

Biological Analysis Report

NE-DIST-2024-03-15-01

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

Overflow Analyses Performed By:
Diversified Environmental Laboratories, Inc.
3653 Regent Boulevard
Suite 509
Jacksonville, FL 32224
DOH Accreditation E821059

Event Description: **Suwannee North 2024**
Request ID: **RQ-2024-03-18-05**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

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: Puja Jasrotia, Environmental Administrator

Date Certified: 30-APR-2024 11:20



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: SUGAR CREEK OLD HWY 129 NNE OF SUWANNEE SPRINGS

Collection Date/Time: 03/14/2024 10:30

Field ID: 21020018

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2475932	SM 10150 B	Chlorophyll-a, Corrected	1.1	I	ug/L	P443153	
		Phaeophytin-a	0.90	U	ug/L	P443153	
		Chlorophyll-a, Uncorrected	1.6	I	ug/L	P443153	
2475934	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	378.4		MPN/100 mL		
2475937	SOP-PCR-1.0	HF183-qPCR**	3.3E+03	U	TSC/100 mL	P442509	
	SOP-PCR-1.2	GULL2-qPCR**	3.6E+03	U	TSC/100 mL	P442509	
	SOP-PCR-1.3	GFD-qPCR**	890	I	TSC/100 mL	P442509	
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P442509	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P442509	

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: LITTLE CREEK AT US 441

Collection Date/Time: 03/14/2024 11:20

Field ID: 21010033

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2475936	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	55.6		MPN/100 mL		
2475938	SOP-PCR-1.0	HF183-qPCR**	830	U	TSC/100 mL	P442509	
	SOP-PCR-1.2	GULL2-qPCR**	900	U	TSC/100 mL	P442509	
	SOP-PCR-1.3	GFD-qPCR**	390	I	TSC/100 mL	P442509	
	SOP-PCR-1.4	BacR-qPCR**	760	U	TSC/100 mL	P442509	
	SOP-PCR-1.5	DG3-qPCR**	640	U	TSC/100 mL	P442509	

Sample Location: ROSE CREEK AT SW WALTER AVE

Collection Date/Time: 03/14/2024 12:25

Field ID: G1NE0958

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2475933	SM 10150 B	Chlorophyll-a, Corrected	1.0	I	ug/L	P443153	
		Phaeophytin-a	0.90	U	ug/L	P443153	
		Chlorophyll-a, Uncorrected	1.2	I	ug/L	P443153	
2475935	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	461.8		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.

Quality Assurance Report
Method Blank Results

Reference Method: SM 10150 B
Batch ID: P443153

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: P442509

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

Reference Method: SOP-PCR-1.2
Batch ID: P442509

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

Reference Method: SOP-PCR-1.3
Batch ID: P442509

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

Reference Method: SOP-PCR-1.4
Batch ID: P442509

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

Reference Method: SOP-PCR-1.5
Batch ID: P442509

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: P443153

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	99.0		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P442509

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	99.7	98.5	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P442509

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	150	120	P/P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P442509

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P442509

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	87.7	86.2	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P442509

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	95.8	97.9	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P442509

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	93.0	91.4	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P442509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2474260	HF183-qPCR	86.7	94.1	P/P	50 - 175
2475319	HF183-qPCR	90.5		P	50 - 175
2475320	HF183-qPCR	104		P	50 - 175
2475321	HF183-qPCR	111		P	50 - 175
2475322	HF183-qPCR	110		P	50 - 175
2475573	HF183-qPCR	95.7		P	50 - 175
2475729	HF183-qPCR	91.6		P	50 - 175
2475745	HF183-qPCR	86.7		P	50 - 175
2475746	HF183-qPCR	88.3		P	50 - 175
2475937	HF183-qPCR	95.4		P	50 - 175
2475938	HF183-qPCR	98.4		P	50 - 175
2476601	HF183-qPCR	93.9		P	50 - 175
2476602	HF183-qPCR	95.0		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P442509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2474260	GULL2-qPCR	159	149	P/P	50 - 175
2475319	GULL2-qPCR	161		P	50 - 175
2475320	GULL2-qPCR	135		P	50 - 175
2475321	GULL2-qPCR	137		P	50 - 175
2475322	GULL2-qPCR	132		P	50 - 175
2475729	GULL2-qPCR	103		P	50 - 175
2475746	GULL2-qPCR	96.7		P	50 - 175
2475937	GULL2-qPCR	120		P	50 - 175
2475938	GULL2-qPCR	149		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P442509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2474260	GFD-qPCR	82.3	83.9	P/P	50 - 175
2475319	GFD-qPCR	94.8		P	50 - 175
2475320	GFD-qPCR	89.3		P	50 - 175
2475321	GFD-qPCR	89.3		P	50 - 175
2475322	GFD-qPCR	83.9		P	50 - 175
2475729	GFD-qPCR	90.4		P	50 - 175
2475746	GFD-qPCR	85.9		P	50 - 175
2475937	GFD-qPCR	94.1		P	50 - 175
2475938	GFD-qPCR	88.5		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P442509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2474260	BacR-qPCR	81.1	77.9	P/P	50 - 175
2475319	BacR-qPCR	83.8		P	50 - 175
2475320	BacR-qPCR	80.7		P	50 - 175
2475321	BacR-qPCR	85.9		P	50 - 175
2475322	BacR-qPCR	79.7		P	50 - 175
2475573	BacR-qPCR	83.2		P	50 - 175
2475729	BacR-qPCR	69.4		P	50 - 175
2475745	BacR-qPCR	63.4		P	50 - 175
2475746	BacR-qPCR	63.4		P	50 - 175
2475937	BacR-qPCR	79.4		P	50 - 175
2475938	BacR-qPCR	78.7		P	50 - 175
2476601	BacR-qPCR	81.8		P	50 - 175
2476602	BacR-qPCR	79.5		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P442509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2474260	DG3-qPCR	97.2	96.5	P/P	50 - 175
2475319	DG3-qPCR	92.3		P	50 - 175
2475320	DG3-qPCR	97.7		P	50 - 175
2475321	DG3-qPCR	96.9		P	50 - 175
2475322	DG3-qPCR	94.8		P	50 - 175
2475573	DG3-qPCR	93.5		P	50 - 175
2475729	DG3-qPCR	82.1		P	50 - 175
2475745	DG3-qPCR	80.7		P	50 - 175
2475746	DG3-qPCR	78.3		P	50 - 175
2475937	DG3-qPCR	89.3		P	50 - 175
2475938	DG3-qPCR	117		P	50 - 175
2476601	DG3-qPCR	90.3		P	50 - 175
2476602	DG3-qPCR	85.7		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report

