

Biological Analysis Report

SW-DIST-2020-08-11-01

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

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

Event Description: **Mizelle, Owens, McDonald, Chito, Gilley**
Request ID: **RQ-2020-08-17-06**
Customer: **SW-DIST**
Project ID: **SMP**

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Date Certified: 09-SEP-2020 14:48



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: Chito Branch in Park

Collection Date/Time: 08/10/2020 12:30

Field ID: G2SW0133

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2189473	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.0	I	ug/L	P386490	
		Phaeophytin-a	1.8	U	ug/L	P386490	
		Chlorophyll-a, Uncorrected	3.1	I	ug/L	P386490	
2189489	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	496		MPN/100 mL		

Sample Location: Mizelle Creek in Park

Collection Date/Time: 08/10/2020 10:45

Field ID: G2SW0131

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2189471	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.8	I	ug/L	P386490	
		Phaeophytin-a	1.8	U	ug/L	P386490	
		Chlorophyll-a, Uncorrected	1.7	I	ug/L	P386490	
2189480	SOP-PCR-1.0	HF183-qPCR**	190	U	GEU/100 mL	P385394	
	SOP-PCR-1.4	BacR-qPCR**	2.01E+04		TSC/100 mL	P385394	
	SOP-PCR-1.5	DG3-qPCR**	1.7E+03	U	TSC/100 mL	P385394	
2189487	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	629		MPN/100 mL		

Sample Location: McDonald Branch @ Thompson Rd

Collection Date/Time: 08/10/2020 10:20

Field ID: G2SW0093

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2189474	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P386490	
		Phaeophytin-a	0.90	U	ug/L	P386490	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P386490	
2189490	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	288		MPN/100 mL		

Sample Location: Owens Branch in Park

Collection Date/Time: 08/10/2020 11:40

Field ID: G2SW0132

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2189472	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.7	I	ug/L	P386490	
		Phaeophytin-a	1.8	U	ug/L	P386490	
		Chlorophyll-a, Uncorrected	1.8	I	ug/L	P386490	
2189481	SOP-PCR-1.0	HF183-qPCR**	190	U	GEU/100 mL	P385909	
	SOP-PCR-1.4	BacR-qPCR**	1.06E+04		TSC/100 mL	P385909	
	SOP-PCR-1.5	DG3-qPCR**	1.7E+03	U	TSC/100 mL	P385909	
2189488	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	2909		MPN/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P386490

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P386490

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

Reference Method: SOP-PCR-1.0
Batch ID: P385394

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

Reference Method: SOP-PCR-1.0
Batch ID: P385909

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

Reference Method: SOP-PCR-1.4
Batch ID: P385394

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

Reference Method: SOP-PCR-1.4
Batch ID: P385909

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

Reference Method: SOP-PCR-1.5
Batch ID: P385394

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

Reference Method: SOP-PCR-1.5
Batch ID: P385909

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: P386490

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.0		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P385394

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	107	110	P/P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P385909

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	110	115	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P385394

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	98.0	107	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P385909

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	99.9	105	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P385394

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	91.1	114	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P385909

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	97.2	99.5	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P385394

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2187213	HF183-qPCR	103	92.7	P/P	50 - 175
2187214	HF183-qPCR	100		P	50 - 175
2187678	HF183-qPCR	94.2		P	50 - 175
2188149	HF183-qPCR	98.7		P	50 - 175
2188152	HF183-qPCR	92.5		P	50 - 175
2188153	HF183-qPCR	90.1		P	50 - 175
2188154	HF183-qPCR	87.4		P	50 - 175
2188155	HF183-qPCR	86.7		P	50 - 175
2188419	HF183-qPCR	104		P	50 - 175
2188511	HF183-qPCR	98.5		P	50 - 175
2189035	HF183-qPCR	98.3		P	50 - 175
2189053	HF183-qPCR	104		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P385394

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189480	HF183-qPCR	90.8		P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P385909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189481	HF183-qPCR	90.4		P	50 - 175
2189776	HF183-qPCR	104	106	P/P	50 - 175
2189777	HF183-qPCR	97.3		P	50 - 175
2190856	HF183-qPCR	97.6		P	50 - 175
2191060	HF183-qPCR	101		P	50 - 175
2191167	HF183-qPCR	101		P	50 - 175
2191168	HF183-qPCR	100		P	50 - 175
2191169	HF183-qPCR	102		P	50 - 175
2191170	HF183-qPCR	93.1		P	50 - 175
2191545	HF183-qPCR	95.6		P	50 - 175
2192167	HF183-qPCR	101		P	50 - 175
2192168	HF183-qPCR	109		P	50 - 175
2192169	HF183-qPCR	94.9		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P385394

