

Biological Analysis Report

WAS-SECT-2017-11-01-01

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

Event Description: **Salem, Arrowhead, AJ, Megginnis, Swamp, Godby,
Talavanna, Harbinwood, CDD**
Request ID: **RQ-2017-10-30-16**
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

This Report replaces the previous Report Serial Number: 0100941

Report Comment: Removed I-qualifier on microbiology results reported at the MDL = PQL to assist with WIN database cleanup.

Revision certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 05-NOV-2020 16:52



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: AJ HENRY PARK POND MIDDLE

Collection Date/Time: 11/01/2017 08:18

Field ID: G1WA0058_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941970	SM 10200 H (mod.)	Chlorophyll-a, Corrected	58		ug/L	P335006	
		Phaeophytin-a	4.0	U	ug/L	P335006	
		Chlorophyll-a, Uncorrected	59		ug/L	P335006	

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: LAKE ARROWHEAD AT BOAT DOCK AT
TURTLE CRK LN NEAR OUTLET**

Collection Date/Time: 11/01/2017 08:56

Field ID: G1WA0004_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941971	SM 10200 H (mod.)	Chlorophyll-a, Corrected	55		ug/L	P335006	
		Phaeophytin-a	6.1	I	ug/L	P335006	
		Chlorophyll-a, Uncorrected	61		ug/L	P335006	

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: TALLAVANNA LAKE MIDDLE

Collection Date/Time: 11/01/2017 09:55

Field ID: G1WA0045_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941972	SM 10200 H (mod.)	Chlorophyll-a, Corrected	54		ug/L	P335006	
		Phaeophytin-a	9.3		ug/L	P335006	
		Chlorophyll-a, Uncorrected	61		ug/L	P335006	

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: TALLAVANNA LAKE MIDDLE

Collection Date/Time: 11/01/2017 09:55

Field ID: G1WA0045_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941978	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL	P334789	

Sample Location: SWAMP CREEK UPSTREAM OF RAILROAD

Collection Date/Time: 11/01/2017 10:50

Field ID: G1WA0052_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941973	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P335006	
		Phaeophytin-a	0.40	U	ug/L	P335006	
		Chlorophyll-a, Uncorrected	0.63	I	ug/L	P335006	

Ref. Method and Comment:

SM 10200 H (mod.): Lab dup result is 0.55 U for Chl-a Corrected, 0.44 I for Chl-a Uncorrected, and 0.40 U for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: SWAMP CREEK UPSTREAM OF RAILROAD

Collection Date/Time: 11/01/2017 10:50

Field ID: G1WA0052_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941979	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	378.4		MPN/100 mL	P334789	

Sample Location: SWAMP CREEK UPSTREAM OF RAILROAD Collection Date/Time: 11/01/2017 10:50

Field ID: G1WA0052_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941985	SOP-PCR-1.0	HF183-qPCR**	34	T	GEU/100 mL	P334196	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: SALEM BRANCH DOWNSTREAM OF SR 159 Collection Date/Time: 11/01/2017 11:30

Field ID: G1WA0053_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941980	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	344.8		MPN/100 mL	P334789	

Sample Location: SALEM BRANCH DOWNSTREAM OF SR 159 Collection Date/Time: 11/01/2017 11:30

Field ID: G1WA0053_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941988	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: HARBINWOOD ESTATES DRAIN Collection Date/Time: 11/01/2017 12:00

Field ID: G1WA0034_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941974	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.3	I	ug/L	P335006	
		Phaeophytin-a	1.2		ug/L	P335006	
		Chlorophyll-a, Uncorrected	2.1		ug/L	P335006	

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: 11/01/2017 12:00

Field ID: G1WA0034_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941981	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	5.2		MPN/100 mL	P334789	

Sample Location: HARBINWOOD ESTATES DRAIN Collection Date/Time: 11/01/2017 12:00

Field ID: G1WA0034_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941989	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: MEGGNNIS ARM RUN DOWNSTREAM OF SHARER Collection Date/Time: 11/01/2017 12:57

Field ID: G1WA0033_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941975	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P335012	
		Phaeophytin-a	0.40	U	ug/L	P335012	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P335012	

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: MEGGNNIS ARM RUN DOWNSTREAM OF SHARER

Collection Date/Time: 11/01/2017 12:57

Field ID: G1WA0033_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941982	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	69.1		MPN/100 mL	P334789	

Sample Location: MEGGNNIS ARM RUN DOWNSTREAM OF SHARER

Collection Date/Time: 11/01/2017 12:57

Field ID: G1WA0033_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941990	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: GODBY DRAINAGE DITCH AT PROGRESS DR

