

Biological Analysis Report

WAS-SECT-2018-09-05-01

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

Event Description: **Little R., Black C., Wards C., Caney C.**

Request ID: **RQ-2018-09-03-22**

Customer: **WAS-SECT**

Project ID: **SMP**

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Date Certified: 02-OCT-2018 12:24



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: Caney Creek Upstream of US 90

Collection Date/Time: 09/05/2018 08:30

Field ID: G1WA0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2022089	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.0	I	ug/L	P351770	
		Phaeophytin-a	0.75	I	ug/L	P351770	RPD
		Chlorophyll-a, Uncorrected	1.5		ug/L	P351770	RPD
2022093	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1413.6		MPN/100 mL	P351553	

Sample Location: Caney Creek Upstream of US 90

Collection Date/Time: 09/05/2018 08:30

Field ID: G1WA0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2022097	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P350953	
	SOP-PCR-1.4	BacR-qPCR**	9.1E+04	A	TSC/100 mL	P350953	

Sample Location: Caney Creek Upstream of US 90

Collection Date/Time: 09/05/2018 08:30

Field ID: G1WA0014_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2022092	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.96	I	ug/L	P351770	
		Phaeophytin-a	1.0	I	ug/L	P351770	RPD
		Chlorophyll-a, Uncorrected	1.6		ug/L	P351770	RPD
2022096	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1986.3		MPN/100 mL	P351553	
2022098	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P350953	
	SOP-PCR-1.4	BacR-qPCR**	8.6E+04		TSC/100 mL	P350953	

Sample Location: Field Blank

Collection Date/Time: 09/05/2018 08:52

Field ID: BLANK_09052018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2022091	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.62	U	ug/L	P351770	
		Phaeophytin-a	0.45	U	ug/L	P351770	RPD
		Chlorophyll-a, Uncorrected	0.45	U	ug/L	P351770	RPD
2022095	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL	P351553	

Sample Location: Wards Creek Upstream of CR259

Collection Date/Time: 09/05/2018 09:25

Field ID: G1WA0074

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2022090	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P351770	
		Phaeophytin-a	0.40	U	ug/L	P351770	RPD
		Chlorophyll-a, Uncorrected	0.69	I	ug/L	P351770	RPD
2022094	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	150.0		MPN/100 mL	P351553	

Quality Assurance Report Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P351770

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: P351553

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

Reference Method: SOP-PCR-1.0
Batch ID: P350953

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

Reference Method: SOP-PCR-1.4
Batch ID: P350953

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: P351770

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	88.3		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P350953

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	115	129	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P350953

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	91.4	162	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P350953

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016142	HF183-qPCR	93.8		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P350953

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016293	HF183-qPCR	102		P	50 - 175
2017670	HF183-qPCR	95.6		P	50 - 175
2017671	HF183-qPCR	85.5		P	50 - 175
2017672	HF183-qPCR	96.8		P	50 - 175
2019427	HF183-qPCR	94.7		P	50 - 175
2019428	HF183-qPCR	98.1		P	50 - 175
2019430	HF183-qPCR	86.6		P	50 - 175
2020083	HF183-qPCR	87.2		P	50 - 175
2020084	HF183-qPCR	92.8		P	50 - 175
2020736	HF183-qPCR	94.8		P	50 - 175
2022097	HF183-qPCR	76.5	85.6	P/P	50 - 175
2022098	HF183-qPCR	84.9		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P350953

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016293	BacR-qPCR	68.7		P	50 - 175
2017670	BacR-qPCR	68.7		P	50 - 175
2017671	BacR-qPCR	62.0		P	50 - 175
2019428	BacR-qPCR	72.0		P	50 - 175
2020083	BacR-qPCR	61.9		P	50 - 175
2020084	BacR-qPCR	54.3		P	50 - 175
2020736	BacR-qPCR	62.5		P	50 - 175
2022097	BacR-qPCR	62.1	64.0	P/P	50 - 175
2022098	BacR-qPCR	61.7		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P351770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022073	Chlorophyll-a, Corrected	24.5	Sample	P	0 - 25
2022073	Chlorophyll-a, Uncorrected	25.6	Sample	F	0 - 25
2022073	Phaeophytin-a	40.7	Sample	F	0 - 25

Reference Method: SM 9223 Quanti-Tray

Batch ID: P351553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021741	Escherichia Coli-Quanti-Tray	45.4	Sample	P	0 - 80
2022029	Escherichia Coli-Quanti-Tray	27.3	Sample	P	0 - 80

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P350953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022097	HF183-qPCR	11.3	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P350953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022097	BacR-qPCR	2.98	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: 2022097
Field Sample ID: G1WA0014

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	97.6	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	91.9	P	50 - 300

Lab Sample ID: 2022098
Field Sample ID: G1WA0014_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	95.4	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	91.7	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	88.3						24.5	
	Chlorophyll-a, Uncorrected							25.6	
	Phaeophytin-a							40.7	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray							45.4	27.3
SOP-PCR-1.0	HF183-qPCR	129	115	98.1	86.6	87.2			11.3
SOP-PCR-1.4	BacR-qPCR	162	91.4	92.8	68.7	62.0	68.7		2.98
				62.1					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2022089, 2022090, 2022091, 2022092
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2022093, 2022094, 2022095, 2022096

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2022097, 2022098
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2022097, 2022098

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	09/05/2018	09/05/2018 15:47	Mariam Hanna	09/17/2018 09:20	Carina A. Tull	2022089, 2022090, 2022091, 2022092
SM 9223 Quanti-Tray	09/05/2018	09/05/2018 14:40	Edwin Gonzalez-Soto	09/06/2018 10:20	Edwin Gonzalez-Soto	2022093, 2022094, 2022095, 2022096
SOP-PCR-1.0	09/05/2018	09/05/2018 14:20	Sarah Menz	09/07/2018 11:00	Mailin Lopez	2022097, 2022098
SOP-PCR-1.4	09/05/2018	09/05/2018 14:20	Sarah Menz	09/07/2018 15:36	Mailin Lopez	2022097, 2022098