Biological Analysis Report

CEN-DIST-2017-04-18-02

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

Overflow Analyses Performed By:
Flowers Chemical Laboratories Inc. - Altamonte Springs
481 Newburyport Avenue
Altamonte Springs, Florida 32701
DOH Accreditation E83018

Event Description: **Salt / Sweet / Haynes SMP**
Request ID: **RQ-2017-04-10-43**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 01-JUN-2017 07:39

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: Haynes Creek @ 300m DS of CR 44 **Collection Date/Time: 04/17/2017 12:45**

Field ID: G1CE0023 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1889568	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	5.20		MPN/100 mL		
1889570	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Salt Creek @ Packard Avenue **Collection Date/Time: 04/17/2017 14:50**

Field ID: G2CE0088 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1889569	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	486		MPN/100 mL		
1889571	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P324457	
	SOP-PCR-1.2	GULL2-qPCR**	5.6E+03	U	TSC/100 mL	P324457	
	SOP-PCR-1.3	GFD-purified-qPCR**	21	T	TSC/100 mL	P324456	LCS, MS, RPD
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P324457	LCS
	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-1.2: No amplification of GULL2 marker.
SOP-PCR-1.3: Analyte detected at a level below the current nominal MDL.
SOP-PCR-1.4: No amplification of BACR marker.

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P324457

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

Reference Method: SOP-PCR-1.2
Batch ID: P324457

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

Reference Method: SOP-PCR-1.3
Batch ID: P324456

Component	Result	Code	Units
GFD-purified-qPCR	4.0E+04	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P324457

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P324457

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	88.1	88.3	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P324457

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	90.0	64.5	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P324456

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	118	18.6	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P324457

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	79.1	38.8	P/F	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P324457

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883885	HF183-qPCR	91.5		P	50 - 175
1883996	HF183-qPCR	86.4		P	50 - 175
1888887	HF183-qPCR	120		P	50 - 175
1889571	HF183-qPCR	108		P	50 - 175
1889648	HF183-qPCR	96.6		P	50 - 175
1889649	HF183-qPCR	102		P	50 - 175
1890371	HF183-qPCR	84.0		P	50 - 175
1895510	HF183-qPCR	120	109	P/P	50 - 175
1895511	HF183-qPCR	150		P	50 - 175
1895737	HF183-qPCR	97.5		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P324457

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883996	GULL2-qPCR	60.7		P	50 - 300
1888887	GULL2-qPCR	65.8		P	50 - 300
1889571	GULL2-qPCR	61.8		P	50 - 300
1889648	GULL2-qPCR	69.5		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P324456

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P324456

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1888121	GFD-purified-qPCR	73.8	118	P/P	50 - 175
1888671	GFD-purified-qPCR	85.6		P	50 - 175
1888810	GFD-purified-qPCR	46.9		F	50 - 175
1889571	GFD-purified-qPCR	141		P	50 - 175
1892528	GFD-purified-qPCR	41.0		F	50 - 175
1892629	GFD-purified-qPCR	13.7		F	50 - 175
1892632	GFD-purified-qPCR	87.5		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P324457

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883996	BacR-qPCR	82.8		P	50 - 175
1888887	BacR-qPCR	65.1		P	50 - 175
1889571	BacR-qPCR	64.4		P	50 - 175
1889648	BacR-qPCR	71.1		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.0
Batch ID: P324457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895510	HF183-qPCR	9.73	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P324457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888810	GULL2-qPCR	15.7	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P324456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888121	GFD-purified-qPCR	46.3	Spike	F	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P324457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888810	BacR-qPCR	10.3	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: 1889571
Field Sample ID: G2CE0088

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	109	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	112	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	105	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.0	HF183-qPCR	88.3 88.1	120 108 96.6 102			9.73
SOP-PCR-1.2	GULL2-qPCR	64.5 90.0	60.7 65.8 61.8 69.5			15.7
SOP-PCR-1.3	GFD-purified-qPCR	18.6 118	141 73.8 118 46.9			46.3
SOP-PCR-1.4	BacR-qPCR	38.8 79.1	82.8 65.1 64.4 71.1			10.3

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 9223 Quanti-Tray / E83018	Escherichia coli by Colilert 18 Quanti-Tray method by FlowersOverflow Laboratory for Central District	1889568, 1889569
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1889571
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium genetic marker with quantitative polymerase chain reaction	1889571
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter genetic marker with quantitative polymerase chain reaction	1889571
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes genetic marker with quantitative polymerase chain reaction	1889571
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1889570, 1889571

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 9223 Quanti-Tray	04/17/2017			04/17/2017 17:15	Flowers - Altamonte Springs	1889568, 1889569
SOP-PCR-1.0	04/18/2017	04/18/2017 13:45	Puja Jasrotia	05/08/2017	Puja Jasrotia	1889571
SOP-PCR-1.2	04/18/2017	04/18/2017 13:45	Puja Jasrotia	05/09/2017	Sarah Menz	1889571
SOP-PCR-1.3	04/18/2017	04/18/2017 13:45	Puja Jasrotia	05/23/2017	Sarah Menz	1889571
SOP-PCR-1.4	04/18/2017	04/18/2017 13:45	Puja Jasrotia	05/09/2017	Sarah Menz	1889571
SOP-PCR-4.0	04/18/2017	04/18/2017 13:45	Avril Wood	05/03/2017	Puja Jasrotia	1889570, 1889571