Biological Analysis Report

SW-DIST-2019-02-22-01

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

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

Event Description: **SMP - Alafia, Alafia, 30 Mile, and McDonalds**
Request ID: **RQ-2019-02-18-24**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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13051 N. Telecom Parkway
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 05-APR-2019 15:45

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: 02/21/2019 11:10**

Field ID: G2SW0045 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2064775	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold			P359296	
2064780	EPA 1603	Escherichia coli-Membrane Filter**	108		cfu/100 mL		

Sample Location: ALAFIA R @ BOAT RAMP DOCK **Collection Date/Time: 02/21/2019 11:45**

Field ID: G2SW0091 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2064776	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P359312	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P359312	
2064782	EPA 1603	Escherichia coli-Membrane Filter**	36	B	cfu/100 mL		

Ref. Method and Comment:
SOP-PCR-1.4: Precision data unavailable for Analysis Batch A89877

Sample Location: THIRTYMILE CREEK @ TRAIN TRACKS MOSAIC **Collection Date/Time: 02/21/2019 09:30**

Field ID: G2SW0047 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2064777	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P359312	
	SOP-PCR-1.4	BacR-qPCR**	2.56E+04		TSC/100 mL	P359312	
2064783	EPA 1603	Escherichia coli-Membrane Filter**	710		cfu/100 mL		

Ref. Method and Comment:
SOP-PCR-1.4: Precision data unavailable for Analysis Batch A89877

Sample Location: THIRTYMILE CREEK @ NICHOLS RD **Collection Date/Time: 02/21/2019 10:00**

Field ID: G2SW0046 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2064778	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P359312	
	SOP-PCR-1.4	BacR-qPCR**	1.15E+04		TSC/100 mL	P359312	
2064784	EPA 1603	Escherichia coli-Membrane Filter**	269		cfu/100 mL		

Sample Location: McDONALD BRANCH @ THOMPSON RD **Collection Date/Time: 02/21/2019 10:30**

Field ID: G2SW0093 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2064781	EPA 1603	Escherichia coli-Membrane Filter**	730		cfu/100 mL		

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P359312

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

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.4
Batch ID: P359312

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P359312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	125	148	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P359312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	61.6	90.8	P/P	50 - 175
BacR-qPCR	60.3	94.9	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P359312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2063319	HF183-qPCR	133		P	50 - 175
2063320	HF183-qPCR	149		P	50 - 175
2063859	HF183-qPCR	81.8		P	50 - 175
2064322	HF183-qPCR	113		P	50 - 175
2064323	HF183-qPCR	113	125	P/P	50 - 175
2064776	HF183-qPCR	107		P	50 - 175
2064777	HF183-qPCR	118		P	50 - 175
2064778	HF183-qPCR	126		P	50 - 175
2065514	HF183-qPCR	113		P	50 - 175
2065515	HF183-qPCR	117		P	50 - 175
2065516	HF183-qPCR	109		P	50 - 175
2065517	HF183-qPCR	107		P	50 - 175
2065518	HF183-qPCR	127		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P359312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2064776	BacR-qPCR	82.0		P	50 - 175
2064777	BacR-qPCR	78.9		P	50 - 175
2064778	BacR-qPCR	81.7		P	50 - 175

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.0
Batch ID: P359312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064323	HF183-qPCR	10.0	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P359312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2065684	BacR-qPCR	2.33	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: 2064776
Field Sample ID: G2SW0091

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	93.7	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	89.9	P	50 - 300

Lab Sample ID: 2064777
Field Sample ID: G2SW0047

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	99.9	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	92.4	P	50 - 300

Lab Sample ID: 2064778
Field Sample ID: G2SW0046

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	126	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.0	HF183-qPCR	148 125	113 125 133 149			10.0
SOP-PCR-1.4	BacR-qPCR	61.6 94.9 60.3 90.8	82.0 78.9 81.7			2.33

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E84589	Escherichia coli by membrane filter Advanced Environmental Laboratory in Tampa	2064780, 2064781, 2064782, 2064783, 2064784
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2064776, 2064777, 2064778
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2064776, 2064777, 2064778
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2064775

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	02/21/2019	02/21/2019 17:25		02/22/2019 16:02	AEL - Tampa	2064780, 2064781, 2064782, 2064783, 2064784
SOP-PCR-1.0	02/22/2019	02/22/2019 14:25	Angela Smith	03/04/2019 12:14	Mailin Lopez	2064776, 2064777, 2064778
SOP-PCR-1.4	02/22/2019	02/22/2019 14:25	Angela Smith	03/07/2019 13:38	Mailin Lopez	2064776, 2064777
	02/22/2019	02/22/2019 14:25	Angela Smith	03/12/2019 11:01	Mailin Lopez	2064778
SOP-PCR-4.0	02/22/2019	02/22/2019 14:25	Angela Smith	04/01/2019 11:32	Sarah Menz	2064775