

Biological Analysis Report

WAS-SECT-2018-04-18-01

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

Event Description: **Black, Wards, caney, Harbinwood, Megginnis**

Request ID: **RQ-2018-04-16-18**

Customer: **WAS-SECT**

Project ID: **SMP**

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Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 22-MAY-2018 15:18

A handwritten signature in black ink, appearing to be 'Puja Jasrotia', with a horizontal line underneath it.

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: HARBINWOOD ESTATES DRAIN

Collection Date/Time: 04/18/2018 08:15

Field ID: G1WA0034

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985596	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.4		ug/L	P344188	
		Phaeophytin-a	3.8		ug/L	P344188	
		Chlorophyll-a, Uncorrected	10		ug/L	P344188	
1985602	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	35.2	A	MPN/100 mL	P344386	

Sample Location: HARBINWOOD ESTATES DRAIN

Collection Date/Time: 04/18/2018 08:15

Field ID: G1WA0034

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985608	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: BLACK CREEK UPSTREAM OF CR 158

Collection Date/Time: 04/18/2018 09:15

Field ID: G1WA0072

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985597	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.57	I	ug/L	P344188	
		Phaeophytin-a	0.40	U	ug/L	P344188	
		Chlorophyll-a, Uncorrected	0.79	I	ug/L	P344188	
1985603	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	179.3		MPN/100 mL	P344386	

Sample Location: BLACK CREEK UPSTREAM OF CR 158

Collection Date/Time: 04/18/2018 09:15

Field ID: G1WA0072

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985609	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: WARDS CREEK UPSTREAM OF CR259

Collection Date/Time: 04/18/2018 10:25

Field ID: G1WA0074

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985598	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.1	I	ug/L	P344188	
		Phaeophytin-a	1.1	I	ug/L	P344188	
		Chlorophyll-a, Uncorrected	1.8		ug/L	P344188	
1985604	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1.0	I	MPN/100 mL	P344386	

Sample Location: CANEY CREEK UPSTREAM OF US 90

Collection Date/Time: 04/18/2018 09:55

Field ID: G1WA0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985599	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.4		ug/L	P344188	
		Phaeophytin-a	3.1		ug/L	P344188	
		Chlorophyll-a, Uncorrected	4.4		ug/L	P344188	
1985605	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	307.6		MPN/100 mL	P344386	

Sample Location: CANEY CREEK UPSTREAM OF US 90

Collection Date/Time: 04/18/2018 09:55

Field ID: G1WA0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985611	SOP-PCR-1.4	BacR-qPCR**	3.1E+04		TSC/100 mL	P342991	RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: CANEY CREEK DOWNSTREAM OF 158A Collection Date/Time: 04/18/2018 11:00

Field ID: G1WA0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985600	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.6		ug/L	P344188	
		Phaeophytin-a	2.4		ug/L	P344188	
		Chlorophyll-a, Uncorrected	7.2		ug/L	P344188	
1985606	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	517.2		MPN/100 mL	P344386	

Sample Location: CANEY CREEK DOWNSTREAM OF 158A Collection Date/Time: 04/18/2018 11:00

Field ID: G1WA0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985612	SOP-PCR-1.0	HF183-qPCR**	310	I	GEU/100 mL	P344787	LCS
	SOP-PCR-1.4	BacR-qPCR**	8.8E+03	I	TSC/100 mL	P342991	RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: CHICKEN BRANCH AT OLD PLANK RD Collection Date/Time: 04/18/2018 12:25

Field ID: G1WA0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985601	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.7	I	ug/L	P344188	
		Phaeophytin-a	1.4		ug/L	P344188	
		Chlorophyll-a, Uncorrected	2.6		ug/L	P344188	
1985607	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	140.1		MPN/100 mL	P344386	

Sample Location: CHICKEN BRANCH AT OLD PLANK RD Collection Date/Time: 04/18/2018 12:25

Field ID: G1WA0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985610	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P344188

