Biological Analysis Report

WAS-SECT-2018-06-28-01

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

Event Description:	**Salem, Chicken, Godby, Sand, 8, Black, CDD, Swamp, Harbinwood**
Request ID:	**RQ-2018-05-21-16**
Customer:	**WAS-SECT**
Project ID:	**SMP**

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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 26-JUL-2018 18:00

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: CENTRAL DRAINGE DITCH DOWNSTREAM OF ORANGE AVE **Collection Date/Time: 06/28/2018 10:02**

Field ID: G1WA0026 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003959	SM 10200 H (mod.)	Chlorophyll-a, Corrected	37		ug/L	P348059	
		Phaeophytin-a	1.7	I	ug/L	P348059	
		Chlorophyll-a, Uncorrected	40		ug/L	P348059	
2003968	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1553.1		MPN/100 mL	P347888	

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 DRAINGE AT PROGRESS DR **Collection Date/Time: 06/28/2018 10:46**

Field ID: G1WA0061 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003960	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.62	U	ug/L	P348059	
		Phaeophytin-a	0.45	U	ug/L	P348059	
		Chlorophyll-a, Uncorrected	0.49	I	ug/L	P348059	
2003969	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	40.4		MPN/100 mL	P347888	

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: SALEM BRANCH DOWNSTREAM OF SR 159 **Collection Date/Time: 06/28/2018 11:35**

Field ID: G1WA0053 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003966	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1916.6	A	MPN/100 mL	P347888	

Sample Location: SWAMP CREEK UPSTREAM OF RAILROAD **Collection Date/Time: 06/28/2018 12:00**

Field ID: G1WA0052 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003961	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.75	I	ug/L	P348059	
		Phaeophytin-a	0.40	U	ug/L	P348059	
		Chlorophyll-a, Uncorrected	0.85	I	ug/L	P348059	
2003970	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	75.9		MPN/100 mL	P347888	

Ref. Method and Comment:
SM 10200 H (mod.): Lab dup result is 0.74 I for Chl-a Corrected, 0.82 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: CHICKEN BRANCH AT OLD PLANK RD **Collection Date/Time: 06/28/2018 07:38**

Field ID: G1WA0031 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003967	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	72.3	Q	MPN/100 mL	P347888	

Sample Location: CHICKEN BRANCH AT OLD PLANK RD **Collection Date/Time: 06/28/2018 07:38**

Field ID: G1WA0031 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003975	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: EIGHT MILE POND MIDDLE **Collection Date/Time: 06/28/2018 08:10**

Field ID: G1WA0024 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003962	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.5		ug/L	P348059	
		Phaeophytin-a	2.2		ug/L	P348059	
		Chlorophyll-a, Uncorrected	7.0		ug/L	P348059	
2003971	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	290.9	Q	MPN/100 mL	P347888	

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: BLACK CREEK UPSTREAM OF BLOXHAM CUTOFF **Collection Date/Time: 06/28/2018 09:25**

Field ID: G1WA0023 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003963	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P348059	
		Phaeophytin-a	0.40	U	ug/L	P348059	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P348059	
2003972	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	313.0		MPN/100 mL	P347888	

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: SAND POND MIDDLE **Collection Date/Time: 06/28/2018 08:55**

Field ID: G1WA0044 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003964	SM 10200 H (mod.)	Chlorophyll-a, Corrected	36		ug/L	P348059	
		Phaeophytin-a	2.5	U	ug/L	P348059	
		Chlorophyll-a, Uncorrected	39		ug/L	P348059	
2003973	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	6.3		MPN/100 mL	P347888	

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: 06/28/2018 13:40**

Field ID: G1WA0034 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003965	SM 10200 H (mod.)	Chlorophyll-a, Corrected	16		ug/L	P348059	
		Phaeophytin-a	3.4		ug/L	P348059	
		Chlorophyll-a, Uncorrected	18		ug/L	P348059	
2003974	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	488.4		MPN/100 mL	P347888	

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: 06/28/2018 13:40**

Field ID: G1WA0034 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003976	SOP-PCR-1.0	HF183-qPCR**	380	I	GEU/100 mL	P348463	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P348059

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.89	U	ug/L
Chlorophyll-a, Uncorrected	0.65	U	ug/L
Phaeophytin-a	0.65	U	ug/L

Reference Method: SM 9223 Quanti-Tray
Batch ID: P347888

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

Reference Method: SOP-PCR-1.0
Batch ID: P348463

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P348059

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	96.0		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P348463

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	114	162	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P348463

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002722	HF183-qPCR	106		P	50 - 175
2003316	HF183-qPCR	99.1		P	50 - 175
2003317	HF183-qPCR	102		P	50 - 175
2003976	HF183-qPCR	90.7		P	50 - 175
2004528	HF183-qPCR	65.9		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P348463

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009401	HF183-qPCR	85.5	91.7	P/P	50 - 175
2009520	HF183-qPCR	109		P	50 - 175
2009521	HF183-qPCR	106		P	50 - 175
2009522	HF183-qPCR	100		P	50 - 175
2009523	HF183-qPCR	154		P	50 - 175
2009524	HF183-qPCR	107		P	50 - 175
2009525	HF183-qPCR	110		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 9223 Quanti-Tray
Batch ID: P347888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003842	Escherichia Coli-Quanti-Tray	15.8	Sample	P	0 - 80
2003966	Escherichia Coli-Quanti-Tray	52.5	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P348463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009401	HF183-qPCR	7.04	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: 2003976
Field Sample ID: G1WA0034

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	103	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	96.0				
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray				15.8 52.5	
SOP-PCR-1.0	HF183-qPCR	162 114	106 90.7 99.1 102			7.04

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2003959, 2003960, 2003961, 2003962, 2003963, 2003964, 2003965
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2003966, 2003967, 2003968, 2003969, 2003970, 2003971, 2003972, 2003973, 2003974
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2003976
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2003975, 2003976

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	06/28/2018	06/28/2018 16:15	Edwin Gonzalez-Soto	07/06/2018 10:00	Carina A. Tull	2003959, 2003960, 2003961, 2003962, 2003963, 2003964, 2003965
SM 9223 Quanti-Tray	06/28/2018	06/28/2018 16:30	Peterson Janvier	06/29/2018 12:10	Peterson Janvier	2003966, 2003967, 2003968, 2003969, 2003970, 2003971, 2003972, 2003973, 2003974
SOP-PCR-1.0	06/28/2018	06/28/2018 16:40	Puja Jasrotia	07/23/2018 11:49	Mailin Lopez	2003976
SOP-PCR-4.0	06/28/2018	06/28/2018 16:40	Angela Smith	07/16/2018 10:36	Puja Jasrotia	2003975, 2003976