

Biological Analysis Report

SW-DIST-2023-08-03-01

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-2023-07-31-14**
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

For additional information please contact
Cheryl Swanson - Administrator
Sarah Menz, Ph.D. - Bench Biology & Aquatic
Toxicity
Puja Jasrotia, Ph.D. - Molecular Biology & Taxonomy
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Sarah Menz, Environmental Administrator

Date Certified: 15-SEP-2023 11:09



NON-CONFORMANCE REPORT INCLUDED

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 at Thompson Rd

Collection Date/Time: 08/02/2023 09:20

Field ID: G2SW0093

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2428660	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	379		MPN/100 mL		

Sample Location: Alafia River S Prong West Branch at Keysville Rd

Collection Date/Time: 08/02/2023 09:40

Field ID: G2SW0160

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2428652	SM 10150 B	Chlorophyll-a, Corrected	4.4	I	ug/L	P433601	
		Phaeophytin-a	1.8	U	ug/L	P433601	
		Chlorophyll-a, Uncorrected	5.3		ug/L	P433601	
2428661	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	813		MPN/100 mL		

Ref. Method and Comment:

SM 10150 B: 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: Moccassin Creek at CR 39

Collection Date/Time: 08/02/2023 10:05

Field ID: G2SW0161

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2428653	SM 10150 B	Chlorophyll-a, Corrected	48		ug/L	P433601	
		Phaeophytin-a	6.5		ug/L	P433601	
		Chlorophyll-a, Uncorrected	53		ug/L	P433601	
2428662	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	473		MPN/100 mL		

Ref. Method and Comment:

SM 10150 B: 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: Chito Branch at CR39

Collection Date/Time: 08/02/2023 10:15

Field ID: G2SW0135

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2428650	SM 10150 B	Chlorophyll-a, Corrected	1.6	UJ	ug/L	P433601	
		Phaeophytin-a	5.3	IJ	ug/L	P433601	
		Chlorophyll-a, Uncorrected	4.5	J	ug/L	P433601	
2428654	SOP-PCR-1.0	HF183-qPCR**	3.3E+03	U	TSC/100 mL	P433273	
	SOP-PCR-1.4	BacR-qPCR**	1.22E+05		TSC/100 mL	P433273	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P433273	
2428657	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	2282		MPN/100 mL		

Ref. Method and Comment:

SM 10150 B: See Non-Conformance Report 10021. 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: Fishhawk Creek at HA Site

Collection Date/Time: 08/02/2023 10:35

Field ID: G2SW0144

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2428656	SOP-PCR-1.0	HF183-qPCR**	1.7E+03	U	TSC/100 mL	P433273	
	SOP-PCR-1.4	BacR-qPCR**	3.8E+03	I	TSC/100 mL	P433273	

Field ID: G2SW0144

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2428656	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P433273	
2428659	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	785		MPN/100 mL		

Non-Conformance Report

NCR ID: 10021

Event(s)	Job(s)	Sample(s)	Test(s)
SW-DIST-2023-08-03-01	TLH-2023-08-03-71	2428650	CHLSUITE-W

NCR Type: ANALYSIS NCR Category: Analytical Measurement

Observation: Sample had high turbidity and did not respond as expected to acidification.
Resolution: Customers: Benjamin Paswater, Sarah Meyer, and Devin Mathias notified by email. Sample will be reported with a J-qualifier.

Authorized by/Date: Cheryl A. Swanson 8/9/2023

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report
Method Blank Results

Reference Method: SM 10150 B
Batch ID: P433601

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: P433273

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

Reference Method: SOP-PCR-1.4
Batch ID: P433273

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

Reference Method: SOP-PCR-1.5
Batch ID: P433273

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10150 B
Batch ID: P433601

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	99.5		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P433273

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	79.4	97.4	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P433273

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	105	80.9	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P433273

