

Biological Analysis Report

SW-DIST-2018-03-07-01

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: **Wares, Wares, Mill, Gap, & Nonsense**
Request ID: **RQ-2018-02-19-14**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 12-APR-2018 14:33



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: Wares Crk @ 36th Ave

Collection Date/Time: 03/06/2018 11:30

Field ID: G2SW0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972722	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.7		ug/L	P341506	
		Phaeophytin-a	2.8		ug/L	P341506	
		Chlorophyll-a, Uncorrected	7.6		ug/L	P341506	

Sample Location: Wares Crk @ 36th Ave

Collection Date/Time: 03/06/2018 11:30

Field ID: G2SW0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972729	EPA 1603	Escherichia coli-Membrane Filter**	92		cfu/100 mL		

Sample Location: Wares Crk @ 9th Ave

Collection Date/Time: 03/06/2018 11:55

Field ID: G2SW0029

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972724	SM 10200 H (mod.)	Chlorophyll-a, Corrected	18		ug/L	P341596	
		Phaeophytin-a	1.7		ug/L	P341596	
		Chlorophyll-a, Uncorrected	20		ug/L	P341596	

Sample Location: Wares Crk @ 9th Ave

Collection Date/Time: 03/06/2018 11:55

Field ID: G2SW0029

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972733	SM 9230 C	Enterococci-Membrane Filter	189		cfu/100 mL		

Sample Location: Mill Creek @ Upper Manatee Rvr Rd

Collection Date/Time: 03/06/2018 13:30

Field ID: G2SW0040

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972725	SM 10200 H (mod.)	Chlorophyll-a, Corrected	12		ug/L	P341596	
		Phaeophytin-a	2.4		ug/L	P341596	
		Chlorophyll-a, Uncorrected	14		ug/L	P341596	

Sample Location: Mill Creek @ Upper Manatee Rvr Rd

Collection Date/Time: 03/06/2018 13:30

Field ID: G2SW0040

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972734	SM 9230 C	Enterococci-Membrane Filter	144		cfu/100 mL		

Sample Location: Mill Creek @ Upper Manatee Rvr Rd

Collection Date/Time: 03/06/2018 13:30

Field ID: G2SW0040

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972726	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P342094	RPD
	SOP-PCR-1.2	GULL2-qPCR**	670	T	TSC/100 mL	P342094	
	SOP-PCR-1.4	BacR-qPCR**	2.0E+03	U	TSC/100 mL	P342094	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Field ID: G2SW0040

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment: SOP-PCR-1.0: No amplification of HF183 marker. SOP-PCR-1.2: Precision data unavailable for Analysis Batch A82936. SOP-PCR-1.4: No amplification of BACR marker. Precision data unavailable for Analysis Batch A82989.							

Sample Location: Gap Crk @ 45th St

Collection Date/Time: 03/06/2018 09:45

Field ID: G2SW0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972723	SM 10200 H (mod.)	Chlorophyll-a, Corrected	23	A	ug/L	P341596	
		Phaeophytin-a	3.0	A	ug/L	P341596	
		Chlorophyll-a, Uncorrected	25	A	ug/L	P341596	

Sample Location: Gap Crk @ 45th St

Collection Date/Time: 03/06/2018 09:45

Field ID: G2SW0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972730	EPA 1603	Escherichia coli-Membrane Filter**	618		cfu/100 mL		

Sample Location: Nonsense @ Tara Preserve

Collection Date/Time: 03/06/2018 10:40

Field ID: G2SW0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972731	EPA 1603	Escherichia coli-Membrane Filter**	16	B	cfu/100 mL		

Sample Location: Nonsense @ Tara Preserve

Collection Date/Time: 03/06/2018 10:40

Field ID: G2SW0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972727	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Nonsense Cr @ Lingerlodge Rd

Collection Date/Time: 03/06/2018 10:50

Field ID: G2SW0041

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972732	EPA 1603	Escherichia coli-Membrane Filter**	8	B	cfu/100 mL		

Sample Location: Nonsense Cr @ Lingerlodge Rd

Collection Date/Time: 03/06/2018 10:50

Field ID: G2SW0041

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972728	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Wares Crk @ 9th Ave Dup

Collection Date/Time: 03/06/2018 12:00

Field ID: G2SW0029

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972735	SM 9230 C	Enterococci-Membrane Filter	180	B	cfu/100 mL		

Sample Location: BLANK				Collection Date/Time: 03/06/2018 12:05			
Field ID: BLANK				Matrix: W-FIELD-BK			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972736	SM 9230 C	Enterococci-Membrane Filter	4	U	cfu/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P341506

