

Biological Analysis Report

NE-DIST-2023-05-12-01

Florida DEP Laboratory
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DOH Accreditation E31780

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

Event Description: **LSJR Hastings 2023**
Request ID: **RQ-2023-05-08-22**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Sarah Menz, Environmental Administrator

Date Certified: 23-JUN-2023 08:20

A handwritten signature in dark ink, appearing to be 'Sarah Menz', with a long, sweeping horizontal stroke extending to the right.

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: Cow Creek at Putnam County Blvd

Collection Date/Time: 05/11/2023 09:45

Field ID: G2NE1143

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2409319	SM 10150 B	Chlorophyll-a, Corrected	1.3	I	ug/L	P429825	
		Phaeophytin-a	0.90	U	ug/L	P429825	
		Chlorophyll-a, Uncorrected	1.9		ug/L	P429825	
2409320	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	866.4		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: Sixteen Mile Creek at Ashley St

Collection Date/Time: 05/11/2023 10:20

Field ID: 20030688

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2409322	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	648.8		MPN/100 mL		
2409323	SOP-PCR-1.0	HF183-qPCR**	2.2E+03	U	TSC/100 mL	P429413	
	SOP-PCR-1.4	BacR-qPCR**	4.0E+03	I	TSC/100 mL	P429413	
	SOP-PCR-1.5	DG3-qPCR**	1.7E+03	U	TSC/100 mL	P429413	

Sample Location: Unnamed Ditch at Cowpen Branch Rd

Collection Date/Time: 05/11/2023 10:45

Field ID: G2NE1222

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2409321	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1643.0		MPN/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10150 B
Batch ID: P429825

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: P429413

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

Reference Method: SOP-PCR-1.4
Batch ID: P429413

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

Reference Method: SOP-PCR-1.5
Batch ID: P429413

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: P429825

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	95.2		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P429413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	90.1	104	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P429413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	101	95.5	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P429413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	103	86.9	P/P	50 - 175

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P429413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405725	HF183-qPCR	81.8	77.6	P/P	50 - 175
2406192	HF183-qPCR	66.4		P	50 - 175
2407441	HF183-qPCR	74.6		P	50 - 175
2407442	HF183-qPCR	84.1		P	50 - 175
2407443	HF183-qPCR	80.3		P	50 - 175
2408326	HF183-qPCR	73.6		P	50 - 175
2408541	HF183-qPCR	77.2		P	50 - 175
2408542	HF183-qPCR	92.0		P	50 - 175
2408863	HF183-qPCR	76.9		P	50 - 175
2409065	HF183-qPCR	80.4		P	50 - 175
2409323	HF183-qPCR	85.2		P	50 - 175
2409345	HF183-qPCR	74.7		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P429413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405725	BacR-qPCR	78.1	82.0	P/P	50 - 175
2406192	BacR-qPCR	68.1		P	50 - 175
2407441	BacR-qPCR	74.3		P	50 - 175
2407442	BacR-qPCR	69.4		P	50 - 175
2407443	BacR-qPCR	75.6		P	50 - 175
2408326	BacR-qPCR	72.1		P	50 - 175
2408541	BacR-qPCR	95.2		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P429413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2408542	BacR-qPCR	76.0		P	50 - 175
2408863	BacR-qPCR	73.3		P	50 - 175
2409065	BacR-qPCR	76.8		P	50 - 175
2409323	BacR-qPCR	67.9		P	50 - 175
2409345	BacR-qPCR	58.0		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P429413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405725	DG3-qPCR	96.1	99.1	P/P	50 - 175
2406192	DG3-qPCR	90.9		P	50 - 175
2407441	DG3-qPCR	103		P	50 - 175
2407442	DG3-qPCR	100		P	50 - 175
2407443	DG3-qPCR	93.3		P	50 - 175
2408326	DG3-qPCR	84.0		P	50 - 175
2408541	DG3-qPCR	98.8		P	50 - 175
2408542	DG3-qPCR	101		P	50 - 175
2408863	DG3-qPCR	90.6		P	50 - 175
2409065	DG3-qPCR	104		P	50 - 175
2409323	DG3-qPCR	101		P	50 - 175
2409345	DG3-qPCR	105		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10150 B
Batch ID: P429825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2409601	Chlorophyll-a, Corrected	0.918	Sample	P	0 - 25
2409601	Chlorophyll-a, Uncorrected	1.57	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P429413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405725	HF183-qPCR	5.25	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P429413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405725	BacR-qPCR	4.86	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.5
 Batch ID: P429413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405725	DG3-qPCR	3.09	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2409323
 Field Sample ID: 20030688

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	113	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	102	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision	MS
								SMP	
SM 10150 B	Chlorophyll-a, Corrected	95.2						0.918	
	Chlorophyll-a, Uncorrected							1.57	
SOP-PCR-1.0	HF183-qPCR	104	90.1	81.8	77.6	66.4			5.25
				74.6					
SOP-PCR-1.4	BacR-qPCR	95.5	101	78.1	82.0	68.1			4.86
				74.3					
SOP-PCR-1.5	DG3-qPCR	86.9	103	96.1	99.1	90.9			3.09
				103					

Reference Method Descriptions

Method	Description	Associated Samples
SM 10150 B	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2409319
SM 9223 B Quanti-Tray	E. coli by Colilert/QT by Diversified Environmental Laboratories in Jacksonville	2409320, 2409321, 2409322
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2409323
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2409323
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2409323

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10150 B	05/12/2023	05/12/2023 14:34	Tynan A Branch	05/24/2023 10:41	Callie Williams	2409319
SM 9223 B Quanti-Tray	05/11/2023	05/11/2023 15:37		05/12/2023 09:42	Diversified-Jacksonville	2409320, 2409321, 2409322
SOP-PCR-1.0	05/12/2023	05/12/2023 13:35	Claudia Castro	05/25/2023 14:24	Roberta Tatti	2409323
SOP-PCR-1.4	05/12/2023	05/12/2023 13:35	Claudia Castro	05/26/2023 09:23	Roberta Tatti	2409323
SOP-PCR-1.5	05/12/2023	05/12/2023 13:35	Claudia Castro	06/01/2023 14:40	Jennifer Mihalic	2409323