

Biological Analysis Report

SW-DIST-2018-06-01-01

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

Overflow Analyses Performed By:
Advanced Environmental Laboratories - Tampa
9610 Princess Palm Avenue
Tampa, Florida 33619
DOH Accreditation E84589

Event Description: **WOLF SIMS Mckay Rice**
Request ID: **RQ-2018-05-21-06**
Customer: **SW-DIST**
Project ID: **SMP**

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Date Certified: 17-JUL-2018 14:26



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, Molecular and Overflow.

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: Biggest Flowing Ditch @ 45th

Collection Date/Time: 05/31/2018 09:40

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996510	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.0		ug/L	P346411	
		Phaeophytin-a	0.40	U	ug/L	P346411	
		Chlorophyll-a, Uncorrected	2.2		ug/L	P346411	

Sample Location: Biggest Flowing Ditch @ 45th

Collection Date/Time: 05/31/2018 09:40

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996534	SM 9230 C	Enterococci-Membrane Filter	4600		cfu/100 mL		

Sample Location: Biggest Flowing Ditch @ 45th

Collection Date/Time: 05/31/2018 09:40

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996526	SOP-PCR-1.0	HF183-qPCR**	390	I	GEU/100 mL	P346839	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Sandbag Ditch @ 45th

Collection Date/Time: 05/31/2018 09:45

Field ID: G1SW0094

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996535	SM 9230 C	Enterococci-Membrane Filter	8600	B	cfu/100 mL		

Sample Location: Sandbag Ditch @ 45th

Collection Date/Time: 05/31/2018 09:45

Field ID: G1SW0094

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996527	SOP-PCR-1.0	HF183-qPCR**	520	I	GEU/100 mL	P346839	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Sims Branch @ Port Redwing

Collection Date/Time: 05/31/2018 10:25

Field ID: G1SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996511	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.2		ug/L	P346411	
		Phaeophytin-a	0.72	I	ug/L	P346411	
		Chlorophyll-a, Uncorrected	4.8		ug/L	P346411	

Sample Location: Sims Branch @ Port Redwing

Collection Date/Time: 05/31/2018 10:25

Field ID: G1SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996536	SM 9230 C	Enterococci-Membrane Filter	116		cfu/100 mL		

Sample Location: Wolf Branch Canal

Collection Date/Time: 05/31/2018 11:10

Field ID: G1SW0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996512	SM 10200 H (mod.)	Chlorophyll-a, Corrected	15		ug/L	P346411	
		Phaeophytin-a	1.8		ug/L	P346411	
		Chlorophyll-a, Uncorrected	17		ug/L	P346411	

Sample Location: Wolf Branch Canal

Collection Date/Time: 05/31/2018 11:10

Field ID: G1SW0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996537	SM 9230 C	Enterococci-Membrane Filter	108		cfu/100 mL		

Sample Location: Wolf Branch Canal

Collection Date/Time: 05/31/2018 11:10

Field ID: G1SW0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996528	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Rice Creek @ Balm Rvrview

Collection Date/Time: 05/31/2018 11:40

Field ID: G2SW0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996529	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P347054	
	SOP-PCR-1.4	BacR-qPCR**	1.11E+05		TSC/100 mL	P347054	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
 SOP-PCR-1.4: Precision data unavailable for Analysis Batch A84869.

Sample Location: Rice Creek @ Balm Rvrview

Collection Date/Time: 05/31/2018 11:40

Field ID: G2SW0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996525	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	613.1	Q	MPN/100 mL	P346661	

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P346411

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: P346661

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P346839

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

Reference Method: SOP-PCR-1.0
Batch ID: P347054

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

Reference Method: SOP-PCR-1.4
Batch ID: P347054

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL
BacR-qPCR	3.0E+03	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P346411

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	93.6		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P346839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	118	118	P/P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P347054

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	116	140	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P347054

