

Biological Analysis Report

SO-DIST-2018-07-17-02

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

Overflow Analyses Performed By:
Benchmark EnviroAnalytical, Inc. - North Port
1001 Corporate Avenue, Suite 102
North Port, FL 34289
DOH Accreditation E85086

Event Description: **Sarasota Gators**
Request ID: **RQ-2018-07-09-30**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Amelia G. Rankin,

Date Certified: 22-AUG-2018 10:02



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: Curry(Tidal)@AlbeeFarm

Collection Date/Time: 07/16/2018 09:50

Field ID: G3SD0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007860	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.6		ug/L	P349051	
		Phaeophytin-a	3.5		ug/L	P349051	
		Chlorophyll-a, Uncorrected	5.8		ug/L	P349051	

Sample Location: Curry(Tidal)@AlbeeFarm

Collection Date/Time: 07/16/2018 09:50

Field ID: G3SD0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007932	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2007951	Enterolert/QT	Enterococci-Quanti-Tray	122		MPN/100 mL		

Sample Location: HatchettCrk@PinebrookRd

Collection Date/Time: 07/16/2018 10:40

Field ID: G3SD0103

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007948	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	84		MPN/100 mL		

Sample Location: HatchettCrk@PinebrookRd

Collection Date/Time: 07/16/2018 10:40

Field ID: G3SD0103

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007933	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Alligator Tidal @ US 41

Collection Date/Time: 07/16/2018 11:15

Field ID: G2SD0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007862	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.7		ug/L	P349051	
		Phaeophytin-a	3.1		ug/L	P349051	
		Chlorophyll-a, Uncorrected	9.8		ug/L	P349051	

Sample Location: Alligator Tidal @ US 41

Collection Date/Time: 07/16/2018 11:15

Field ID: G2SD0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007934	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2007953	Enterolert/QT	Enterococci-Quanti-Tray	96		MPN/100 mL		

Sample Location: Alligator @ Jacaranda

Collection Date/Time: 07/16/2018 12:35

Field ID: G2SD0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007863	SM 10200 H (mod.)	Chlorophyll-a, Corrected	13		ug/L	P349051	
		Phaeophytin-a	3.0		ug/L	P349051	
		Chlorophyll-a, Uncorrected	15		ug/L	P349051	
2007950	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	121		MPN/100 mL		

Sample Location: Alligator @ Jacaranda

Collection Date/Time: 07/16/2018 12:35

Field ID: G2SD0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007935	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Woodmere Creek@Heron Rd

Collection Date/Time: 07/16/2018 13:05

Field ID: G2SD0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007936	SOP-PCR-1.0	HF183-qPCR**	620	I	GEU/100 mL	P349103	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
2007955	Enterolert/QT	Enterococci-Quanti-Tray	504		MPN/100 mL		

Sample Location: Gottfried@DeerCrkMobile

Collection Date/Time: 07/16/2018 13:40

Field ID: G2SD0028

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007937	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2007956	Enterolert/QT	Enterococci-Quanti-Tray	20		MPN/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P349051

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: P349103

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: P349051

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	93.8		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P349103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	102	142	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P349103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2005377	HF183-qPCR	108		P	50 - 175
2005936	HF183-qPCR	107		P	50 - 175
2005939	HF183-qPCR	96.2		P	50 - 175
2005940	HF183-qPCR	104		P	50 - 175
2006654	HF183-qPCR	108		P	50 - 175
2006655	HF183-qPCR	97.7		P	50 - 175
2006930	HF183-qPCR	104		P	50 - 175
2006933	HF183-qPCR	102		P	50 - 175
2006934	HF183-qPCR	95.6		P	50 - 175
2007936	HF183-qPCR	97.7		P	50 - 175
2009105	HF183-qPCR	99.3		P	50 - 175
2010653	HF183-qPCR	104		P	50 - 175
2010654	HF183-qPCR	105	102	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P349051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007897	Chlorophyll-a, Corrected	1.24	Sample	P	0 - 25
2007897	Chlorophyll-a, Uncorrected	1.54	Sample	P	0 - 25
2007897	Phaeophytin-a	6.60	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P349103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010654	HF183-qPCR	2.26	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: 2007936
Field Sample ID: G2SD0027

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	104	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision	MS
				LCS SMP	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	93.8					1.24	
	Chlorophyll-a, Uncorrected						1.54	
	Phaeophytin-a						6.60	
SOP-PCR-1.0	HF183-qPCR	142	102	104	108	107		2.26
				96.2				

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E85086	Enterococci by Enterolert Quanti-Tray method by Benchmark EA South in North Port	2007951, 2007953, 2007955, 2007956
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2007860, 2007862, 2007863
SM 9223 Quanti-Tray / E85086	Escherichia coli by Colilert 18 Quanti-Tray method by Benchmark EA South in North Port	2007948, 2007950
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2007936
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2007932, 2007933, 2007934, 2007935, 2007936, 2007937

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	07/16/2018	07/16/2018 16:04		07/17/2018 16:09	Benchmark EnviroAnalytical in North Port	2007951, 2007953, 2007955, 2007956
SM 10200 H (mod.)	07/17/2018	07/17/2018 14:45	Jennifer Mihalic	07/24/2018 08:15	Carina A. Tull	2007860, 2007862, 2007863
SM 9223 Quanti-Tray	07/16/2018	07/16/2018 16:20		07/17/2018 16:54	Benchmark EnviroAnalytical in North Port	2007948, 2007950
SOP-PCR-1.0	07/17/2018	07/17/2018 13:40	Sarah Menz	08/02/2018 09:41	Mailin Lopez	2007936
SOP-PCR-4.0	07/17/2018	07/17/2018 13:40	Angela Smith	07/27/2018 11:03	Sarah Menz	2007932, 2007933, 2007934, 2007935, 2007936, 2007937