

Biological Analysis Report

SO-DIST-2018-02-13-01

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: **D.T. Sara: Walker, Whitaker, Hudson**
Request ID: **RQ-2018-02-12-28**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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Date Certified: 18-OCT-2018 16:40



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: 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: Walker Creek @ 32nd St

Collection Date/Time: 02/12/2018 10:15

Field ID: G3SD0094

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966679	SOP-PCR-1.0	HF183-qPCR**	240	I	GEU/100 mL	P341087	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Walker Creek @ 32nd St

Collection Date/Time: 02/12/2018 10:15

Field ID: G3SD0094

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966682	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray**	1986		MPN/100 mL		

Sample Location: Whitaker @ Museum Pier

Collection Date/Time: 02/12/2018 10:45

Field ID: G3SD0105

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966680	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P341087	
	SOP-PCR-1.2	GULL2-qPCR**	640	T	TSC/100 mL	P341087	
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P341087	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

SOP-PCR-1.4: No amplification of BACR marker.

Sample Location: Whitaker @ Museum Pier

Collection Date/Time: 02/12/2018 10:45

Field ID: G3SD0105

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966684	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray**	1414	J	MPN/100 mL		

Ref. Method and Comment:

SM 9223 Quanti-Tray: Lab did not perform 10x marine dilution.

Sample Location: Drain to Hudson @ US41

Collection Date/Time: 02/12/2018 11:25

Field ID: G3SD0104

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966681	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Drain to Hudson @ US41

Collection Date/Time: 02/12/2018 11:25

Field ID: G3SD0104

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966683	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray**	260	J	MPN/100 mL		

Ref. Method and Comment:

SM 9223 Quanti-Tray: Lab did not perform 10x marine dilution.

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P341087

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

Reference Method: SOP-PCR-1.2
Batch ID: P341087

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

Reference Method: SOP-PCR-1.4
Batch ID: P341087

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P341087

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	111	108	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P341087

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	105	61.6	P/P	50 - 300

Reference Method: SOP-PCR-1.4
Batch ID: P341087

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	83.2	97.2	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P341087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966061	HF183-qPCR	87.1		P	50 - 175
1966679	HF183-qPCR	112		P	50 - 175
1966680	HF183-qPCR	92.4		P	50 - 175
1967028	HF183-qPCR	87.3		P	50 - 175
1967029	HF183-qPCR	92.2		P	50 - 175
1968270	HF183-qPCR	90.8		P	50 - 175
1968271	HF183-qPCR	94.0		P	50 - 175
1968403	HF183-qPCR	125		P	50 - 175
1968622	HF183-qPCR	87.7		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P341087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968623	HF183-qPCR	94.6		P	50 - 175
1968635	HF183-qPCR	85.0		P	50 - 175
1970979	HF183-qPCR	79.2		P	50 - 175
1974796	HF183-qPCR	77.2	95.7	P/P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P341087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966680	GULL2-qPCR	64.5		P	50 - 300
1974796	GULL2-qPCR	71.7	83.6	P/P	50 - 300

Reference Method: SOP-PCR-1.4
 Batch ID: P341087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966680	BacR-qPCR	86.0		P	50 - 175
1974796	BacR-qPCR	72.0	91.0	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P341087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974796	HF183-qPCR	21.4	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
 Batch ID: P341087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974796	GULL2-qPCR	15.2	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P341087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974796	BacR-qPCR	23.2	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

Quality Assurance Report Surrogates

Lab Sample ID: 1966679
 Field Sample ID: G3SD0094

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	110	P	50 - 300

Lab Sample ID: 1966680
 Field Sample ID: G3SD0105

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	94.6	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	90.3	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	86.5	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SOP-PCR-1.0	HF183-qPCR	108	111	112	92.4	87.3		21.4	
SOP-PCR-1.2	GULL2-qPCR	61.6	105	64.5	71.7	83.6		15.2	
SOP-PCR-1.4	BacR-qPCR	97.2	83.2	86.0	72.0	91.0		23.2	

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 9223 Quanti-Tray / E85457	Escherichia coli by Colilert 18 Quanti-Tray method by Sanders Laboratories for South District	1966682, 1966683, 1966684
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1966679, 1966680
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1966680
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1966680
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1966679, 1966680, 1966681

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 9223 Quanti-Tray	02/02/2018	02/12/2018 14:35		02/13/2018 09:06	Sanders-Fort Myers	1966684
	02/12/2018	02/12/2018 14:35		02/13/2018 09:06	Sanders-Fort Myers	1966682, 1966683
SOP-PCR-1.0	02/13/2018	02/13/2018 13:15	Puja Jasrotia	03/15/2018 14:58	Sarah Menz	1966679, 1966680
SOP-PCR-1.2	02/13/2018	02/13/2018 13:15	Puja Jasrotia	03/19/2018 11:33	Sarah Menz	1966680
SOP-PCR-1.4	02/13/2018	02/13/2018 13:15	Puja Jasrotia	03/16/2018 14:18	Sarah Menz	1966680
SOP-PCR-4.0	02/13/2018	02/13/2018 13:15	Mailin Lopez	03/07/2018 13:50	Puja Jasrotia	1966679, 1966680, 1966681