

Biological Analysis Report

WAS-SECT-2018-02-14-01

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

Event Description: **Central, Godby, Harbinwood, Chicken, Megginness, Swamp, Salem, Wards**
Request ID: **RQ-2018-01-22-53**
Customer: **WAS-SECT**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Curtis Musson

For additional information please contact
Cheryl Swanson - Administrator
J. Marshall Faircloth - Aquatic Toxicology
Jacqueline Savage - Bench Biology
Jacqueline Savage - Microbiology
Puja Jasrotia, Ph.D. - Molecular Biology
Jennifer Walters - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 15-MAR-2018 14:00



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: 02/14/2018 12:10

Field ID: G1WA0034

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967660	SM 10200 H (mod.)	Chlorophyll-a, Corrected	8.3		ug/L	P340723	
		Phaeophytin-a	0.90	I	ug/L	P340723	
		Chlorophyll-a, Uncorrected	9.1		ug/L	P340723	

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.

Sample Location: Harbinwood Estates Drain

Collection Date/Time: 02/14/2018 12:10

Field ID: G1WA0034

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967666	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	193.5		MPN/100 mL	P340078	

Sample Location: Harbinwood Estates Drain

Collection Date/Time: 02/14/2018 12:10

Field ID: G1WA0034

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967671	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Wards Creek upstream of bridge at CR 259

Collection Date/Time: 02/14/2018 13:52

Field ID: G1WA0002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967661	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.87	I	ug/L	P340723	
		Phaeophytin-a	0.92	I	ug/L	P340723	
		Chlorophyll-a, Uncorrected	1.5		ug/L	P340723	

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.

Sample Location: Wards Creek upstream of bridge at CR 259

Collection Date/Time: 02/14/2018 13:52

Field ID: G1WA0002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967667	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	13.3	A	MPN/100 mL	P340078	

Sample Location: Swamp Creek upstream of Railroad

Collection Date/Time: 02/14/2018 10:49

Field ID: G1WA0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967662	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.4		ug/L	P340723	
		Phaeophytin-a	1.2	I	ug/L	P340723	
		Chlorophyll-a, Uncorrected	3.2		ug/L	P340723	

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.

Sample Location: Swamp Creek upstream of Railroad

Collection Date/Time: 02/14/2018 10:49

Field ID: G1WA0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967668	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	648.8		MPN/100 mL	P340078	

Sample Location: Harbinwood Estates Drain

Collection Date/Time: 02/14/2018 12:10

Field ID: G1WA0034_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967663	SM 10200 H (mod.)	Chlorophyll-a, Corrected	9.5		ug/L	P340723	
		Phaeophytin-a	1.0	I	ug/L	P340723	
		Chlorophyll-a, Uncorrected	10		ug/L	P340723	

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.

Sample Location: Harbinwood Estates Drain

Collection Date/Time: 02/14/2018 12:10

Field ID: G1WA0034_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967669	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	238.2		MPN/100 mL	P340078	

Sample Location: Harbinwood Estates Drain

Collection Date/Time: 02/14/2018 12:10

Field ID: G1WA0034_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967672	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Megginnis Arm Run Downstream of Sharer

Collection Date/Time: 02/14/2018 12:49

Field ID: G1WA0033

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967664	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.0		ug/L	P340723	
		Phaeophytin-a	0.40	U	ug/L	P340723	
		Chlorophyll-a, Uncorrected	3.2		ug/L	P340723	

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.

Sample Location: Megginnis Arm Run Downstream of Sharer

Collection Date/Time: 02/14/2018 12:49

Field ID: G1WA0033

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967670	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	261.3		MPN/100 mL	P340078	

Sample Location: Megginnis Arm Run Downstream of Sharer

Collection Date/Time: 02/14/2018 12:49

Field ID: G1WA0033

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967673	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Field Blank

Collection Date/Time: 02/14/2018 11:50

Field ID: Blank_02142018

Matrix: DI-WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967665	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P340723	
		Phaeophytin-a	0.40	U	ug/L	P340723	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P340723	

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.

Sample Location: Field Blank

Collection Date/Time: 02/14/2018 11:50

Field ID: Blank_02142018

Matrix: DI-WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967712	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL	P340078	

Sample Location: Chicken Branch at Old Plank Rd

Collection Date/Time: 02/14/2018 08:00

Field ID: G1WA0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967709	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.8		ug/L	P340723	
		Phaeophytin-a	2.0		ug/L	P340723	
		Chlorophyll-a, Uncorrected	3.1		ug/L	P340723	

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.

