Biological Analysis Report

SW-DIST-2020-02-14-01

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

Event Description: **Pinellas site**
Request ID: **RQ-2020-02-10-27**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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13051 N. Telecom Parkway
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Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 16-MAR-2020 11:17

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 group are included in this report: Molecular.

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: Bear Creek @ Gulf Port Blvd **Collection Date/Time: 02/13/2020 09:04**

Field ID: G5SW0051 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2157661	SOP-PCR-1.0	HF183-qPCR**	71	U	GEU/100 mL	P378875	
	SOP-PCR-1.2	GULL2-qPCR**	4.2E+03	U	TSC/100 mL	P378875	
	SOP-PCR-1.3	GFD-purified-qPCR**	84	U	TSC/100 mL	P379915	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	760	U	TSC/100 mL	P378875	LCS
	SOP-PCR-1.5	DG3-qPCR**	640	U	TSC/100 mL	P378875	

Ref. Method and Comment:
SOP-PCR-1.2: Precision data unavailable for Analysis Batch A98078

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P378875

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

Reference Method: SOP-PCR-1.2
Batch ID: P378875

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

Reference Method: SOP-PCR-1.3
Batch ID: P379915

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

Reference Method: SOP-PCR-1.4
Batch ID: P378875

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

Reference Method: SOP-PCR-1.5
Batch ID: P378875

Component	Result	Code	Units
DG3-qPCR	2.6E+03	U	TSC/100 mL

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P378875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	131	111	P/P	50 - 175

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.2
Batch ID: P378875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	102	117	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P379915

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	89.5	8.37	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P378875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	102	217	P/F	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P378875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	109	105	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P378875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2157508	HF183-qPCR	121	118	P/P	50 - 175
2157661	HF183-qPCR	120		P	50 - 175
2158499	HF183-qPCR	106		P	50 - 175
2158500	HF183-qPCR	113		P	50 - 175
2158557	HF183-qPCR	120		P	50 - 175
2158855	HF183-qPCR	99.0		P	50 - 175
2159056	HF183-qPCR	102		P	50 - 175
2159689	HF183-qPCR	95.5		P	50 - 175
2159690	HF183-qPCR	119		P	50 - 175
2160399	HF183-qPCR	121		P	50 - 175
2160400	HF183-qPCR	123		P	50 - 175
2160474	HF183-qPCR	126		P	50 - 175
2160504	HF183-qPCR	124		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P378875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2157661	GULL2-qPCR	69.6		P	50 - 300
2158499	GULL2-qPCR	72.3		P	50 - 300
2158855	GULL2-qPCR	55.0		P	50 - 300
2159056	GULL2-qPCR	65.4		P	50 - 300
2160399	GULL2-qPCR	80.1		P	50 - 300
2160400	GULL2-qPCR	80.2		P	50 - 300

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.2
Batch ID: P378875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160474	GULL2-qPCR	79.7		P	50 - 300
2160504	GULL2-qPCR	92.6		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P379915

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2157661	GFD-purified-qPCR	97.7		P	50 - 175
2158499	GFD-purified-qPCR	94.3		P	50 - 175
2158500	GFD-purified-qPCR	93.2		P	50 - 175
2158855	GFD-purified-qPCR	56.4		P	50 - 175
2159056	GFD-purified-qPCR	99.6		P	50 - 175
2160399	GFD-purified-qPCR	116		P	50 - 175
2160400	GFD-purified-qPCR	235		F	50 - 175
2160474	GFD-purified-qPCR	120		P	50 - 175
2160504	GFD-purified-qPCR	120		P	50 - 175
2160505	GFD-purified-qPCR	139		P	50 - 175
2160595	GFD-purified-qPCR	85.3		P	50 - 175
2161864	GFD-purified-qPCR	90.4		P	50 - 175
2161865	GFD-purified-qPCR	104		P	50 - 175
2161866	GFD-purified-qPCR	110	101	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P378875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2157508	BacR-qPCR	72.0	77.3	P/P	50 - 175
2157661	BacR-qPCR	70.6		P	50 - 175
2158499	BacR-qPCR	73.4		P	50 - 175
2158500	BacR-qPCR	92.9		P	50 - 175
2158557	BacR-qPCR	78.5		P	50 - 175
2158855	BacR-qPCR	56.4		P	50 - 175
2159056	BacR-qPCR	52.7		P	50 - 175
2159689	BacR-qPCR	61.9		P	50 - 175
2159690	BacR-qPCR	63.5		P	50 - 175
2160399	BacR-qPCR	62.3		P	50 - 175
2160400	BacR-qPCR	67.9		P	50 - 175
2160474	BacR-qPCR	71.2		P	50 - 175
2160504	BacR-qPCR	75.4		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P378875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2157508	DG3-qPCR	99.6	96.9	P/P	50 - 175
2157661	DG3-qPCR	102		P	50 - 175
2158499	DG3-qPCR	87.7		P	50 - 175
2158500	DG3-qPCR	112		P	50 - 175
2158557	DG3-qPCR	105		P	50 - 175
2158855	DG3-qPCR	96.6		P	50 - 175
2159056	DG3-qPCR	93.0		P	50 - 175
2159689	DG3-qPCR	91.8		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.5
Batch ID: P378875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159690	DG3-qPCR	89.0		P	50 - 175
2160399	DG3-qPCR	117		P	50 - 175
2160400	DG3-qPCR	107		P	50 - 175
2160474	DG3-qPCR	99.1		P	50 - 175
2160504	DG3-qPCR	105		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.0
Batch ID: P378875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2157508	HF183-qPCR	2.53	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P379915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161866	GFD-purified-qPCR	9.06	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P378875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2157508	BacR-qPCR	7.11	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P378875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2157508	DG3-qPCR	2.78	Spike	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Surrogates

Lab Sample ID: 2157661
Field Sample ID: G5SW0051

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	92.0	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	82.2	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	97.3	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	89.7	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.0	HF183-qPCR	111 131	121 118 120 106			2.53
SOP-PCR-1.2	GULL2-qPCR	117 102	69.6 72.3 55.0 65.4			
SOP-PCR-1.3	GFD-purified-qPCR	8.37 89.5	139 85.3 90.4 104			9.06
SOP-PCR-1.4	BacR-qPCR	102 217	72.0 77.3 70.6 73.4			7.11
SOP-PCR-1.5	DG3-qPCR	105 109	99.6 96.9 102 87.7			2.78

Reference Method Descriptions

Method	Description	Associated Samples
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2157661
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2157661
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2157661
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2157661
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2157661

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SOP-PCR-1.0	02/14/2020	02/14/2020 14:35	Angela Smith	02/28/2020 11:32	Lauren Campbell	2157661
SOP-PCR-1.2	02/14/2020	02/14/2020 14:35	Angela Smith	03/09/2020 14:03	Mailin Lopez	2157661
SOP-PCR-1.3	02/14/2020	02/14/2020 14:35	Lauren Campbell	03/13/2020 08:13	Mailin Lopez	2157661
SOP-PCR-1.4	02/14/2020	02/14/2020 14:35	Angela Smith	03/05/2020 12:38	Lauren Campbell	2157661
SOP-PCR-1.5	02/14/2020	02/14/2020 14:35	Angela Smith	03/06/2020 10:58	Lauren Campbell	2157661