

Biological Analysis Report

NE-DIST-2023-08-29-01

Florida DEP Laboratory
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DOH Accreditation E31780

Overflow Analyses Performed By:
Diversified Environmental Laboratories, Inc.
3653 Regent Boulevard
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DOH Accreditation E821059

Event Description: **LSJR North 2023**
Request ID: **RQ-2023-08-14-35**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Sarah Menz, Environmental Administrator

Date Certified: 11-OCT-2023 13:35

A handwritten signature in dark ink, appearing to be 'Sarah Menz', written in a cursive style.

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: Little Sixmile Cr at Pickettville Rd

Collection Date/Time: 08/28/2023 09:25

Field ID: 20030011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2434070	SM 10150 B	Chlorophyll-a, Corrected	35		ug/L	P434686	
		Phaeophytin-a	1.2	I	ug/L	P434686	
		Chlorophyll-a, Uncorrected	37		ug/L	P434686	
2434074	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	146.7		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: Ninemile Cr at Trout River Blvd

Collection Date/Time: 08/28/2023 09:50

Field ID: 20030749

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2434075	Enterolert/QT	Enterococci-Quanti-Tray	327.0		MPN/100 mL		

Sample Location: Tributary to Trout at Bessent Rd

Collection Date/Time: 08/28/2023 10:10

Field ID: G2NE1207

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2434071	SM 10150 B	Chlorophyll-a, Corrected	14		ug/L	P434686	
		Phaeophytin-a	2.5	I	ug/L	P434686	
		Chlorophyll-a, Uncorrected	16		ug/L	P434686	
2434076	Enterolert/QT	Enterococci-Quanti-Tray	41.0		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: Tributary to Trout at Capper Rd

Collection Date/Time: 08/28/2023 10:35

Field ID: G2NE1208

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2434069	SM 10150 B	Chlorophyll-a, Corrected	0.99	I	ug/L	P434686	
		Phaeophytin-a	1.0	U	ug/L	P434686	
		Chlorophyll-a, Uncorrected	0.94	I	ug/L	P434686	
2434073	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	2419.6	J	MPN/100 mL		
2434078	SOP-PCR-1.0	HF183-qPCR**	3.3E+03	U	TSC/100 mL	P434366	
	SOP-PCR-1.2	GULL2-qPCR**	3.6E+03	U	TSC/100 mL	P434366	
	SOP-PCR-1.3	GFD-qPCR**	720	U	TSC/100 mL	P434366	
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P434366	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P434366	

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.

SM 9223 B Quanti-Tray: All Quanti-Tray wells were positive. Result may be higher than reported. Laboratory duplicate result is 1011.2 mpn/100mL. Precision data is unavailable due to the large amount of analyte in the QC sample.

Sample Location: Little Trout River at Old Kings Rd

Collection Date/Time: 08/28/2023 11:00

Field ID: 20030739

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2434068	SM 10150 B	Chlorophyll-a, Corrected	2.9	I	ug/L	P434686	
		Phaeophytin-a	2.6	U	ug/L	P434686	
		Chlorophyll-a, Uncorrected	3.2	I	ug/L	P434686	
2434072	Enterolert/QT	Enterococci-Quanti-Tray	441.3		MPN/100 mL		
2434077	SOP-PCR-1.0	HF183-qPCR**	6.6E+03	U	TSC/100 mL	P434366	
	SOP-PCR-1.2	GULL2-qPCR**	7.2E+03	U	TSC/100 mL	P434366	
	SOP-PCR-1.3	GFD-qPCR**	1.4E+03	U	TSC/100 mL	P434366	
	SOP-PCR-1.4	BacR-qPCR**	6.1E+03	U	TSC/100 mL	P434366	
	SOP-PCR-1.5	DG3-qPCR**	5.1E+03	U	TSC/100 mL	P434366	

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: P434686

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.96	U	ug/L
Chlorophyll-a, Uncorrected	0.70	U	ug/L
Phaeophytin-a	1.0	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P434366

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

Reference Method: SOP-PCR-1.2
Batch ID: P434366

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

Reference Method: SOP-PCR-1.3
Batch ID: P434366

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

Reference Method: SOP-PCR-1.4
Batch ID: P434366

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

Reference Method: SOP-PCR-1.5
Batch ID: P434366

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: P434686

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	95.5		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P434366

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	66.9	102	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P434366

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	90.1	104	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P434366

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	81.7	106	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P434366

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	99.5	87.2	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P434366

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	90.3	89.6	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P434366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2433685	HF183-qPCR	93.6	93.6	P/P	50 - 175
2433687	HF183-qPCR	93.6		P	50 - 175
2433712	HF183-qPCR	125		P	50 - 175
2433713	HF183-qPCR	120		P	50 - 175
2433714	HF183-qPCR	116		P	50 - 175
2433715	HF183-qPCR	112		P	50 - 175
2433798	HF183-qPCR	93.1		P	50 - 175
2434077	HF183-qPCR	113		P	50 - 175
2434078	HF183-qPCR	109		P	50 - 175
2434119	HF183-qPCR	97.7		P	50 - 175
2434457	HF183-qPCR	119		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.2