Sample Location: Chicken Branch at Old Plank Rd

Collection Date/Time: 02/14/2018 08:00

Field ID: G1WA0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967713	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	248.9	Q	MPN/100 mL	P340078	

Sample Location: Chicken Branch at Old Plank Rd

Collection Date/Time: 02/14/2018 08:00

Field ID: G1WA0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967717	SOP-PCR-1.0	HF183-qPCR**	170	I	GEU/100 mL	P339342	RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Central Drainage Ditch downstream of Orange Ave.

Collection Date/Time: 02/14/2018 08:57

Field ID: G1WA0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967710	SM 10200 H (mod.)	Chlorophyll-a, Corrected	11		ug/L	P340723	
		Phaeophytin-a	3.2		ug/L	P340723	
		Chlorophyll-a, Uncorrected	14		ug/L	P340723	

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.

Sample Location: Central Drainage Ditch downstream of Orange Ave.

Collection Date/Time: 02/14/2018 08:57

Field ID: G1WA0026					Matrix: W-SURF-FRH			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes	
1967714	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1203.3		MPN/100 mL	P340078		

Sample Location: Godby Drainage Ditch at Progress Dr. Collection Date/Time: 02/14/2018 09:39

Field ID: G1WA0061					Matrix: W-SURF-FRH			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes	
1967711	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P340723		
		Phaeophytin-a	0.40	U	ug/L	P340723		
		Chlorophyll-a, Uncorrected	0.66	I	ug/L	P340723		

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.

Sample Location: Godby Drainage Ditch at Progress Dr. Collection Date/Time: 02/14/2018 09:39

Field ID: G1WA0061					Matrix: W-SURF-FRH			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes	
1967715	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	145.0		MPN/100 mL	P340078		

Sample Location: Salem Branch downstream of SR 159 Collection Date/Time: 02/14/2018 10:21

Field ID: G1WA0053					Matrix: W-SURF-FRH			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes	
1967716	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	161.6		MPN/100 mL	P340078		

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P340723

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: P340078

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

Reference Method: SOP-PCR-1.0
Batch ID: P339342

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P340723

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

Reference Method: SOP-PCR-1.0
Batch ID: P339342

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	102	81.6	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P339342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960727	HF183-qPCR	85.6		P	50 - 175
1966720	HF183-qPCR	82.5		P	50 - 175
1967510	HF183-qPCR	94.0	62.8	P/P	50 - 175
1967511	HF183-qPCR	99.7		P	50 - 175
1967512	HF183-qPCR	74.5		P	50 - 175
1967513	HF183-qPCR	80.7		P	50 - 175
1967514	HF183-qPCR	82.9		P	50 - 175
1967717	HF183-qPCR	89.7		P	50 - 175
1967891	HF183-qPCR	75.1		P	50 - 175
1967892	HF183-qPCR	75.5		P	50 - 175
1967893	HF183-qPCR	72.6		P	50 - 175
1967894	HF183-qPCR	76.1		P	50 - 175
1967895	HF183-qPCR	78.7		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P340723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967759	Chlorophyll-a, Corrected	0.643	Sample	P	0 - 25
1967759	Chlorophyll-a, Uncorrected	1.31	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
Batch ID: P340078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967667	Escherichia Coli-Quanti-Tray	18.0	Sample	P	0 - 80

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P339342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967510	HF183-qPCR	39.8	Spike	F	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: 1967717
 Field Sample ID: G1WA0031

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	113	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						0.643	
	Chlorophyll-a, Uncorrected							1.31	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray							18.0	
SOP-PCR-1.0	HF183-qPCR	81.6	102	85.6	82.5	94.0			39.8
				62.8					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1967660, 1967661, 1967662, 1967663, 1967664, 1967665, 1967709, 1967710, 1967711
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1967666, 1967667, 1967668, 1967669, 1967670, 1967712, 1967713, 1967714, 1967715, 1967716
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1967717
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1967671, 1967672, 1967673, 1967717

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	02/14/2018	02/14/2018 16:11	Cathy Sherrer	02/27/2018	Jennifer Mihalic	1967661, 1967662, 1967664, 1967665, 1967709, 1967710, 1967711
	02/14/2018	02/15/2018 06:48	Cathy Sherrer	02/27/2018	Jennifer Mihalic	1967660, 1967663
SM 9223 Quanti-Tray	02/14/2018	02/14/2018 16:50	Edwin Gonzalez-Soto	02/15/2018 12:40	Carina A. Tull	1967666, 1967667, 1967668, 1967669, 1967670, 1967712, 1967713, 1967714, 1967715, 1967716
SOP-PCR-1.0	02/14/2018	02/14/2018 16:25	Puja Jasrotia	02/21/2018	Sarah Menz	1967717
SOP-PCR-4.0	02/14/2018	02/14/2018 16:00	Angela Smith	03/07/2018	Puja Jasrotia	1967671, 1967672, 1967673
	02/14/2018	02/14/2018 16:25	Angela Smith	03/07/2018	Puja Jasrotia	1967717