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2187213	BacR-qPCR	80.5	84.0	P/P	50 - 175
2187214	BacR-qPCR	94.5		P	50 - 175
2187678	BacR-qPCR	64.4		P	50 - 175
2188149	BacR-qPCR	72.5		P	50 - 175
2188152	BacR-qPCR	86.7		P	50 - 175
2188153	BacR-qPCR	90.7		P	50 - 175
2188154	BacR-qPCR	72.8		P	50 - 175
2188155	BacR-qPCR	73.6		P	50 - 175
2188419	BacR-qPCR	79.1		P	50 - 175
2188511	BacR-qPCR	83.8		P	50 - 175
2189035	BacR-qPCR	78.9		P	50 - 175
2189053	BacR-qPCR	89.2		P	50 - 175
2189480	BacR-qPCR	78.5		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P385909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189481	BacR-qPCR	78.0		P	50 - 175
2189776	BacR-qPCR	94.6	92.5	P/P	50 - 175
2189777	BacR-qPCR	83.8		P	50 - 175
2190856	BacR-qPCR	84.9		P	50 - 175
2191060	BacR-qPCR	90.4		P	50 - 175
2191167	BacR-qPCR	86.1		P	50 - 175
2191168	BacR-qPCR	90.6		P	50 - 175
2191169	BacR-qPCR	87.9		P	50 - 175
2191170	BacR-qPCR	86.1		P	50 - 175
2191545	BacR-qPCR	73.8		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P385909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192167	BacR-qPCR	83.9		P	50 - 175
2192168	BacR-qPCR	90.1		P	50 - 175
2192169	BacR-qPCR	84.7		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P385394

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2187213	DG3-qPCR	84.9	86.6	P/P	50 - 175
2187214	DG3-qPCR	83.5		P	50 - 175
2187678	DG3-qPCR	90.0		P	50 - 175
2188149	DG3-qPCR	88.8		P	50 - 175
2188152	DG3-qPCR	93.0		P	50 - 175
2188153	DG3-qPCR	82.7		P	50 - 175
2188154	DG3-qPCR	83.9		P	50 - 175
2188155	DG3-qPCR	82.6		P	50 - 175
2188419	DG3-qPCR	84.4		P	50 - 175
2188511	DG3-qPCR	94.7		P	50 - 175
2189035	DG3-qPCR	88.1		P	50 - 175
2189053	DG3-qPCR	92.7		P	50 - 175
2189480	DG3-qPCR	86.2		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P385909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189481	DG3-qPCR	89.7		P	50 - 175
2189776	DG3-qPCR	102	102	P/P	50 - 175
2189777	DG3-qPCR	90.3		P	50 - 175
2190856	DG3-qPCR	88.8		P	50 - 175
2191060	DG3-qPCR	101		P	50 - 175
2191167	DG3-qPCR	90.9		P	50 - 175
2191168	DG3-qPCR	92.8		P	50 - 175
2191169	DG3-qPCR	94.4		P	50 - 175
2191170	DG3-qPCR	93.6		P	50 - 175
2191545	DG3-qPCR	92.8		P	50 - 175
2192167	DG3-qPCR	80.0		P	50 - 175
2192168	DG3-qPCR	103		P	50 - 175
2192169	DG3-qPCR	94.0		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P386490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189420	Chlorophyll-a, Corrected	7.04	Sample	P	0 - 25
2189420	Chlorophyll-a, Uncorrected	6.57	Sample	P	0 - 25
2189420	Phaeophytin-a	4.83	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P385394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2187213	HF183-qPCR	10.2	Spike	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P385909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189776	HF183-qPCR	1.13	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P385394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2187213	BacR-qPCR	4.24	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P385909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189776	BacR-qPCR	2.20	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P385394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2187213	DG3-qPCR	1.98	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P385909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189776	DG3-qPCR	0.278	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2189480
Field Sample ID: G2SW0131

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	87.8	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	107	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	125	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 2189481
Field Sample ID: G2SW0132

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	71.7	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	96.8	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	63.8	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	97.0						7.04	
	Chlorophyll-a, Uncorrected							6.57	
	Phaeophytin-a							4.83	
SOP-PCR-1.0	HF183-qPCR	110	107	103	92.7	100			10.2
SOP-PCR-1.4	HF183-qPCR	115	110	90.4	104	106			1.13
	BacR-qPCR	107	98.0	80.5	84.0	94.5			4.24
SOP-PCR-1.5	BacR-qPCR	105	99.9	78.0	94.6	92.5			2.20
	DG3-qPCR	114	91.1	84.9	86.6	83.5			1.98
	DG3-qPCR	99.5	97.2	89.7	102	102			0.278

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2189471, 2189472, 2189473, 2189474
SM 9223 B Quanti-Tray	E. coli by Colilert/QT by BEA in Palmetto	2189487, 2189488, 2189489, 2189490
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2189480, 2189481
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2189480, 2189481
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2189480, 2189481

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	08/11/2020	08/11/2020 14:36	Jessica Sherman	08/24/2020 10:30	Jessica Fetgatter	2189471, 2189472, 2189473, 2189474
SM 9223 B Quanti-Tray	08/10/2020	08/10/2020 14:27		08/11/2020 16:36	Benchmark EnviroAnalytical - Palmetto	2189487, 2189488, 2189489, 2189490
SOP-PCR-1.0	08/11/2020	08/11/2020 13:00	Angela Smith	08/31/2020 16:40	Lauren Campbell	2189481
	08/11/2020	08/11/2020 13:00	Lauren Campbell	08/13/2020 10:59	Lauren Campbell	2189480
SOP-PCR-1.4	08/11/2020	08/11/2020 13:00	Angela Smith	09/01/2020 09:50	Lauren Campbell	2189481
	08/11/2020	08/11/2020 13:00	Lauren Campbell	08/13/2020 12:53	Lauren Campbell	2189480
SOP-PCR-1.5	08/11/2020	08/11/2020 13:00	Angela Smith	09/02/2020 11:17	Lauren Campbell	2189481
	08/11/2020	08/11/2020 13:00	Lauren Campbell	08/14/2020 11:45	Lauren Campbell	2189480