Biological Analysis Report

NW-DIST-2018-06-15-01

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

Overflow Analyses Performed By:
University of West Florida
11000 University Parkway
Pensacola, FL 32514
DOH Accreditation E71969

Event Description: **Perdido/Chico Run**
Request ID: **RQ-2018-06-11-31**
Customer: **NW-DIST**
Project ID: **SMP**

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Date Certified: 20-JUL-2018 09:45

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 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: Bridge Creek (Tidal Portion) **Collection Date/Time: 06/14/2018 10:55**

Field ID: G5NW0129 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001241	Enterolert/QT	Enterococci-Quanti-Tray	213		MPN/100 mL		
2001245	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P347849	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P347849	MS
	SOP-PCR-1.3	GFD-purified-qPCR**	170	U	TSC/100 mL	P347895	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P347849	LCS, MS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
SOP-PCR-1.2: Precision data unavailable for Analysis Batch A85149.

Sample Location: Perdido Bay (upper segment) off Double Point **Collection Date/Time: 06/14/2018 11:10**

Field ID: G5NW0127 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001242	Enterolert/QT	Enterococci-Quanti-Tray	10		MPN/100 mL		
2001246	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Perdido Bay (upper segment) NW of Millview Rd. **Collection Date/Time: 06/14/2018 12:00**

Field ID: G5NW0022 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001243	Enterolert/QT	Enterococci-Quanti-Tray	10		MPN/100 mL		
2001247	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Perdido Bay 500m SE of mouth Elevenmile **Collection Date/Time: 06/14/2018 12:10**

Field ID: G5NW0128 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001244	Enterolert/QT	Enterococci-Quanti-Tray	41		MPN/100 mL		
2001248	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P347849

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

Reference Method: SOP-PCR-1.2
Batch ID: P347849

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

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.3
Batch ID: P347895

Component	Result	Code	Units
GFD-purified-qPCR	340	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P347849

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: P347849

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	93.3	133	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P347849

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	63.2	124	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P347895

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	89.0	60.0	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P347849

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	55.2	188	P/F	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P347849

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996396	HF183-qPCR	80.1		P	50 - 175
1999617	HF183-qPCR	93.1		P	50 - 175
2000024	HF183-qPCR	81.5		P	50 - 175
2000025	HF183-qPCR	87.0		P	50 - 175
2000026	HF183-qPCR	87.1		P	50 - 175
2000997	HF183-qPCR	77.4		P	50 - 175
2001000	HF183-qPCR	102		P	50 - 175
2001245	HF183-qPCR	92.0		P	50 - 175
2001299	HF183-qPCR	83.1		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P347849

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004524	HF183-qPCR	94.3	92.3	P/P	50 - 175
2005183	HF183-qPCR	62.1		P	50 - 175
2005186	HF183-qPCR	75.2		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P347849

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996396	GULL2-qPCR	24.9		F	50 - 300
1999617	GULL2-qPCR	86.8		P	50 - 300
2000025	GULL2-qPCR	19.1		F	50 - 300
2000026	GULL2-qPCR	83.8		P	50 - 300
2000997	GULL2-qPCR	87.4		P	50 - 300
2001000	GULL2-qPCR	56.6		P	50 - 300
2001245	GULL2-qPCR	82.7		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P347895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996396	GFD-purified-qPCR	73.4		P	50 - 175
1997476	GFD-purified-qPCR	107		P	50 - 175
1998446	GFD-purified-qPCR	119		P	50 - 175
1999617	GFD-purified-qPCR	128		P	50 - 175
2000025	GFD-purified-qPCR	57.1		P	50 - 175
2000026	GFD-purified-qPCR	76.6		P	50 - 175
2000535	GFD-purified-qPCR	56.8		P	50 - 175
2000997	GFD-purified-qPCR	93.5		P	50 - 175
2001000	GFD-purified-qPCR	66.7		P	50 - 175
2001245	GFD-purified-qPCR	68.2		P	50 - 175
2006009	GFD-purified-qPCR	166		P	50 - 175
2006010	GFD-purified-qPCR	147		P	50 - 175
2006011	GFD-purified-qPCR	158		P	50 - 175
2006012	GFD-purified-qPCR	94.5	111	P/P	50 - 175
2006013	GFD-purified-qPCR	84.9		P	50 - 175
2006014	GFD-purified-qPCR	110		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P347849

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996396	BacR-qPCR	59.0		P	50 - 175
1999617	BacR-qPCR	79.4		P	50 - 175
2000024	BacR-qPCR	68.7		P	50 - 175
2000025	BacR-qPCR	64.5		P	50 - 175
2000026	BacR-qPCR	56.7		P	50 - 175
2000997	BacR-qPCR	65.5		P	50 - 175
2001000	BacR-qPCR	67.8		P	50 - 175
2001245	BacR-qPCR	77.9		P	50 - 175
2004524	BacR-qPCR	54.1	57.5	P/P	50 - 175
2004524	BacR-qPCR	49.0	52.2	F/P	50 - 175
2005183	BacR-qPCR	39.7		F	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P347849

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2005186	BacR-qPCR	59.3		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.0
Batch ID: P347849

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004524	HF183-qPCR	2.16	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P347895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006012	GFD-purified-qPCR	15.7	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P347849

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004524	BacR-qPCR	6.24	Sample	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: 2001245
Field Sample ID: G5NW0129

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	118	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	111	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	106	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.0	HF183-qPCR	133 93.3	94.3 92.3 92.0 80.1			2.16
SOP-PCR-1.2	GULL2-qPCR	124 63.2	82.7 24.9 86.8 19.1			
SOP-PCR-1.3	GFD-purified-qPCR	60.0 89.0	107 119 166 147			15.7

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.4	BacR-qPCR	188 55.2	57.5 52.2 54.1 49.0		6.24	

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E71969	Enterococci by Enterolert Quanti-Tray method by UWF Laboratory	2001241, 2001242, 2001243, 2001244
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2001245
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2001245
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2001245
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2001245
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2001245, 2001246, 2001247, 2001248

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	06/14/2018	06/14/2018 15:45		06/15/2018 16:10	UWF Lab	2001241, 2001242, 2001243, 2001244
SOP-PCR-1.0	06/15/2018	06/15/2018 12:30	Angela Smith	07/09/2018 15:26	Mailin Lopez	2001245
SOP-PCR-1.2	06/15/2018	06/15/2018 12:30	Angela Smith	07/11/2018 10:32	Sarah Menz	2001245
SOP-PCR-1.3	06/15/2018	06/15/2018 12:30	Mailin Lopez	07/12/2018 09:59	Sarah Menz	2001245
SOP-PCR-1.4	06/15/2018	06/15/2018 12:30	Angela Smith	07/10/2018 14:05	Mailin Lopez	2001245
SOP-PCR-4.0	06/15/2018	06/15/2018 12:30	Angela Smith	07/02/2018 16:21	Puja Jasrotia	2001245, 2001246, 2001247, 2001248