

Biological Analysis Report

SW-DIST-2018-06-13-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
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DOH Accreditation E31780

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

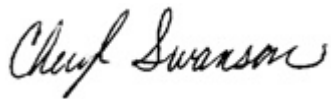
Event Description: **Pinellas WBIDS By June**
Request ID: **RQ-2018-06-11-09**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 20-JUL-2018 13:56



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: LONG BRANCH AT APPT WALKWAY

Collection Date/Time: 06/12/2018 10:50

Field ID: G1SW0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2000470	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2000472	EPA 1603	Escherichia coli-Membrane Filter**	56	B	cfu/100 mL		

Sample Location: LONG BRANCH BY BRIARWOOD

Collection Date/Time: 06/12/2018 11:20

Field ID: G1SW0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2000471	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2000473	EPA 1603	Escherichia coli-Membrane Filter**	12	B	cfu/100 mL		

Sample Location: FIELD BLANK_06122018

Collection Date/Time: 06/12/2018 11:00

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2000441	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.62	U	ug/L	P347241	
		Phaeophytin-a	0.45	U	ug/L	P347241	
		Chlorophyll-a, Uncorrected	0.45	U	ug/L	P347241	
2000468	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P347054	

Sample Location: CEDAR CREEK @ PINEHURST

Collection Date/Time: 06/12/2018 09:20

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2000442	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.3	A	ug/L	P347241	
		Phaeophytin-a	2.8	A	ug/L	P347241	
		Chlorophyll-a, Uncorrected	4.1	A	ug/L	P347241	
2000469	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P347054	

Sample Location: BISHOP CRK @ 590 BRIDGE

Collection Date/Time: 06/12/2018 10:20

Field ID: G1SW0054

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2000443	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.7		ug/L	P347241	
		Phaeophytin-a	0.84	I	ug/L	P347241	
		Chlorophyll-a, Uncorrected	2.3		ug/L	P347241	

Sample Location: BISHOP CRK @ 590 BRIDGE

Collection Date/Time: 06/12/2018 10:20

Field ID: G1SW0054

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2000476	SM 9230 C	Enterococci-Membrane Filter	460		cfu/100 mL		

Sample Location: CEDAR CREEK @ PINEHURST

Collection Date/Time: 06/12/2018 09:20

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2000584	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1274.0	Q	MPN/100 mL	P347102	

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P347241

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: P347102

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

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

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: P347241

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: P347054

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

Quality Assurance Report
Matrix Spike Accuracy

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

Quality Assurance Report Matrix Spike Accuracy

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

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P347241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2000442	Chlorophyll-a, Corrected	3.30	Sample	P	0 - 25
2000442	Chlorophyll-a, Uncorrected	4.18	Sample	P	0 - 25
2000442	Phaeophytin-a	5.60	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
 Batch ID: P347102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2000537	Escherichia Coli-Quanti-Tray	22.6	Sample	P	0 - 80

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: 2000468
 Field Sample ID: BLANK

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	89.8	P	50 - 300

Lab Sample ID: 2000469
 Field Sample ID: G5SW0129

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	107	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	93.6					3.30	
	Chlorophyll-a, Uncorrected						4.18	
	Phaeophytin-a						5.60	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray						22.6	
SOP-PCR-1.0	HF183-qPCR	140	116	86.8	111	107		4.96
				102				

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	2000472, 2000473
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2000441, 2000442, 2000443
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2000584
SM 9230 C / E84589	Enterococci by membrane filter method by Advanced Environmental Overflow Laboratories for SWD	2000476
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2000468, 2000469
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2000470, 2000471

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	06/12/2018	06/12/2018 14:20		06/13/2018 13:00	AEL - Tampa	2000472, 2000473
SM 10200 H (mod.)	06/13/2018	06/14/2018 07:55	Mariam Hanna	06/20/2018 08:55	Carina A. Tull	2000441, 2000442, 2000443
SM 9223 Quanti-Tray	06/13/2018	06/13/2018 17:45	Jennifer Mihalic	06/14/2018 11:50	Jennifer Mihalic	2000584
SM 9230 C	06/12/2018	06/12/2018 14:10		06/13/2018 12:10	AEL - Tampa	2000476
SOP-PCR-1.0	06/13/2018	06/13/2018 16:00	Sarah Menz	06/25/2018 15:54	Mailin Lopez	2000468, 2000469
SOP-PCR-4.0	06/13/2018	06/13/2018 16:00	Angela Smith	07/02/2018 16:21	Puja Jasrotia	2000470, 2000471