Precision

Reference Method: SOP-PCR-1.0

Batch ID: P442509

Replicated					
Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2474260	HF183-qPCR	8.22	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2

Batch ID: P442509

Replicated					
Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2474260	GULL2-qPCR	6.34	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3

Batch ID: P442509

Replicated					
Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2474260	GFD-qPCR	1.90	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4

Batch ID: P442509

Replicated					
Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2474260	BacR-qPCR	4.13	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5

Batch ID: P442509

Replicated					
Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2474260	DG3-qPCR	0.771	Spike	P	0 - 25

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

Quality Assurance Report

Surrogates

Lab Sample ID: 2475937

Field Sample ID: 21020018

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	85.6	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	136	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	124	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	113	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	93.9	P	50 - 300

Lab Sample ID: 2475938

Field Sample ID: 21010033

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
------------------	-----------	--------	-----------	----------------

Quality Assurance Report

Surrogates

Lab Sample ID: 2475938

Field Sample ID: 21010033

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	95.6	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	132	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	123	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	110	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	111	P	50 - 300

Quality Assurance Report

Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
SM 10150 B	Chlorophyll-a, Corrected	99.0						
SOP-PCR-1.0	HF183-qPCR	98.5	99.7	86.7	94.1	90.5		8.22
				104				
SOP-PCR-1.2	GULL2-qPCR	120	150	159	149	161		6.34
				135				
SOP-PCR-1.3	GFD-qPCR	86.2	87.7	82.3	83.9	94.8		1.90
				89.3				
SOP-PCR-1.4	BacR-qPCR	97.9	95.8	81.1	77.9	83.8		4.13
				80.7				
SOP-PCR-1.5	DG3-qPCR	91.4	93.0	97.2	96.5	92.3		0.771
				97.7				

Reference Method Descriptions

Method	Description	Associated Samples
SM 10150 B	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2475932, 2475933
SM 9223 B Quanti-Tray	E. coli by Colilert/QT by Diversified Environmental Laboratories in Jacksonville	2475934, 2475935, 2475936
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2475937, 2475938
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2475937, 2475938
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2475937, 2475938
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2475937, 2475938
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2475937, 2475938

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10150 B	03/15/2024	03/15/2024 14:21	Julianna Belitz	03/21/2024 09:06	Megan Higbee	2475932, 2475933
SM 9223 B Quanti-Tray	03/14/2024	03/14/2024 15:30		03/15/2024 09:30	Diversified-Jacksonville	2475934, 2475935, 2475936
SOP-PCR-1.0	03/15/2024	03/15/2024 13:45	Jennifer Mihalic	03/28/2024 09:09	Roberta Tatti	2475937, 2475938
SOP-PCR-1.2	03/15/2024	03/15/2024 13:45	Jennifer Mihalic	04/10/2024 12:07	Madeline Gruver	2475937, 2475938
SOP-PCR-1.3	03/15/2024	03/15/2024 13:45	Jennifer Mihalic	04/03/2024 17:26	Madeline Gruver	2475937, 2475938
SOP-PCR-1.4	03/15/2024	03/15/2024 13:45	Jennifer Mihalic	03/29/2024 09:06	Roberta Tatti	2475937, 2475938
SOP-PCR-1.5	03/15/2024	03/15/2024 13:45	Jennifer Mihalic	03/29/2024 09:54	Roberta Tatti	2475937, 2475938