

Biological Analysis Report

SW-DIST-2022-07-07-01

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

Overflow Analyses Performed By:
Benchmark EnvironAnalytical, Inc.
1711 12th Street East
Palmetto, FL 34221
DOH Accreditation E84167

Event Description: **2022 Run 11**
Request ID: **RQ-2022-07-04-16**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 10-AUG-2022 13:19



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: Chlorophyll/Grain Size/BOD, 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: Fishhawk Creek @ HA site

Collection Date/Time: 07/06/2022 09:40

Field ID: G2SW0144

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2339479	SOP-PCR-1.0	HF183-qPCR**	1.6E+03	I	TSC/100 mL	P415979	
	SOP-PCR-1.4	BacR-qPCR**	6.02E+05		TSC/100 mL	P415979	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P415979	RPD
2339487	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	2481		MPN/100 mL		

Sample Location: Sloman Branch @ Nichols Rd

Collection Date/Time: 07/06/2022 09:00

Field ID: G2SW0123

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2339474	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.89	U	ug/L	P416787	
		Phaeophytin-a	0.98	U	ug/L	P416787	
		Chlorophyll-a, Uncorrected	0.65	U	ug/L	P416787	
2339486	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1664		MPN/100 mL		

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Sample Location: Hurrah Creek @ Alifia River SP

Collection Date/Time: 07/06/2022 10:00

Field ID: G2SW0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2339480	SOP-PCR-1.0	HF183-qPCR**	2.2E+03	U	TSC/100 mL	P415979	
	SOP-PCR-1.4	BacR-qPCR**	9.2E+03	I	TSC/100 mL	P415979	
	SOP-PCR-1.5	DG3-qPCR**	1.7E+03	U	TSC/100 mL	P415979	RPD
2339488	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	160		MPN/100 mL		

Sample Location: Carlton Branch @ SR674

Collection Date/Time: 07/06/2022 10:40

Field ID: G2SW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2339481	SOP-PCR-1.0	HF183-qPCR**	1.7E+03	U	TSC/100 mL	P415979	
	SOP-PCR-1.4	BacR-qPCR**	7.9E+03		TSC/100 mL	P415979	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P415979	RPD
2339489	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1334		MPN/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P416787

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P415979

Component	Result	Code	Units
HF183-qPCR	3.3E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P415979

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

Reference Method: SOP-PCR-1.5
Batch ID: P415979

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P416787

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.1		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P415979

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	52.2	80.9	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P415979

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	104	79.3	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P415979

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	94.4	73.1	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P415979

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338255	HF183-qPCR	89.1	86.2	P/P	50 - 175
2338386	HF183-qPCR	80.0		P	50 - 175
2338434	HF183-qPCR	96.3		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P415979

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338654	HF183-qPCR	91.5		P	50 - 175
2338655	HF183-qPCR	86.9		P	50 - 175
2338656	HF183-qPCR	98.4		P	50 - 175
2339171	HF183-qPCR	86.8		P	50 - 175
2339351	HF183-qPCR	83.2		P	50 - 175
2339479	HF183-qPCR	84.4		P	50 - 175
2339480	HF183-qPCR	89.5		P	50 - 175
2339481	HF183-qPCR	71.7		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P415979

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338255	BacR-qPCR	91.4	82.9	P/P	50 - 175
2338386	BacR-qPCR	77.4		P	50 - 175
2338434	BacR-qPCR	65.0		P	50 - 175
2338654	BacR-qPCR	87.2		P	50 - 175
2338655	BacR-qPCR	92.1		P	50 - 175
2338656	BacR-qPCR	84.2		P	50 - 175
2339171	BacR-qPCR	91.3		P	50 - 175
2339351	BacR-qPCR	87.8		P	50 - 175
2339479	BacR-qPCR	64.7		P	50 - 175
2339480	BacR-qPCR	64.3		P	50 - 175
2339481	BacR-qPCR	50.4		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P415979

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338255	DG3-qPCR	141	92.1	P/P	50 - 175
2338386	DG3-qPCR	92.2		P	50 - 175
2338434	DG3-qPCR	79.5		P	50 - 175
2338654	DG3-qPCR	80.4		P	50 - 175
2338655	DG3-qPCR	88.8		P	50 - 175
2338656	DG3-qPCR	89.8		P	50 - 175
2339171	DG3-qPCR	88.4		P	50 - 175
2339351	DG3-qPCR	81.7		P	50 - 175
2339479	DG3-qPCR	83.1		P	50 - 175
2339480	DG3-qPCR	84.8		P	50 - 175
2339481	DG3-qPCR	71.1		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P415979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338255	HF183-qPCR	3.29	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.4
 Batch ID: P415979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338255	BacR-qPCR	9.76	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
 Batch ID: P415979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338255	DG3-qPCR	41.9	Spike	F	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2339479
 Field Sample ID: G2SW0144

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	92.1	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	100	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	93.3	P	50 - 300

Lab Sample ID: 2339480
 Field Sample ID: G2SW0098

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	96.1	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	100	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	95.9	P	50 - 300

Lab Sample ID: 2339481
 Field Sample ID: G2SW0099

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	71.9	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	92.1	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
				LCS				
SM 10200 H (mod.)	ChlorophyllI-a, Corrected	97.1						
SOP-PCR-1.0	HF183-qPCR	80.9	52.2	89.1	86.2	80.0		3.29
				96.3				
SOP-PCR-1.4	BacR-qPCR	104	79.3	82.9	91.4	77.4		9.76
				65.0				

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision	
							LCS	SMP
SOP-PCR-1.5	DG3-qPCR	73.1	94.4	141	92.1	92.2		41.9
				79.5				

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2339474
SM 9223 B Quanti-Tray	E. coli by Colilert/QT by BEA in Palmetto	2339486, 2339487, 2339488, 2339489
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2339479, 2339480, 2339481
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2339479, 2339480, 2339481
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2339479, 2339480, 2339481

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	07/07/2022	07/07/2022 15:23	Tynan A Branch	07/14/2022 08:36	Jillian G Hanley	2339474
SM 9223 B Quanti-Tray	07/06/2022	07/06/2022 14:23		07/07/2022 15:48	Benchmark EnviroAnalytical - Palmetto	2339486, 2339487, 2339488, 2339489
SOP-PCR-1.0	07/07/2022	07/07/2022 11:30	Claudia Castro	07/27/2022 09:06	DeAsia Armster	2339479, 2339480, 2339481
SOP-PCR-1.4	07/07/2022	07/07/2022 11:30	Claudia Castro	07/29/2022 08:46	DeAsia Armster	2339479, 2339480, 2339481
SOP-PCR-1.5	07/07/2022	07/07/2022 11:30	Claudia Castro	07/29/2022 13:03	Roberta Tatti	2339479, 2339480, 2339481