Biological Analysis Report

WQAP-2017-06-22-03

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: **Run 4**
Request ID: **RQ-2017-06-19-30**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
Attn: Judy Ashton

For additional information please contact
Cheryl Swanson - Administrator
J. Marshall Faircloth - Aquatic Toxicology
Jacqueline Savage - Bench Biology
Jacqueline Savage - Microbiology
Cheryl Swanson - Molecular Biology
Jennifer Walters - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Jennifer Walters, Environmental Manager

Date Certified: 30-AUG-2017 10:59

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: McKay Creek **Collection Date/Time: 06/21/2017 11:50**

Field ID: G5SW0126 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908269	SOP-PCR-1.0	HF183-qPCR**	71	U	GEU/100 mL	P328922	
	SOP-PCR-1.2	GULL2-qPCR**	4.2E+03	U	TSC/100 mL	P328922	
	SOP-PCR-1.3	GFD-purified-qPCR**	20	T	TSC/100 mL	P329512	LCS, MS, RPD
	SOP-PCR-1.4	BacR-qPCR**	760	U	TSC/100 mL	P328922	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1908270	EPA 1603	Escherichia coli-Membrane Filter**	600	B	cfu/100 mL		

Ref. Method and Comment:
SOP-PCR-1.0: No amplification of HF183 marker.
SOP-PCR-1.2: No amplification of GULL2 marker.
SOP-PCR-1.4: No amplification of BACR marker. Precision data unavailable.

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P328922

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

Reference Method: SOP-PCR-1.2
Batch ID: P328922

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

Reference Method: SOP-PCR-1.3
Batch ID: P329512

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

Reference Method: SOP-PCR-1.4
Batch ID: P328922

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: P328922

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	101	90.3	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P328922

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	91.0	140	P/P	50 - 300

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P329512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	123	17.1	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P328922

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	67.1	57.8	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P328922

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908269	HF183-qPCR	82.5		P	50 - 175
1910012	HF183-qPCR	107		P	50 - 175
1910245	HF183-qPCR	123		P	50 - 175
1913037	HF183-qPCR	63.4		P	50 - 175
1915422	HF183-qPCR	91.6	84.2	P/P	50 - 175
1915423	HF183-qPCR	100		P	50 - 175
1915424	HF183-qPCR	80.6		P	50 - 175
1915425	HF183-qPCR	94.9		P	50 - 175
1915426	HF183-qPCR	157		P	50 - 175
1915427	HF183-qPCR	83.0		P	50 - 175
1915428	HF183-qPCR	82.2		P	50 - 175
1915580	HF183-qPCR	84.6		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P328922

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908269	GULL2-qPCR	71.9		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P329512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907188	GFD-purified-qPCR	47.9		F	50 - 175
1908269	GFD-purified-qPCR	90.1		P	50 - 175
1910245	GFD-purified-qPCR	17.4		F	50 - 175
1918016	GFD-purified-qPCR	199		F	50 - 175
1918017	GFD-purified-qPCR	211		F	50 - 175
1918018	GFD-purified-qPCR	102	180	P/F	50 - 175
1918019	GFD-purified-qPCR	89.8		P	50 - 175
1918020	GFD-purified-qPCR	72.4		P	50 - 175
1918021	GFD-purified-qPCR	132		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P328922

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908269	BacR-qPCR	64.0		P	50 - 175
1910245	BacR-qPCR	59.0		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.0
Batch ID: P328922

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915422	HF183-qPCR	8.41	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P328922

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913491	GULL2-qPCR	16.3	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P329512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918018	GFD-purified-qPCR	55.0	Spike	F	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: 1908269
Field Sample ID: G5SW0126

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	118	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	97.3	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	95.5	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.0	HF183-qPCR	90.3 101	84.6 82.5 107 123			8.41
SOP-PCR-1.2	GULL2-qPCR	140 91.0	71.9			16.3
SOP-PCR-1.3	GFD-purified-qPCR	17.1 123	199 211 102 180			55.0

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.4	BacR-qPCR	57.8 67.1	64.0 59.0			

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E84589	Escherichia coli by membrane filter method using modified mTEC by Advanced Environmental Tampa Lab for SWD	1908270
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1908269
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1908269
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1908269
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1908269
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1908269

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	06/21/2017			06/21/2017 16:00	AEL - Tampa	1908270
SOP-PCR-1.0	06/22/2017	06/22/2017 12:22	Puja Jasrotia	07/26/2017	Puja Jasrotia	1908269
SOP-PCR-1.2	06/22/2017	06/22/2017 12:22	Puja Jasrotia	08/03/2017	Sarah Menz	1908269
SOP-PCR-1.3	06/22/2017	06/22/2017 12:22	Avril Wood	08/04/2017	Sarah Menz	1908269
SOP-PCR-1.4	06/22/2017	06/22/2017 12:22	Puja Jasrotia	08/03/2017	Sarah Menz	1908269
SOP-PCR-4.0	06/22/2017	06/22/2017 12:22	Sarah Menz	07/20/2017	Puja Jasrotia	1908269