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: P341596

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: P342094

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

Reference Method: SOP-PCR-1.2
 Batch ID: P342094

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

Reference Method: SOP-PCR-1.4
 Batch ID: P342094

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: P341506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	99.6		P	84 - 116

Reference Method: SM 10200 H (mod.)
 Batch ID: P341596

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P341596

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	101		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P342094

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	108	102	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P342094

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	86.1	106	P/P	50 - 300

Reference Method: SOP-PCR-1.4
Batch ID: P342094

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	222	67.4	F/P	50 - 175
BacR-qPCR	133	105	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P342094

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970976	HF183-qPCR	98.3		P	50 - 175
1970977	HF183-qPCR	86.0		P	50 - 175
1970978	HF183-qPCR	83.8		P	50 - 175
1971125	HF183-qPCR	96.6		P	50 - 175
1971126	HF183-qPCR	95.4		P	50 - 175
1971127	HF183-qPCR	96.3		P	50 - 175
1971128	HF183-qPCR	97.4		P	50 - 175
1971129	HF183-qPCR	101		P	50 - 175
1971426	HF183-qPCR	101		P	50 - 175
1971430	HF183-qPCR	95.4		P	50 - 175
1972701	HF183-qPCR	87.4		P	50 - 175
1972726	HF183-qPCR	76.3		P	50 - 175
1977971	HF183-qPCR	69.7	84.8	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P342094

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1971426	GULL2-qPCR	79.8		P	50 - 300
1971430	GULL2-qPCR	74.6		P	50 - 300
1972726	GULL2-qPCR	78.5		P	50 - 300

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
 Batch ID: P342094

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1971426	BacR-qPCR	66.5		P	50 - 175
1971430	BacR-qPCR	56.9		P	50 - 175
1972726	BacR-qPCR	64.2		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P341506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972602	Chlorophyll-a, Corrected	5.91	Sample	P	0 - 25
1972602	Chlorophyll-a, Uncorrected	10.4	Sample	P	0 - 25
1972602	Phaeophytin-a	17.7	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
 Batch ID: P341596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972723	Chlorophyll-a, Corrected	7.85	Sample	P	0 - 25
1972723	Chlorophyll-a, Uncorrected	6.91	Sample	P	0 - 25
1972723	Phaeophytin-a	4.63	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P342094

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977971	HF183-qPCR	25.2	Spike	F	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: 1972726
 Field Sample ID: G2SW0040

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	96.1	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	108	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	99.6							5.91	
	Chlorophyll-a, Corrected	101							7.85	
	Chlorophyll-a, Uncorrected								10.4	
	Chlorophyll-a, Uncorrected								6.91	
	Phaeophytin-a								17.7	
	Phaeophytin-a								4.63	
SOP-PCR-1.0	HF183-qPCR	102	108		98.3	86.0	83.8			25.2
					96.6					
SOP-PCR-1.2	GULL2-qPCR	106	86.1		79.8	74.6	78.5			
SOP-PCR-1.4	BacR-qPCR	222	105	133	64.2	66.5	56.9			
		67.4								

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	1972729, 1972730, 1972731, 1972732
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1972722, 1972723, 1972724, 1972725
SM 9230 C / E84589	Enterococci by membrane filter method by Advanced Environmental Overflow Laboratories for SWD	1972733, 1972734, 1972735, 1972736
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1972726
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1972726
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1972726
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1972726, 1972727, 1972728

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	03/06/2018	03/06/2018 17:30		03/07/2018 17:00	AEL - Tampa	1972729, 1972730, 1972731, 1972732
SM 10200 H (mod.)	03/07/2018	03/07/2018 15:21	Mariam Hanna	03/13/2018 14:50	Kim M. Spencer	1972722
	03/07/2018	03/07/2018 15:21	Mariam Hanna	03/14/2018 13:35	Kim M. Spencer	1972723, 1972724, 1972725
SM 9230 C	03/06/2018	03/06/2018 17:40		03/07/2018 15:40	AEL - Tampa	1972733, 1972734, 1972735, 1972736
SOP-PCR-1.0	03/07/2018	03/07/2018 12:40	Puja Jasrotia	03/28/2018 14:34	Sarah Menz	1972726
SOP-PCR-1.2	03/07/2018	03/07/2018 12:40	Puja Jasrotia	03/29/2018 12:49	Sarah Menz	1972726
SOP-PCR-1.4	03/07/2018	03/07/2018 12:40	Puja Jasrotia	04/02/2018 11:32	Sarah Menz	1972726
SOP-PCR-4.0	03/07/2018	03/07/2018 12:40	Angela Smith	03/26/2018 16:15	Puja Jasrotia	1972726, 1972727, 1972728