Collection Date/Time: 11/01/2017 13:30

Field ID: G1WA0061_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941976	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P335012	
		Phaeophytin-a	0.40	U	ug/L	P335012	
		Chlorophyll-a, Uncorrected	0.42	I	ug/L	P335012	

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: 11/01/2017 13:30

Field ID: g1wa0061_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941983	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	10.0		MPN/100 mL	P334789	

Sample Location: GODBY DRAINAGE DITCH AT PROGRESS DR

Collection Date/Time: 11/01/2017 13:30

Field ID: G1WA0061_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941986	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P334196	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

Sample Location: CENTRAL DRAINAGE DITCH DOWNSTREAM OF ORANGE AVE

Collection Date/Time: 11/01/2017 14:05

Field ID: G1WA0026_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941977	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.3		ug/L	P335012	
		Phaeophytin-a	0.42	I	ug/L	P335012	
		Chlorophyll-a, Uncorrected	2.7		ug/L	P335012	

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: 11/01/2017 14:05

Field ID: G1WA0026_11012017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941984	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	206.4		MPN/100 mL	P334789	

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P335006

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 10200 H (mod.)
 Batch ID: P335012

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: P334789

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

Reference Method: SOP-PCR-1.0
 Batch ID: P334196

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
 Batch ID: P335006

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	107		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P335012

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	106		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P334196

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	142	105	P/P	50 - 175
HF183-qPCR	101	87.5	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P334196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934547	HF183-qPCR	97.0		P	50 - 175
1934550	HF183-qPCR	92.3		P	50 - 175
1940827	HF183-qPCR	72.0		P	50 - 175
1940858	HF183-qPCR	92.3	91.5	P/P	50 - 175
1940859	HF183-qPCR	93.3		P	50 - 175
1940860	HF183-qPCR	60.9		P	50 - 175
1940861	HF183-qPCR	85.5		P	50 - 175
1941072	HF183-qPCR	96.8		P	50 - 175
1941080	HF183-qPCR	57.3		P	50 - 175
1941103	HF183-qPCR	95.7		P	50 - 175
1941104	HF183-qPCR	63.4		P	50 - 175
1941985	HF183-qPCR	74.0		P	50 - 175
1941986	HF183-qPCR	90.4		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 9223 Quanti-Tray
Batch ID: P334789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941776	Escherichia Coli-Quanti-Tray	57.2	Sample	P	0 - 80
1941944	Escherichia Coli-Quanti-Tray	55.9	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P334196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940858	HF183-qPCR	0.866	Spike	P	0 - 25
1943571	HF183-qPCR	5.40	Spike	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 1941985
Field Sample ID: G1WA0052_11012017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	80.8	P	50 - 300

Lab Sample ID: 1941986
Field Sample ID: G1WA0061_11012017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	91.5	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	107				
	Chlorophyll-a, Corrected	106				
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray				57.2 55.9	
SOP-PCR-1.0	HF183-qPCR	142 87.5 101 105	92.3 91.5 93.3 60.9			0.866 5.40

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1941970, 1941971, 1941972, 1941973, 1941974, 1941975, 1941976, 1941977
SM 9223 Quanti-Tray	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1941978, 1941979, 1941980, 1941981, 1941982, 1941983, 1941984
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1941985, 1941986
SOP-PCR-4.0	Preparation of Samples by Filtration and held for qPCR Analysis	1941985, 1941986, 1941988, 1941989, 1941990

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	11/01/2017	11/02/2017 06:44	Cathy Sherrer	11/08/2017 13:50	Kim M. Spencer	1941970, 1941971, 1941972, 1941973, 1941974
	11/01/2017	11/02/2017 06:44	Cathy Sherrer	11/08/2017 14:20	Kim M. Spencer	1941975, 1941976, 1941977
SM 9223 Quanti-Tray	11/01/2017	11/01/2017 16:55	Carina A. Tull	11/02/2017 11:15	Carina A. Tull	1941978, 1941979, 1941980, 1941981, 1941982, 1941983, 1941984
SOP-PCR-1.0	11/01/2017	11/02/2017 10:30	Sarah Menz	11/06/2017 15:40	Sarah Menz	1941985, 1941986
SOP-PCR-4.0	11/01/2017	11/02/2017 10:30	Avril Wood-McGrath	12/04/2017 13:19	Puja Jasrotia	1941985, 1941986, 1941988, 1941989, 1941990