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	384	76.2	F/P	50 - 175
BacR-qPCR	135	82.8	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P346839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994792	HF183-qPCR	110		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P346839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995735	HF183-qPCR	90.2		P	50 - 175
1996156	HF183-qPCR	81.6		P	50 - 175
1996306	HF183-qPCR	117		P	50 - 175
1996307	HF183-qPCR	94.6		P	50 - 175
1996352	HF183-qPCR	91.8		P	50 - 175
1996526	HF183-qPCR	93.0		P	50 - 175
1996527	HF183-qPCR	98.1		P	50 - 175
2001183	HF183-qPCR	92.3	90.2	P/P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P347054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969181	HF183-qPCR	89.9		P	50 - 175
1996157	HF183-qPCR	84.6		P	50 - 175
1996529	HF183-qPCR	86.8		P	50 - 175
2000468	HF183-qPCR	111		P	50 - 175
2000469	HF183-qPCR	107		P	50 - 175
2000534	HF183-qPCR	102		P	50 - 175
2000535	HF183-qPCR	96.8		P	50 - 175
2001853	HF183-qPCR	99.5		P	50 - 175
2001854	HF183-qPCR	112	106	P/P	50 - 175
2001855	HF183-qPCR	104		P	50 - 175
2001856	HF183-qPCR	95.0		P	50 - 175
2002922	HF183-qPCR	91.5		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P347054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996157	BacR-qPCR	125		P	50 - 175
1996529	BacR-qPCR	60.6		P	50 - 175
2000535	BacR-qPCR	59.9		P	50 - 175
2001856	BacR-qPCR	50.1		P	50 - 175
2002194	BacR-qPCR	73.1		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P346411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996343	Chlorophyll-a, Corrected	0.756	Sample	P	0 - 25
1996343	Chlorophyll-a, Uncorrected	2.18	Sample	P	0 - 25
1996343	Phaeophytin-a	8.07	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SM 9223 Quanti-Tray
Batch ID: P346661

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996576	Escherichia Coli-Quanti-Tray	68.9	Sample	P	0 - 80
1996631	Escherichia Coli-Quanti-Tray	20.9	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P346839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001183	HF183-qPCR	2.37	Spike	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P347054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001854	HF183-qPCR	4.96	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: 1996526
Field Sample ID: G1SW0093

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	116	P	50 - 300

Lab Sample ID: 1996527
Field Sample ID: G1SW0094

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	111	P	50 - 300

Lab Sample ID: 1996529
Field Sample ID: G2SW0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	94.0	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	135	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	93.6			0.756	
	Chlorophyll-a, Uncorrected				2.18	
	Phaeophytin-a				8.07	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision		MS
									SMP		
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray								68.9	20.9	
SOP-PCR-1.0	HF183-qPCR	118	118		92.3	90.2	110				2.37
	HF183-qPCR	140	116		86.8	111	107				4.96
SOP-PCR-1.4	BacR-qPCR	384	82.8	135	60.6	73.1	125				
		76.2			59.9						

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1996510, 1996511, 1996512
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1996525
SM 9230 C / E84589	Enterococci by membrane filter method by Advanced Environmental Overflow Laboratories for SWD	1996534, 1996535, 1996536, 1996537
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1996526, 1996527, 1996529
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1996529
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1996526, 1996527, 1996528, 1996529

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	06/01/2018	06/01/2018 14:00	Mariam Hanna	06/05/2018 10:05	Carina A. Tull	1996510, 1996511, 1996512
SM 9223 Quanti-Tray	06/01/2018	06/01/2018 17:00	Edwin Gonzalez-Soto	06/02/2018 14:50	Edwin Gonzalez-Soto	1996525
SM 9230 C	05/31/2018	05/31/2018 15:30		06/01/2018 13:30	AEL - Tampa	1996534, 1996535, 1996536, 1996537
SOP-PCR-1.0	06/01/2018	06/01/2018 13:40	Angela Smith	06/19/2018 16:09	Mailin Lopez	1996526, 1996527
	06/01/2018	06/01/2018 13:40	Sarah Menz	06/25/2018 15:54	Mailin Lopez	1996529
SOP-PCR-1.4	06/01/2018	06/01/2018 13:40	Sarah Menz	06/27/2018 11:07	Mailin Lopez	1996529
SOP-PCR-4.0	06/01/2018	06/01/2018 13:40	Angela Smith	06/18/2018 10:30	Puja Jasrotia	1996526, 1996527, 1996528, 1996529