Biological Analysis Report

SW-DIST-2023-02-14-01

Florida DEP 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:	**SMP:: Run 13**
Request ID:	**RQ-2023-02-13-31**
Customer:	**SW-DIST**
Project ID:	**SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Ben Paswater

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Certified by: Sarah Menz, Environmental Administrator

Date Certified: 29-MAR-2023 10:25

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: McDonald Branch @ Thompson Rd **Collection Date/Time: 02/13/2023 09:50**

Field ID: G2SW0093 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386887	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	860		MPN/100 mL		

Sample Location: Alafia River S. Prong West Branch @ Keysville Rd. **Collection Date/Time: 02/13/2023 10:20**

Field ID: G2SW0160 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386883	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.7	I	ug/L	P425965	
		Phaeophytin-a	1.0	U	ug/L	P425965	
		Chlorophyll-a, Uncorrected	1.8	I	ug/L	P425965	
2386888	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1246		MPN/100 mL		

Sample Location: Moccassin Creek @ CR 39 **Collection Date/Time: 02/13/2023 10:50**

Field ID: G2SW0161 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386884	SM 10200 H (mod.)	Chlorophyll-a, Corrected	20	A	ug/L	P425965	
		Phaeophytin-a	6.5	A	ug/L	P425965	
		Chlorophyll-a, Uncorrected	25	A	ug/L	P425965	
2386889	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	2359		MPN/100 mL		

Sample Location: Fishhawk Creek @ HA site **Collection Date/Time: 02/13/2023 11:40**

Field ID: G2SW0144 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386885	SOP-PCR-1.0	HF183-qPCR**	1.1E+03	U	TSC/100 mL	P425604	
	SOP-PCR-1.2	GULL2-qPCR**	1.2E+03	U	TSC/100 mL	P425604	
	SOP-PCR-1.3	GFD-qPCR**	240	U	TSC/100 mL	P425604	
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P425604	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P425604	
2386886	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	697		MPN/100 mL		

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P425965

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

Reference Method: SOP-PCR-1.0
Batch ID: P425604

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

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.2
Batch ID: P425604

Component	Result	Code	Units
GULL2-qPCR	3.6E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.3
Batch ID: P425604

Component	Result	Code	Units
GFD-qPCR	720	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P425604

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

Reference Method: SOP-PCR-1.5
Batch ID: P425604

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: P425965

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	96.1		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P425604

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	95.4	91.3	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P425604

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	109	82.2	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P425604

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	102	86.9	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P425604

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P425604

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	97.6	114	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P425604

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	115	127	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P425604

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386212	HF183-qPCR	104	105	P/P	50 - 175
2386213	HF183-qPCR	68.3		P	50 - 175
2386214	HF183-qPCR	101		P	50 - 175
2386215	HF183-qPCR	93.9		P	50 - 175
2386790	HF183-qPCR	83.1		P	50 - 175
2386791	HF183-qPCR	89.1		P	50 - 175
2386885	HF183-qPCR	90.7		P	50 - 175
2387182	HF183-qPCR	86.2		P	50 - 175
2387788	HF183-qPCR	110		P	50 - 175
2387796	HF183-qPCR	86.4	95.7	P/P	50 - 175
2388153	HF183-qPCR	101		P	50 - 175
2388376	HF183-qPCR	86.4		P	50 - 175
2388377	HF183-qPCR	85.7		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P425604

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386212	GULL2-qPCR	112	98.9	P/P	50 - 300
2386213	GULL2-qPCR	99.2		P	50 - 300
2386214	GULL2-qPCR	105		P	50 - 300
2386215	GULL2-qPCR	106		P	50 - 300
2386790	GULL2-qPCR	78.3		P	50 - 300
2386791	GULL2-qPCR	90.0		P	50 - 300
2386885	GULL2-qPCR	78.8		P	50 - 300
2387182	GULL2-qPCR	81.1		P	50 - 300
2387788	GULL2-qPCR	91.0		P	50 - 300
2387796	GULL2-qPCR	72.1		P	50 - 300
2388153	GULL2-qPCR	89.1		P	50 - 300
2388376	GULL2-qPCR	89.5		P	50 - 300
2388377	GULL2-qPCR	85.6		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P425604

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P425604

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386212	GFD-qPCR	97.7	108	P/P	50 - 175
2386213	GFD-qPCR	105		P	50 - 175
2386214	GFD-qPCR	102		P	50 - 175
2386215	GFD-qPCR	100		P	50 - 175
2386790	GFD-qPCR	86.9		P	50 - 175
2386791	GFD-qPCR	91.3		P	50 - 175
2386885	GFD-qPCR	97.9		P	50 - 175
2387182	GFD-qPCR	96.4		P	50 - 175
2387788	GFD-qPCR	95.3		P	50 - 175
2387796	GFD-qPCR	97.6		P	50 - 175
2388153	GFD-qPCR	99.0		P	50 - 175
2388376	GFD-qPCR	88.2		P	50 - 175
2388377	GFD-qPCR	86.3		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P425604

