

Biological Analysis Report

SW-DIST-2018-02-13-02

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: **Pinellas WBIDS By June**
Request ID: **RQ-2018-02-12-27**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 20-MAR-2018 08:50



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: Cedar Creek @ Pinehurst

Collection Date/Time: 02/12/2018 09:40

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966715	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.5		ug/L	P340278	
		Phaeophytin-a	2.1		ug/L	P340278	
		Chlorophyll-a, Uncorrected	4.8		ug/L	P340278	

Sample Location: Cedar Creek @ Pinehurst

Collection Date/Time: 02/12/2018 09:40

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966721	EPA 1603	Escherichia coli-Membrane Filter**	2600		cfu/100 mL		

Sample Location: Cedar Creek @ Pinehurst

Collection Date/Time: 02/12/2018 09:40

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966720	SOP-PCR-1.0	HF183-qPCR**	84	T	GEU/100 mL	P339342	RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Alligator @ Old Coachman

Collection Date/Time: 02/12/2018 10:20

Field ID: G1SW0062

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966716	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1966722	EPA 1603	Escherichia coli-Membrane Filter**	200		cfu/100 mL		

Sample Location: Alligator @ Glen Oak

Collection Date/Time: 02/12/2018 10:40

Field ID: G1SW0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966717	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1966723	EPA 1603	Escherichia coli-Membrane Filter**	40	B	cfu/100 mL		

Sample Location: Long Branch @ Michigan

Collection Date/Time: 02/12/2018 11:20

Field ID: G1SW0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966718	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1966724	EPA 1603	Escherichia coli-Membrane Filter**	270		cfu/100 mL		

Sample Location: Long Branch @ Appt. walkway

Collection Date/Time: 02/12/2018 11:35

Field ID: G1SW0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966719	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1966725	EPA 1603	Escherichia coli-Membrane Filter**	340		cfu/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P340278

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: P339342

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: P340278

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	98.9		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P339342

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	102	81.6	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P339342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960727	HF183-qPCR	85.6		P	50 - 175
1966720	HF183-qPCR	82.5		P	50 - 175
1967510	HF183-qPCR	94.0	62.8	P/P	50 - 175
1967511	HF183-qPCR	99.7		P	50 - 175
1967512	HF183-qPCR	74.5		P	50 - 175
1967513	HF183-qPCR	80.7		P	50 - 175
1967514	HF183-qPCR	82.9		P	50 - 175
1967717	HF183-qPCR	89.7		P	50 - 175
1967891	HF183-qPCR	75.1		P	50 - 175
1967892	HF183-qPCR	75.5		P	50 - 175
1967893	HF183-qPCR	72.6		P	50 - 175
1967894	HF183-qPCR	76.1		P	50 - 175
1967895	HF183-qPCR	78.7		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P340278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966555	Chlorophyll-a, Corrected	6.61	Sample	P	0 - 25
1966555	Chlorophyll-a, Uncorrected	6.58	Sample	P	0 - 25
1966555	Phaeophytin-a	6.91	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P339342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967510	HF183-qPCR	39.8	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: 1966720
 Field Sample ID: G5SW0129

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	113	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	98.9							6.61	
	Chlorophyll-a, Uncorrected								6.58	
	Phaeophytin-a								6.91	
SOP-PCR-1.0	HF183-qPCR	81.6	102		85.6	82.5	94.0			39.8
					62.8					

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	1966721, 1966722, 1966723, 1966724, 1966725
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1966715
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1966720
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1966716, 1966717, 1966718, 1966719, 1966720

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	02/12/2018	02/12/2018 16:00		02/13/2018 16:00	AEL - Tampa	1966721, 1966722, 1966723, 1966724, 1966725
SM 10200 H (mod.)	02/13/2018	02/13/2018 12:46	Cathy Sherrer	02/19/2018	Jennifer Mihalic	1966715
SOP-PCR-1.0	02/13/2018	02/13/2018 13:15	Puja Jasrotia	02/21/2018	Sarah Menz	1966720
SOP-PCR-4.0	02/13/2018	02/13/2018 13:15	Mailin Lopez	03/12/2018	Puja Jasrotia	1966716, 1966717, 1966718, 1966719, 1966720