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

Quality Assurance Report Method Blank Results

Reference Method: SM 9223 Quanti-Tray
Batch ID: P344386

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

Reference Method: SOP-PCR-1.0
Batch ID: P344787

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

Reference Method: SOP-PCR-1.4
Batch ID: P342991

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: P344188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	91.6		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P344787

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	45.9	85.4	F/P	50 - 175
HF183-qPCR	108	85.4	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P342991

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	109	61.8	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P344787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981726	HF183-qPCR	71.7		P	50 - 175
1981727	HF183-qPCR	79.6		P	50 - 175
1985574	HF183-qPCR	83.1		P	50 - 175
1985612	HF183-qPCR	73.0		P	50 - 175
1985665	HF183-qPCR	69.8		P	50 - 175
1985666	HF183-qPCR	83.3		P	50 - 175
1985936	HF183-qPCR	70.8		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P344787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985937	HF183-qPCR	78.1		P	50 - 175
1985938	HF183-qPCR	71.2		P	50 - 175
1985939	HF183-qPCR	74.0	71.7	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P342991

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974132	BacR-qPCR	88.3		P	50 - 175
1983204	BacR-qPCR	101		P	50 - 175
1983223	BacR-qPCR	79.1	61.3	P/P	50 - 175
1985418	BacR-qPCR	80.9		P	50 - 175
1985611	BacR-qPCR	82.2		P	50 - 175
1985612	BacR-qPCR	72.5		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P344188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985489	Chlorophyll-a, Corrected	8.92	Sample	P	0 - 25
1985489	Chlorophyll-a, Uncorrected	10.4	Sample	P	0 - 25
1985489	Phaeophytin-a	19.2	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
Batch ID: P344386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985275	Escherichia Coli-Quanti-Tray	33.0	Sample	P	0 - 80
1985392	Escherichia Coli-Quanti-Tray	19.7	Sample	P	0 - 80
1985602	Escherichia Coli-Quanti-Tray	3.98	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P344787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985939	HF183-qPCR	3.22	Spike	P	0 - 25
1985939	HF183-qPCR	3.22	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P342991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983223	BacR-qPCR	25.3	Spike	F	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: 1985611
Field Sample ID: G1WA0014

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	98.5	P	50 - 300

Lab Sample ID: 1985612
Field Sample ID: G1WA0060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	98.2	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	90.2	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	91.6							8.92	
	Chlorophyll-a, Uncorrected								10.4	
	Phaeophytin-a								19.2	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray								33.0 19.7 3.98	
SOP-PCR-1.0	HF183-qPCR	45.9	85.4	108	73.0	71.7	79.6			3.22 3.22
		85.4			83.1					
SOP-PCR-1.4	BacR-qPCR	61.8	109		88.3	101	79.1			25.3
					61.3					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1985596, 1985597, 1985598, 1985599, 1985600, 1985601
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1985602, 1985603, 1985604, 1985605, 1985606, 1985607
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1985612
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1985611, 1985612
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1985608, 1985609, 1985610, 1985611, 1985612

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	04/18/2018	04/18/2018 14:00	Mariam Hanna	04/25/2018 14:30	Carina A. Tull	1985596, 1985597, 1985598, 1985599, 1985600, 1985601
SM 9223 Quanti-Tray	04/18/2018	04/18/2018 14:50	Edwin Gonzalez-Soto	04/19/2018 10:40	Edwin Gonzalez-Soto	1985602, 1985603, 1985604, 1985605, 1985606, 1985607
SOP-PCR-1.0	04/18/2018	04/18/2018 14:35	Sarah Menz	05/10/2018 09:32	Mailin Lopez	1985612
SOP-PCR-1.4	04/18/2018	04/18/2018 14:35	Sarah Menz	04/20/2018 14:30	Sarah Menz	1985611, 1985612
SOP-PCR-4.0	04/18/2018	04/18/2018 14:35	Angela Smith	05/07/2018 15:05	Puja Jasrotia	1985608, 1985609, 1985610, 1985611, 1985612