Biological Analysis Report

WAS-SECT-2018-03-15-01

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

Event Description: **Swamp, Salem, Caney, Harbiwood, Ocklock**
Request ID: **RQ-2018-03-12-53**
Customer: **WAS-SECT**
Project ID: **SMP**

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Date Certified: 24-APR-2018 13:15

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: Ochlockonee River Downstream of Tower Rd **Collection Date/Time: 03/15/2018 12:00**

Field ID: G1WA0070 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975301	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.4		ug/L	P341975	
		Phaeophytin-a	2.2		ug/L	P341975	
		Chlorophyll-a, Uncorrected	6.9		ug/L	P341975	

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: Ochlockonee River Downstream of Tower Rd **Collection Date/Time: 03/15/2018 12:00**

Field ID: G1WA0070 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975308	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	132.1	A	MPN/100 mL	P342120	

Sample Location: Harbinwood Estates Drain **Collection Date/Time: 03/15/2018 09:50**

Field ID: G1WA0034 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975302	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.3		ug/L	P341975	
		Phaeophytin-a	1.5		ug/L	P341975	
		Chlorophyll-a, Uncorrected	3.2		ug/L	P341975	

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: 03/15/2018 09:50**

Field ID: G1WA0034 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975309	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	2.0		MPN/100 mL	P342120	

Sample Location: Harbinwood Estates Drain **Collection Date/Time: 03/15/2018 09:50**

Field ID: G1WA0034 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975316	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Ochlockonee River Upstream of US 90 **Collection Date/Time: 03/15/2018 13:30**

Field ID: G1WA0068 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975303	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.6		ug/L	P341975	
		Phaeophytin-a	1.1	I	ug/L	P341975	
		Chlorophyll-a, Uncorrected	6.4		ug/L	P341975	

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: Ochlockonee River Upstream of US 90 **Collection Date/Time: 03/15/2018 13:30**

Field ID: G1WA0068 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975310	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	79.8		MPN/100 mL	P342120	

Sample Location: Caney Creek Upstream of US 90 **Collection Date/Time: 03/15/2018 09:00**

Field ID: G1WA0014 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975304	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	I	ug/L	P341975	
		Phaeophytin-a	1.6		ug/L	P341975	
		Chlorophyll-a, Uncorrected	2.7		ug/L	P341975	

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: Caney Creek Upstream of US 90 **Collection Date/Time: 03/15/2018 09:00**

Field ID: G1WA0014 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975311	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	290.9		MPN/100 mL	P342120	

Sample Location: Caney Creek Upstream of US 90 **Collection Date/Time: 03/15/2018 09:00**

Field ID: G1WA0014 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975317	SOP-PCR-1.4	BacR-qPCR**	1.80E+05		TSC/100 mL	P341632	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Swamp Creek upstream of Railroad **Collection Date/Time: 03/15/2018 10:40**

Field ID: G1WA0052 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975305	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.2		ug/L	P341975	
		Phaeophytin-a	0.91	I	ug/L	P341975	
		Chlorophyll-a, Uncorrected	2.8		ug/L	P341975	

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: 03/15/2018 10:40**

Field ID: G1WA0052 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975312	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	123.6		MPN/100 mL	P342120	

Sample Location: Salem Branch downstream of SR 159 **Collection Date/Time: 03/15/2018 10:30**

Field ID: G1WA0053 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975313	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	298.7		MPN/100 mL	P342120	

Sample Location: Ochlockonee River Upstream of Old Brainbridge **Collection Date/Time: 03/15/2018 11:15**

Field ID: G1WA0071 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975306	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.5		ug/L	P341975	
		Phaeophytin-a	1.3		ug/L	P341975	
		Chlorophyll-a, Uncorrected	5.5		ug/L	P341975	

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: Ochlockonee River Upstream of Old Brainbridge **Collection Date/Time: 03/15/2018 11:15**

Field ID: G1WA0071 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975314	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	141.4		MPN/100 mL	P342120	

Sample Location: Ochlockonee River Upstream of Tower Rd **Collection Date/Time: 03/15/2018 12:15**

Field ID: G1WA0069 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975307	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.3		ug/L	P341975	
		Phaeophytin-a	2.0		ug/L	P341975	
		Chlorophyll-a, Uncorrected	6.7		ug/L	P341975	

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: Ochlockonee River Upstream of Tower Rd **Collection Date/Time: 03/15/2018 12:15**

Field ID: G1WA0069 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975315	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	151.5		MPN/100 mL	P342120	

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P341975

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: P342120

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

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.4
Batch ID: P341632

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: P341975

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	99.8		P	84 - 116

Reference Method: SOP-PCR-1.4
Batch ID: P341632

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	98.3	54.0	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P341632

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975036	BacR-qPCR	61.7		P	50 - 175
1975110	BacR-qPCR	68.3	71.7	P/P	50 - 175
1975111	BacR-qPCR	137		P	50 - 175
1975112	BacR-qPCR	65.3		P	50 - 175
1975113	BacR-qPCR	61.0		P	50 - 175
1975114	BacR-qPCR	65.8		P	50 - 175
1975317	BacR-qPCR	58.6		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P341975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975413	Chlorophyll-a, Corrected	6.21	Sample	P	0 - 25
1975413	Chlorophyll-a, Uncorrected	0.571	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
Batch ID: P342120

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975308	Escherichia Coli-Quanti-Tray	11.4	Sample	P	0 - 80

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.4
Batch ID: P341632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975110	BacR-qPCR	4.79	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: 1975317
Field Sample ID: G1WA0014

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	106	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	99.8			6.21	
	Chlorophyll-a, Uncorrected				0.571	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray				11.4	
SOP-PCR-1.4	BacR-qPCR	54.0 98.3	61.7 68.3 71.7 137			4.79

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1975301, 1975302, 1975303, 1975304, 1975305, 1975306, 1975307
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1975308, 1975309, 1975310, 1975311, 1975312, 1975313, 1975314, 1975315
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1975317
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1975316, 1975317

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	03/15/2018	03/15/2018 15:25	Peterson Janvier	03/21/2018 10:30	Kim M. Spencer	1975301, 1975302, 1975303, 1975304, 1975305, 1975306, 1975307
SM 9223 Quanti-Tray	03/15/2018	03/15/2018 16:20	Edwin Gonzalez-Soto	03/16/2018 10:50	Edwin Gonzalez-Soto	1975308, 1975309, 1975310, 1975311, 1975312, 1975313, 1975314, 1975315
SOP-PCR-1.4	03/15/2018	03/16/2018 12:40	Angela Smith	03/26/2018 15:19	Sarah Menz	1975317
SOP-PCR-4.0	03/15/2018	03/16/2018 12:40	Angela Smith	04/17/2018 14:27	Puja Jasrotia	1975316, 1975317