

Biological Analysis Report

SW-DIST-2018-04-19-01

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-2018-04-16-06**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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13051 N. Telecom Parkway
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Report Comment: Report recertified to correct diuron result for Field ID G2SW0032 (Lab ID 1986061).

Certified by: Jacqueline Savage, Environmental Manager

Date Certified: 05-JUL-2018 15:45



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, 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: SIMS BRANCH @ PORT REDWING

Collection Date/Time: 04/18/2018 10:35

Field ID: G1SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986049	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.4		ug/L	P344359	
		Phaeophytin-a	1.5		ug/L	P344359	
		Chlorophyll-a, Uncorrected	7.5		ug/L	P344359	

Sample Location: SIMS BRANCH @ PORT REDWING

Collection Date/Time: 04/18/2018 10:35

Field ID: G1SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986056	SM 9230 C	Enterococci-Membrane Filter	4	B	cfu/100 mL		

Sample Location: BIGGEST FLOWING DITCH @ 45TH

Collection Date/Time: 04/18/2018 09:55

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986050	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.9		ug/L	P344359	
		Phaeophytin-a	6.2		ug/L	P344359	
		Chlorophyll-a, Uncorrected	12		ug/L	P344359	

Sample Location: BIGGEST FLOWING DITCH @ 45TH

Collection Date/Time: 04/18/2018 09:55

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986057	SM 9230 C	Enterococci-Membrane Filter	740	B	cfu/100 mL		

Sample Location: BIGGEST FLOWING DITCH @ 45TH

Collection Date/Time: 04/18/2018 09:55

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986052	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P345261	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P345261	LCS
	SOP-PCR-1.3	GFD-purified-qPCR**	360	I	TSC/100 mL	P345032	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P345261	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

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

SOP-PCR-1.2: No amplification of GULL2 marker. Precision data unavailable for Analysis Batch A83964.

SOP-PCR-1.4: No amplification of BACR marker. Precision data unavailable for Analysis Batch A83966.

Sample Location: WOLF BRANCH CANAL

Collection Date/Time: 04/18/2018 11:05

Field ID: G1SW0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986051	SM 10200 H (mod.)	Chlorophyll-a, Corrected	8.6		ug/L	P344359	
		Phaeophytin-a	1.4		ug/L	P344359	
		Chlorophyll-a, Uncorrected	9.8		ug/L	P344359	

Sample Location: WOLF BRANCH CANAL

Collection Date/Time: 04/18/2018 11:05

Field ID: G1SW0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986058	SM 9230 C	Enterococci-Membrane Filter	12	B	cfu/100 mL		

Sample Location: WOLF BRANCH CANAL

Collection Date/Time: 04/18/2018 11:05

Field ID: G1SW0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986053	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: RICE @ BALM RIVERVIEW

Collection Date/Time: 04/18/2018 11:55

Field ID: G2SW0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986054	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P345261	
	SOP-PCR-1.4	BacR-qPCR**	160	T	TSC/100 mL	P345261	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

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

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A83966.

Sample Location: RICE @ BALM RIVERVIEW

Collection Date/Time: 04/18/2018 11:55

Field ID: G2SW0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986055	EPA 1603	Escherichia coli-Membrane Filter**	430		cfu/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P344359

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: SOP-PCR-1.0

Batch ID: P345261

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

Reference Method: SOP-PCR-1.2

Batch ID: P345261

Component	Result	Code	Units
GULL2-qPCR	1.7E+04	U	TSC/100 mL

Reference Method: SOP-PCR-1.3

Batch ID: P345032

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.3
Batch ID: P345032

Component	Result	Code	Units
GFD-purified-qPCR	340	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P345261

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: P344359

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	87.3		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P345261

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	55.0	95.7	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P345261

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	92.0	46.8	P/F	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P345032

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	102	30.8	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P345261

