		111			72.9					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1965573, 1965574, 1965575, 1965576, 1965577
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1965578, 1965579, 1965580
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1965581, 1965582
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1965581, 1965582

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	02/07/2018	02/07/2018 15:19	Cathy Sherrer	02/14/2018	Jennifer Mihalic	1965573, 1965574, 1965575, 1965576, 1965577
SM 9223 Quanti-Tray	02/07/2018	02/07/2018 15:30	Edwin Gonzalez-Soto	02/08/2018 11:55	Carina A. Tull	1965578, 1965579, 1965580
SOP-PCR-1.0	02/07/2018	02/07/2018 15:20	Mailin Lopez	02/09/2018	Sarah Menz	1965581, 1965582
SOP-PCR-1.4	02/07/2018	02/07/2018 15:20	Mailin Lopez	02/13/2018	Sarah Menz	1965581, 1965582