

Biological Analysis Report

SW-DIST-2019-06-13-01

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

Overflow Analyses Performed By:
Benchmark Environmental, Inc.
1711 12th Street East
Palmetto, FL 34221
DOH Accreditation E84167

Event Description: **SMP - Alafia, Alafia, 30 Mile, and McDonalds**

Request ID: **RQ-2019-06-10-11**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

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13051 N. Telecom Parkway
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Date Certified: 02-JUL-2019 12:14



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 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: Alafia River @ Center Ave

Collection Date/Time: 06/12/2019 12:00

Field ID: G2SW0045

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2095210	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold			P364795	
2095217	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	336		MPN/100 mL		

Sample Location: Alafia R. @ Boat Ramp Dock

Collection Date/Time: 06/12/2019 12:30

Field ID: G2SW0091

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2095211	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P365488	
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P365488	
2095218	Enterolert/QT	Enterococci-Quanti-Tray	2924		MPN/100 mL		

Ref. Method and Comment:
 SOP-PCR-1.4: Precision data unavailable due to inhibition in QC sample.

Sample Location: Thirtymile Creek @ Nichols Rd.

Collection Date/Time: 06/12/2019 10:10

Field ID: G2SW0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2095212	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P365488	
	SOP-PCR-1.4	BacR-qPCR**	1.9E+03	I	TSC/100 mL	P365488	
2095219	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	428		MPN/100 mL		

Ref. Method and Comment:
 SOP-PCR-1.4: Precision data unavailable due to inhibition in QC sample.

Sample Location: Thirtymile Creek @ Train Tracks Mosiac

Collection Date/Time: 06/12/2019 09:45

Field ID: G2SW0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2095213	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P365488	
	SOP-PCR-1.4	BacR-qPCR**	3.9E+03	I	TSC/100 mL	P365488	
2095220	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	199		MPN/100 mL		

Ref. Method and Comment:
 SOP-PCR-1.4: Precision data unavailable due to inhibition in QC sample.

Sample Location: McDonald Branch @ Thompson Rd

Collection Date/Time: 06/12/2019 10:50

Field ID: G2SW0093

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2095214	SOP-PCR-1.0	HF183-qPCR**	71	U	GEU/100 mL	P365488	
	SOP-PCR-1.4	BacR-qPCR**	3.2E+03	I	TSC/100 mL	P365488	
2095221	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	315		MPN/100 mL		

Ref. Method and Comment:
 SOP-PCR-1.4: Precision data unavailable due to inhibition in QC sample.

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P365488

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

Reference Method: SOP-PCR-1.4
Batch ID: P365488

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: P365488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	122	142	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P365488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	87.1	102	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P365488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094705	HF183-qPCR	67.8	59.5	P/P	50 - 175
2095211	HF183-qPCR	83.0		P	50 - 175
2095212	HF183-qPCR	101		P	50 - 175
2095213	HF183-qPCR	94.5		P	50 - 175
2095214	HF183-qPCR	99.2		P	50 - 175
2096075	HF183-qPCR	90.7		P	50 - 175
2096076	HF183-qPCR	88.7		P	50 - 175
2096077	HF183-qPCR	93.3		P	50 - 175
2096625	HF183-qPCR	95.8		P	50 - 175
2096626	HF183-qPCR	92.1		P	50 - 175
2096627	HF183-qPCR	86.7		P	50 - 175
2096628	HF183-qPCR	106		P	50 - 175
2096759	HF183-qPCR	95.6		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P365488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095211	BacR-qPCR	67.8		P	50 - 175
2095212	BacR-qPCR	81.8		P	50 - 175
2095213	BacR-qPCR	81.3		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P365488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095214	BacR-qPCR	75.9		P	50 - 175
2096075	BacR-qPCR	80.6		P	50 - 175
2096076	BacR-qPCR	76.1		P	50 - 175
2096077	BacR-qPCR	93.7		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P365488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094705	HF183-qPCR	13.0	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: 2095211
Field Sample ID: G2SW0091

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	80.7	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	92.6	P	50 - 300

Lab Sample ID: 2095212
Field Sample ID: G2SW0046

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	92.9	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	90.7	P	50 - 300

Lab Sample ID: 2095213
Field Sample ID: G2SW0047

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	99.3	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	95.1	P	50 - 300

Lab Sample ID: 2095214
Field Sample ID: G2SW0093

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	99.7	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	94.4	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SOP-PCR-1.0	HF183-qPCR	142	122	67.8	59.5	83.0			13.0
SOP-PCR-1.4	BacR-qPCR	102	87.1	67.8	81.8	81.3			
				101					
				75.9					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E84167	Enterococci by Enterolert/QT by BEA in Palmetto	2095218
SM 9223 B Quanti-Tray / E84167	E. coli by Colilert/QT by BEA in Palmetto	2095217, 2095219, 2095220, 2095221
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2095211, 2095212, 2095213, 2095214
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2095211, 2095212, 2095213, 2095214
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2095210

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	06/12/2019	06/12/2019 14:35		06/13/2019 15:04	Benchmark EnviroAnalytical - Palmetto	2095218
SM 9223 B Quanti-Tray	06/12/2019	06/12/2019 14:42		06/13/2019 15:01	Benchmark EnviroAnalytical - Palmetto	2095217, 2095219, 2095220, 2095221
SOP-PCR-1.0	06/13/2019	06/13/2019 14:05	Angela Smith	06/28/2019 10:46	Mailin Lopez	2095211, 2095212, 2095213, 2095214
SOP-PCR-1.4	06/13/2019	06/13/2019 14:05	Angela Smith	06/28/2019 14:56	Mailin Lopez	2095211, 2095212, 2095213, 2095214
SOP-PCR-4.0	06/13/2019	06/13/2019 14:05	Angela Smith	06/28/2019 11:34	Sarah Menz	2095210