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	92.3	74.4	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P345261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981703	HF183-qPCR	85.7		P	50 - 175
1981704	HF183-qPCR	87.3		P	50 - 175
1983989	HF183-qPCR	81.6		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P345261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983990	HF183-qPCR	92.1	86.0	P/P	50 - 175
1983991	HF183-qPCR	82.5		P	50 - 175
1983992	HF183-qPCR	80.2		P	50 - 175
1983993	HF183-qPCR	89.6		P	50 - 175
1985974	HF183-qPCR	86.5		P	50 - 175
1985975	HF183-qPCR	105		P	50 - 175
1986052	HF183-qPCR	84.1		P	50 - 175
1986054	HF183-qPCR	82.1		P	50 - 175
1986378	HF183-qPCR	70.9		P	50 - 175
1986379	HF183-qPCR	75.1		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P345261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983992	GULL2-qPCR	70.6		P	50 - 300
1985974	GULL2-qPCR	72.5		P	50 - 300
1986052	GULL2-qPCR	85.2		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P345032

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983992	GFD-purified-qPCR	51.1		P	50 - 175
1985936	GFD-purified-qPCR	95.2		P	50 - 175
1985938	GFD-purified-qPCR	107		P	50 - 175
1985974	GFD-purified-qPCR	142		P	50 - 175
1986052	GFD-purified-qPCR	97.3		P	50 - 175
1986379	GFD-purified-qPCR	125		P	50 - 175
1991711	GFD-purified-qPCR	89.1		P	50 - 175
1991712	GFD-purified-qPCR	147	160	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P345261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981703	BacR-qPCR	64.8		P	50 - 175
1983992	BacR-qPCR	60.0		P	50 - 175
1985974	BacR-qPCR	63.6		P	50 - 175
1986052	BacR-qPCR	73.8		P	50 - 175
1986054	BacR-qPCR	50.3		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P344359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986019	Chlorophyll-a, Corrected	4.05	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P344359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986019	Chlorophyll-a, Uncorrected	3.51	Sample	P	0 - 25
1986019	Phaeophytin-a	1.17	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P345261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983990	HF183-qPCR	6.83	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P345032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991712	GFD-purified-qPCR	8.56	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: 1986052
Field Sample ID: G1SW0093

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	97.5	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	95.9	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	102	P	50 - 300

Lab Sample ID: 1986054
Field Sample ID: G2SW0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	105	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	97.3	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision	
							LCS	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	87.3					4.05	
	Chlorophyll-a, Uncorrected						3.51	
	Phaeophytin-a						1.17	
SOP-PCR-1.0	HF183-qPCR	95.7	55.0	85.7	87.3	81.6		6.83
				92.1				
SOP-PCR-1.2	GULL2-qPCR	46.8	92.0	70.6	72.5	85.2		

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SOP-PCR-1.3	GFD-purified-qPCR	30.8	102	89.1	147	160			8.56
SOP-PCR-1.4	BacR-qPCR	74.4	92.3	64.8	60.0	63.6			
				95.2					
				73.8					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E84589	Escherichia coli by membrane filter method using modified mTEC by Advanced Environmental Tampa Lab for SWD	1986055
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1986049, 1986050, 1986051
SM 9230 C / E84589	Enterococci by membrane filter method by Advanced Environmental Overflow Laboratories for SWD	1986056, 1986057, 1986058
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1986052, 1986054
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1986052
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1986052
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1986052, 1986054
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1986052, 1986053, 1986054

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	04/18/2018	04/18/2018 16:30		04/19/2018 15:30	AEL - Tampa	1986055
SM 10200 H (mod.)	04/19/2018	04/19/2018 14:15	Jennifer Mihalic	04/26/2018 14:15	Carina A. Tull	1986049, 1986050, 1986051
SM 9230 C	04/18/2018	04/18/2018 16:45		04/19/2018 14:45	AEL - Tampa	1986056, 1986057, 1986058
SOP-PCR-1.0	04/19/2018	04/19/2018 14:20	Puja Jasrotia	05/15/2018 16:44	Mailin Lopez	1986052, 1986054
SOP-PCR-1.2	04/19/2018	04/19/2018 14:20	Puja Jasrotia	05/16/2018 15:33	Sarah Menz	1986052
SOP-PCR-1.3	04/19/2018	04/19/2018 14:20	Angela Smith	05/17/2018 14:48	Sarah Menz	1986052
SOP-PCR-1.4	04/19/2018	04/19/2018 14:20	Puja Jasrotia	05/16/2018 12:41	Sarah Menz	1986052, 1986054
SOP-PCR-4.0	04/19/2018	04/19/2018 14:20	Angela Smith	05/14/2018 15:47	Puja Jasrotia	1986052, 1986053, 1986054