Batch ID: P434366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2433687	GULL2-qPCR	75.6		P	50 - 300
2433712	GULL2-qPCR	83.4		P	50 - 300
2433713	GULL2-qPCR	77.0		P	50 - 300
2433714	GULL2-qPCR	71.6		P	50 - 300
2433715	GULL2-qPCR	75.2		P	50 - 300
2433798	GULL2-qPCR	51.5		P	50 - 300
2434077	GULL2-qPCR	61.4		P	50 - 300
2434078	GULL2-qPCR	50.5		P	50 - 300
2434119	GULL2-qPCR	82.9		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P434366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2433687	GFD-qPCR	78.9		P	50 - 175
2433712	GFD-qPCR	85.4		P	50 - 175
2433713	GFD-qPCR	74.3		P	50 - 175
2433714	GFD-qPCR	64.8		P	50 - 175
2433715	GFD-qPCR	77.1		P	50 - 175
2433798	GFD-qPCR	81.3		P	50 - 175
2434077	GFD-qPCR	92.7		P	50 - 175
2434078	GFD-qPCR	84.5		P	50 - 175
2434119	GFD-qPCR	81.6		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P434366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2433685	BacR-qPCR	87.1	85.0	P/P	50 - 175
2433687	BacR-qPCR	59.2		P	50 - 175
2433798	BacR-qPCR	56.0		P	50 - 175
2434077	BacR-qPCR	85.1		P	50 - 175
2434078	BacR-qPCR	74.7		P	50 - 175
2434119	BacR-qPCR	84.7		P	50 - 175
2434457	BacR-qPCR	89.0		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P434366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2433685	DG3-qPCR	89.8	87.2	P/P	50 - 175
2433687	DG3-qPCR	91.1		P	50 - 175
2433712	DG3-qPCR	103		P	50 - 175
2433713	DG3-qPCR	96.4		P	50 - 175
2433714	DG3-qPCR	91.6		P	50 - 175
2433715	DG3-qPCR	94.4		P	50 - 175
2433798	DG3-qPCR	87.8		P	50 - 175
2434077	DG3-qPCR	91.7		P	50 - 175
2434078	DG3-qPCR	85.6		P	50 - 175
2434119	DG3-qPCR	87.0		P	50 - 175
2434457	DG3-qPCR	85.0		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P434366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2433685	HF183-qPCR	0.00731	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P434366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2433685	GULL2-qPCR	2.15	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P434366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2433685	GFD-qPCR	1.12	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P434366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2433685	BacR-qPCR	2.56	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P434366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2433685	DG3-qPCR	2.95	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2434077
Field Sample ID: 20030739

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	121	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	108	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	118	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	116	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	95.5	P	50 - 300

Lab Sample ID: 2434078
Field Sample ID: G2NE1208

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
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Quality Assurance Report Surrogates

Lab Sample ID: 2434078
Field Sample ID: G2NE1208

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	114	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	111	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	119	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	106	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	90.4	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
SM 10150 B	Chlorophyll-a, Corrected	95.5						
SOP-PCR-1.0	HF183-qPCR	102	66.9	93.6	93.6	93.6		0.0073
				125				
SOP-PCR-1.2	GULL2-qPCR	104	90.1	75.6	83.4	77.0		2.15
				71.6				
SOP-PCR-1.3	GFD-qPCR	106	81.7	78.9	85.4	74.3		1.12
				64.8				
SOP-PCR-1.4	BacR-qPCR	87.2	99.5	87.1	85.0	59.2		2.56
				56.0				
SOP-PCR-1.5	DG3-qPCR	89.6	90.3	89.8	87.2	91.1		2.95
				103				

Reference Method Descriptions

Method	Description	Associated Samples
Enterolert/QT	Enterococci by Enterolert/QT by Diversified Environmental Laboratories in Jacksonville	2434072, 2434075, 2434076
SM 10150 B	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2434068, 2434069, 2434070, 2434071
SM 9223 B Quanti-Tray	E. coli by Colilert/QT by Diversified Environmental Laboratories in Jacksonville	2434073, 2434074
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2434077, 2434078
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2434077, 2434078
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2434077, 2434078
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2434077, 2434078
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2434077, 2434078

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	08/28/2023	08/28/2023 14:13		08/29/2023 14:48	Diversified-Jacksonville	2434072, 2434075, 2434076
SM 10150 B	08/29/2023	08/29/2023 11:58	Keanu Thijm	09/06/2023 13:25	Aidan Cronin	2434068, 2434069, 2434070, 2434071
SM 9223 B Quanti-Tray	08/28/2023	08/28/2023 14:26		08/29/2023 08:40	Diversified-Jacksonville	2434073, 2434074
SOP-PCR-1.0	08/29/2023	08/29/2023 12:20	Roberta Tatti	09/18/2023 15:29	Madeline Gruver	2434077, 2434078
SOP-PCR-1.2	08/29/2023	08/29/2023 12:20	Roberta Tatti	09/20/2023 09:46	Roberta Tatti	2434077, 2434078
SOP-PCR-1.3	08/29/2023	08/29/2023 12:20	Roberta Tatti	09/22/2023 14:33	Roberta Tatti	2434077, 2434078
SOP-PCR-1.4	08/29/2023	08/29/2023 12:20	Roberta Tatti	09/19/2023 10:49	Roberta Tatti	2434077, 2434078
SOP-PCR-1.5	08/29/2023	08/29/2023 12:20	Roberta Tatti	09/22/2023 18:37	Madeline Gruver	2434077, 2434078