

Biological Analysis Report

SO-DIST-2019-07-16-01

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

Overflow Analyses Performed By:
Sanders Laboratories
10090 Bavaria Road
Ft. Myers, FL 33913
DOH Accreditation E85457

Event Description: **2019 SMP : LaBelle-ish**

Request ID: **RQ-2019-07-15-30**

Customer: **SO-DIST**

Project ID: **SMP**

Send Reports to:

FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 14-AUG-2019 08:59



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: BeeBranch@LoblollyBayRd

Collection Date/Time: 07/15/2019 09:45

Field ID: G3SD0085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2103081	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.2	I	ug/L	P368058	
		Phaeophytin-a	2.2	U	ug/L	P368058	
		Chlorophyll-a, Uncorrected	2.2	I	ug/L	P368058	
2103087	Colilert-18	Escherichia Coli-Quanti-Tray	162.4		MPN/100 mL		

Sample Location: PollywogCreek@SR78

Collection Date/Time: 07/15/2019 10:20

Field ID: G3SD0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2103084	SOP-PCR-1.0	HF183-purified-qPCR**	69	IJ	GEU/100 mL	P367347	LCS, SUR
	SOP-PCR-1.4	BacR-purified-qPCR**	7.8E+03	J	TSC/100 mL	P367347	LCS, SUR
2103088	Colilert-18	Escherichia Coli-Quanti-Tray	157.6		MPN/100 mL		

Ref. Method and Comment:

SOP-PCR-1.0: Quality control failure(s) observed. See QA report for details. Precision data unavailable for Analysis Batch A93199

SOP-PCR-1.4: Precision data unavailable for Analysis batch A93057. Quality control failure(s) observed. See QA report for details.

Sample Location: OK BRANCH @ EUCALYPTUS

Collection Date/Time: 07/15/2019 11:00

Field ID: G3SD0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2103082	SM 10200 H (mod.)	Chlorophyll-a, Corrected	23	A	ug/L	P368058	
		Phaeophytin-a	3.1	A	ug/L	P368058	
		Chlorophyll-a, Uncorrected	26	A	ug/L	P368058	
2103085	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P367129	LCS
	SOP-PCR-1.4	BacR-qPCR**	5.2E+03	I	TSC/100 mL	P367129	
2103089	Colilert-18	Escherichia Coli-Quanti-Tray	261.3		MPN/100 mL		

Ref. Method and Comment:

SOP-PCR-1.0: Precision data unavailable for Analysis Batch A92935

Sample Location: Robert's Canal @SR80

Collection Date/Time: 07/15/2019 11:50

Field ID: G3SD0146

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2103083	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.6		ug/L	P368058	
		Phaeophytin-a	1.8	U	ug/L	P368058	
		Chlorophyll-a, Uncorrected	8.6		ug/L	P368058	
2103086	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P367129	LCS
	SOP-PCR-1.4	BacR-purified-qPCR**	280	IJ	TSC/100 mL	P367347	LCS, SUR
2103090	Colilert-18	Escherichia Coli-Quanti-Tray	18.3		MPN/100 mL		

Ref. Method and Comment:

SOP-PCR-1.0: Precision data unavailable for Analysis Batch A92935

SOP-PCR-1.4: Precision data unavailable for Analysis batch A93057. Quality control failure(s) observed. See QA report for details.

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P368058

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P367129

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

Reference Method: SOP-PCR-1.0
Batch ID: P367347

Component	Result	Code	Units
HF183-purified-qPCR	47	U	GEU/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P367129

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P367347

Component	Result	Code	Units
BacR-purified-qPCR	510	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P368058

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	89.7		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P367129

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	146	185	P/F	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P367347

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-purified-qPCR	100	37.7	P/F	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.4
 Batch ID: P367129

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	82.1	84.6	P/P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P367347

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-purified-qPCR	93.4	26.1	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P367129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2099579	HF183-qPCR	127		P	50 - 175
2099580	HF183-qPCR	99.4		P	50 - 175
2103031	HF183-qPCR	123		P	50 - 175
2103085	HF183-qPCR	118		P	50 - 175
2103086	HF183-qPCR	61.2		P	50 - 175
2103713	HF183-qPCR	97.2		P	50 - 175

Reference Method: SOP-PCR-1.0
 Batch ID: P367347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2103032	HF183-purified-qPCR	71.2		P	50 - 175
2103084	HF183-purified-qPCR	71.5		P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P367129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2099579	BacR-qPCR	64.1		P	50 - 175
2102672	BacR-qPCR	51.3	54.6	P/P	50 - 175
2102673	BacR-qPCR	57.9		P	50 - 175
2102674	BacR-qPCR	52.6		P	50 - 175
2103031	BacR-qPCR	64.7		P	50 - 175
2103085	BacR-qPCR	73.1		P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P367347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2103084	BacR-purified-qPCR	91.5		P	50 - 175
2103086	BacR-purified-qPCR	84.4		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P368058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2103082	Chlorophyll-a, Corrected	5.82	Sample	P	0 - 25
2103082	Chlorophyll-a, Uncorrected	4.87	Sample	P	0 - 25
2103082	Phaeophytin-a	6.82	Sample	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P367129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102672	BacR-qPCR	6.66	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: 2103084
 Field Sample ID: G3SD0098

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	17.7	F	30 - 300
SOP-PCR-1.4	SKETA-qPCR	17.0	F	30 - 300

Lab Sample ID: 2103085
 Field Sample ID: G3SD0099

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	97.8	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	109	P	50 - 300

Lab Sample ID: 2103086
 Field Sample ID: G3SD0146

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	50.0	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	17.6	F	30 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	89.7					5.82	
	Chlorophyll-a, Uncorrected						4.87	
	Phaeophytin-a						6.82	
SOP-PCR-1.0	HF183-purified-qPCR	37.7	100	71.5	71.2			
	HF183-qPCR	185	146	127	99.4	123		
				118				
SOP-PCR-1.4	BacR-purified-qPCR	26.1	93.4	91.5	84.4			

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SOP-PCR-1.4	BacR-qPCR	84.6	82.1	51.3	54.6	57.9			6.66
				52.6					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Colilert-18 / E85457	E. coli by Colilert-18/QT by Sanders in Fort Myers	2103087, 2103088, 2103089, 2103090
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2103081, 2103082, 2103083
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2103084
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2103085, 2103086
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2103084, 2103086
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2103085

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Colilert-18	07/15/2019	07/15/2019 15:51		07/16/2019 10:24	Sanders-Fort Myers	2103087, 2103088, 2103089, 2103090
SM 10200 H (mod.)	07/16/2019	07/16/2019 14:02	Edwin Gonzalez-Soto	07/24/2019 09:52	Yuliya Danyuk	2103081, 2103082, 2103083
SOP-PCR-1.0	07/16/2019	07/16/2019 15:30	Angela Smith	08/01/2019 08:40	Mailin Lopez	2103084
	07/16/2019	07/17/2019 09:15	Angela Smith	07/22/2019 10:15	Mailin Lopez	2103085, 2103086
SOP-PCR-1.4	07/16/2019	07/16/2019 15:30	Angela Smith	07/26/2019 08:30	Mailin Lopez	2103084
	07/16/2019	07/17/2019 09:15	Angela Smith	07/23/2019 08:08	Mailin Lopez	2103085
	07/16/2019	07/17/2019 09:15	Angela Smith	07/26/2019 08:30	Mailin Lopez	2103086