

Biological Analysis Report

SE-DIST-2024-03-27-03

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **SMP - Fort Drum**
Request ID: **RQ-2024-03-18-38**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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FL Dept. of Environmental Protection
2199 South Rock Road
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 15-MAY-2024 15:54



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, Microbiology and 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: GOMEZ CREEK NORTH AT 441

Collection Date/Time: 03/26/2024 10:55

Field ID: G3SE0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2477945	SM 10150 B	Chlorophyll-a, Corrected	12		ug/L	P443644	
		Phaeophytin-a	6.3		ug/L	P443644	
		Chlorophyll-a, Uncorrected	16		ug/L	P443644	

Sample Location: OTTER CREEK AT 441

Collection Date/Time: 03/26/2024 11:10

Field ID: G1SE0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2477944	SM 10150 B	Chlorophyll-a, Corrected	3.8	I	ug/L	P443644	
		Phaeophytin-a	5.3		ug/L	P443644	
		Chlorophyll-a, Uncorrected	7.2		ug/L	P443644	
2477947	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	2851.0	Q	MPN/100 mL	P443453	

Ref. Method and Comment:

SM 9223 B Quanti-Tray: Precision data is unavailable for E. coli due to the small amount of analyte in the QC sample for the batch.

Sample Location: COWBONE CREEK NEAR QUAIL CREEK

Collection Date/Time: 03/26/2024 10:30

Field ID: G5SE0148

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2477943	SM 10150 B	Chlorophyll-a, Corrected	0.93	U	ug/L	P443644	
		Phaeophytin-a	1.0	U	ug/L	P443644	
		Chlorophyll-a, Uncorrected	0.68	U	ug/L	P443644	
2477946	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	435.2	Q	MPN/100 mL	P443453	
2477948	SOP-PCR-1.0	HF183-qPCR**	1.1E+03	U	TSC/100 mL	P443369	
	SOP-PCR-1.4	BacR-qPCR**	3.96E+04		TSC/100 mL	P443369	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P443369	

Ref. Method and Comment:

SM 9223 B Quanti-Tray: Precision data is unavailable for E. coli due to the small amount of analyte in the QC sample for the batch.

Quality Assurance Report

Method Blank Results

Reference Method: SM 10150 B

Batch ID: P443644

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.93	U	ug/L
Chlorophyll-a, Uncorrected	0.68	U	ug/L
Phaeophytin-a	1.0	U	ug/L

Reference Method: SM 9223 B Quanti-Tray

Batch ID: P443453

Component	Result	Code	Units
Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P443369

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

Reference Method: SOP-PCR-1.4
Batch ID: P443369

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

Reference Method: SOP-PCR-1.5
Batch ID: P443369

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10150 B
Batch ID: P443644

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	107		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P443369

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	95.0	84.6	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P443369

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	120	109	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P443369

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	94.0	98.3	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P443369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2477920	HF183-qPCR	91.0	102	P/P	50 - 175
2477921	HF183-qPCR	109		P	50 - 175
2477948	HF183-qPCR	108		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P443369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478140	HF183-qPCR	108		P	50 - 175
2478291	HF183-qPCR	88.5		P	50 - 175
2478292	HF183-qPCR	93.8		P	50 - 175
2478396	HF183-qPCR	80.9		P	50 - 175
2478417	HF183-qPCR	91.6		P	50 - 175
2478418	HF183-qPCR	103		P	50 - 175
2479063	HF183-qPCR	99.8		P	50 - 175
2479064	HF183-qPCR	96.2		P	50 - 175
2479325	HF183-qPCR	91.9		P	50 - 175
2479326	HF183-qPCR	93.4		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P443369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2477920	BacR-qPCR	104	101	P/P	50 - 175
2477921	BacR-qPCR	92.5		P	50 - 175
2477948	BacR-qPCR	112		P	50 - 175
2478140	BacR-qPCR	88.1		P	50 - 175
2478291	BacR-qPCR	88.2		P	50 - 175
2478292	BacR-qPCR	99.0		P	50 - 175
2478396	BacR-qPCR	64.3		P	50 - 175
2478417	BacR-qPCR	95.9		P	50 - 175
2478418	BacR-qPCR	68.9		P	50 - 175
2479063	BacR-qPCR	98.5		P	50 - 175
2479064	BacR-qPCR	107		P	50 - 175
2479325	BacR-qPCR	118		P	50 - 175
2479326	BacR-qPCR	120		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P443369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2477920	DG3-qPCR	98.8	107	P/P	50 - 175
2477921	DG3-qPCR	98.1		P	50 - 175
2477948	DG3-qPCR	89.9		P	50 - 175
2478140	DG3-qPCR	96.2		P	50 - 175
2478291	DG3-qPCR	83.6		P	50 - 175
2478292	DG3-qPCR	94.2		P	50 - 175
2478396	DG3-qPCR	115		P	50 - 175
2478417	DG3-qPCR	104		P	50 - 175
2478418	DG3-qPCR	92.8		P	50 - 175
2479063	DG3-qPCR	91.7		P	50 - 175
2479064	DG3-qPCR	89.4		P	50 - 175
2479325	DG3-qPCR	111		P	50 - 175
2479326	DG3-qPCR	98.4		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report
Precision

Reference Method: SM 10150 B
Batch ID: P443644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2477915	Chlorophyll-a, Corrected	1.42	Sample	P	0 - 25
2477915	Chlorophyll-a, Uncorrected	1.40	Sample	P	0 - 25
2477915	Phaeophytin-a	1.11	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P443369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2477920	HF183-qPCR	11.3	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P443369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2477920	BacR-qPCR	2.63	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P443369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2477920	DG3-qPCR	8.40	Spike	P	0 - 25

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2477948
Field Sample ID: G5SE0148

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	94.6	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	96.8	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	91.3	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10150 B	Chlorophyll-a, Corrected	107						1.42	
	Chlorophyll-a, Uncorrected							1.40	
	Phaeophytin-a							1.11	
SOP-PCR-1.0	HF183-qPCR	84.6	95.0	91.0	102	109	108		11.3

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision	MS
								SMP	
SOP-PCR-1.4	BacR-qPCR	109	120	104	101	92.5			2.63
SOP-PCR-1.5	DG3-qPCR	98.3	94.0	98.8	107	98.1			8.40
				112					
				89.9					

Reference Method Descriptions

Method	Description	Associated Samples
SM 10150 B	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2477943, 2477944, 2477945
SM 9223 B Quanti-Tray	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2477946, 2477947
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2477948
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2477948
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2477948

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10150 B	03/27/2024	03/27/2024 14:50	Julianna Belitz	04/01/2024 13:00	Tynan A Branch	2477943, 2477944, 2477945
SM 9223 B Quanti-Tray	03/27/2024	03/27/2024 15:45	Keanu Thijm	03/28/2024 12:01	Keanu Thijm	2477946, 2477947
SOP-PCR-1.0	03/27/2024	03/27/2024 13:05	Roberta Tatti	04/19/2024 09:29	Roberta Tatti	2477948
SOP-PCR-1.4	03/27/2024	03/27/2024 13:05	Roberta Tatti	04/22/2024 08:46	Roberta Tatti	2477948
SOP-PCR-1.5	03/27/2024	03/27/2024 13:05	Roberta Tatti	04/23/2024 08:24	Roberta Tatti	2477948