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	100	77.8	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P433273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427700	HF183-qPCR	84.6	85.9	P/P	50 - 175
2427810	HF183-qPCR	82.7		P	50 - 175
2428035	HF183-qPCR	107		P	50 - 175
2428451	HF183-qPCR	102		P	50 - 175
2428452	HF183-qPCR	82.2		P	50 - 175
2428475	HF183-qPCR	84.2		P	50 - 175
2428654	HF183-qPCR	88.6		P	50 - 175
2428656	HF183-qPCR	88.4		P	50 - 175
2429134	HF183-qPCR	108		P	50 - 175
2429388	HF183-qPCR	100		P	50 - 175
2429640	HF183-qPCR	88.5		P	50 - 175
2429641	HF183-qPCR	88.4		P	50 - 175
2429815	HF183-qPCR	110		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P433273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427700	BacR-qPCR	69.6	72.3	P/P	50 - 175
2427810	BacR-qPCR	85.5		P	50 - 175
2428035	BacR-qPCR	85.9		P	50 - 175
2428451	BacR-qPCR	89.5		P	50 - 175
2428452	BacR-qPCR	73.4		P	50 - 175
2428475	BacR-qPCR	73.9		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P433273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2428654	BacR-qPCR	66.6		P	50 - 175
2428656	BacR-qPCR	76.4		P	50 - 175
2429134	BacR-qPCR	88.3		P	50 - 175
2429388	BacR-qPCR	69.7		P	50 - 175
2429640	BacR-qPCR	68.9		P	50 - 175
2429641	BacR-qPCR	84.8		P	50 - 175
2429815	BacR-qPCR	65.1		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P433273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427700	DG3-qPCR	94.5	90.1	P/P	50 - 175
2427810	DG3-qPCR	97.7		P	50 - 175
2428035	DG3-qPCR	105		P	50 - 175
2428451	DG3-qPCR	98.4		P	50 - 175
2428452	DG3-qPCR	88.9		P	50 - 175
2428475	DG3-qPCR	92.4		P	50 - 175
2428654	DG3-qPCR	80.9		P	50 - 175
2428656	DG3-qPCR	91.1		P	50 - 175
2429134	DG3-qPCR	101		P	50 - 175
2429388	DG3-qPCR	74.2		P	50 - 175
2429640	DG3-qPCR	93.2		P	50 - 175
2429641	DG3-qPCR	103		P	50 - 175
2429815	DG3-qPCR	55.0		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10150 B
Batch ID: P433601

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2428854	Chlorophyll-a, Corrected	5.41	Sample	P	0 - 25
2428854	Chlorophyll-a, Uncorrected	5.60	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P433273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427700	HF183-qPCR	1.51	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P433273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427700	BacR-qPCR	3.87	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.5
 Batch ID: P433273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427700	DG3-qPCR	4.80	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2428654
 Field Sample ID: G2SW0135

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	82.6	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	96.7	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	79.5	P	50 - 300

Lab Sample ID: 2428656
 Field Sample ID: G2SW0144

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	111	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	110	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	110	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
SM 10150 B	Chlorophyll-a, Corrected	99.5					5.41	
	Chlorophyll-a, Uncorrected						5.60	
SOP-PCR-1.0	HF183-qPCR	97.4	79.4	110	88.6	84.6		1.51
SOP-PCR-1.4	BacR-qPCR	80.9	105	69.6	72.3	85.5		3.87
				85.9				
SOP-PCR-1.5	DG3-qPCR	77.8	100	55.0	94.5	90.1		4.80
				97.7				

Reference Method Descriptions

Method	Description	Associated Samples
SM 10150 B	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2428650, 2428652, 2428653
SM 9223 B Quanti-Tray	E. coli by Colilert/QT by BEA in Palmetto	2428657, 2428659, 2428660, 2428661, 2428662
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2428654, 2428656
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2428654, 2428656
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2428654, 2428656

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10150 B	08/03/2023	08/03/2023 13:14	Megan Higbee	08/07/2023 15:04	Aidan Cronin	2428650, 2428652, 2428653
SM 9223 B Quanti-Tray	08/02/2023	08/02/2023 12:00		08/03/2023 12:53	Benchmark EnviroAnalytical - Palmetto	2428657, 2428659, 2428660, 2428661, 2428662
SOP-PCR-1.0	08/03/2023	08/03/2023 14:00	Claudia Castro	08/11/2023 12:04	Madeline Gruver	2428654, 2428656
SOP-PCR-1.4	08/03/2023	08/03/2023 14:00	Claudia Castro	08/11/2023 16:01	Madeline Gruver	2428654, 2428656
SOP-PCR-1.5	08/03/2023	08/03/2023 14:00	Claudia Castro	08/11/2023 17:51	Madeline Gruver	2428654, 2428656