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386212	BacR-qPCR	93.8	100	P/P	50 - 175
2386213	BacR-qPCR	95.0		P	50 - 175
2386214	BacR-qPCR	99.9		P	50 - 175
2386215	BacR-qPCR	101		P	50 - 175
2386790	BacR-qPCR	80.2		P	50 - 175
2386791	BacR-qPCR	94.1		P	50 - 175
2386885	BacR-qPCR	78.0		P	50 - 175
2387182	BacR-qPCR	77.3		P	50 - 175
2387788	BacR-qPCR	97.9		P	50 - 175
2387796	BacR-qPCR	78.7		P	50 - 175
2388153	BacR-qPCR	87.1		P	50 - 175
2388376	BacR-qPCR	81.6		P	50 - 175
2388377	BacR-qPCR	75.9		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P425604

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386212	DG3-qPCR	108	113	P/P	50 - 175
2386213	DG3-qPCR	107		P	50 - 175
2386214	DG3-qPCR	107		P	50 - 175
2386215	DG3-qPCR	106		P	50 - 175
2386790	DG3-qPCR	99.3		P	50 - 175
2386791	DG3-qPCR	97.0		P	50 - 175
2386885	DG3-qPCR	95.6		P	50 - 175
2387182	DG3-qPCR	93.0		P	50 - 175
2387788	DG3-qPCR	105		P	50 - 175
2387796	DG3-qPCR	90.9		P	50 - 175
2388153	DG3-qPCR	99.0		P	50 - 175
2388376	DG3-qPCR	101		P	50 - 175
2388377	DG3-qPCR	89.5		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P425965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386884	Chlorophyll-a, Corrected	0.419	Sample	P	0 - 25
2386884	Chlorophyll-a, Uncorrected	2.51	Sample	P	0 - 25
2386884	Phaeophytin-a	13.9	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P425604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386212	HF183-qPCR	1.17	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P425604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386212	GULL2-qPCR	12.7	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P425604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386212	GFD-qPCR	9.66	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P425604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386212	BacR-qPCR	6.66	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P425604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386212	DG3-qPCR	5.03	Spike	P	0 - 25

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2386885
Field Sample ID: G2SW0144

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	83.4	P	50 - 300

Quality Assurance Report
Surrogates

Lab Sample ID: 2386885
Field Sample ID: G2SW0144

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.2	SKETA-qPCR	95.7	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	83.7	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	87.5	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	93.6	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	96.1			0.419	
	Chlorophyll-a, Uncorrected				2.51	
	Phaeophytin-a				13.9	
SOP-PCR-1.0	HF183-qPCR	91.3 95.4	104 105 101 93.9			1.17
SOP-PCR-1.2	GULL2-qPCR	82.2 109	112 98.9 99.2 105			12.7
SOP-PCR-1.3	GFD-qPCR	86.9 102	97.7 108 105 102			9.66
SOP-PCR-1.4	BacR-qPCR	114 97.6	93.8 100 95.0 99.9			6.66
SOP-PCR-1.5	DG3-qPCR	127 115	107 108 113 107			5.03

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2386883, 2386884
SM 9223 B Quanti-Tray	E. coli by Colilert/QT by BEA in Palmetto	2386886, 2386887, 2386888, 2386889
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2386885
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2386885
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2386885
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2386885
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2386885

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	02/14/2023	02/14/2023 14:03	Callie Williams	02/15/2023 15:35	Aidan Cronin	2386883, 2386884
SM 9223 B Quanti-Tray	02/13/2023	02/13/2023 15:18		02/14/2023 15:48	Benchmark EnviroAnalytical - Palmetto	2386886, 2386887, 2386888, 2386889
SOP-PCR-1.0	02/14/2023	02/14/2023 15:40	Claudia Castro	02/23/2023 16:45	Roberta Tatti	2386885
SOP-PCR-1.2	02/14/2023	02/14/2023 15:40	Claudia Castro	03/08/2023 13:09	Jennifer Mihalic	2386885
SOP-PCR-1.3	02/14/2023	02/14/2023 15:40	Claudia Castro	03/07/2023 16:37	Jennifer Mihalic	2386885
SOP-PCR-1.4	02/14/2023	02/14/2023 15:40	Claudia Castro	02/28/2023 09:23	Roberta Tatti	2386885
SOP-PCR-1.5	02/14/2023	02/14/2023 15:40	Claudia Castro	02/28/2023 13:15	Roberta Tatti	2386885