

Biological Analysis Report

NE-DIST-2023-02-09-01

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

Event Description: **Gainesville 2023**
Request ID: **RQ-2023-02-06-35**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Sarah Menz, Environmental Administrator

Date Certified: 20-MAR-2023 10:10

A handwritten signature in black ink, appearing to be 'Sarah Menz', with a long, sweeping horizontal stroke at the end.

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: Upper Little Hatchet at Airport field

Collection Date/Time: 02/08/2023 10:00

Field ID: G1NE0949

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386185	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.88	I	ug/L	P425829	
		Phaeophytin-a	0.90	U	ug/L	P425829	
		Chlorophyll-a, Uncorrected	1.0	I	ug/L	P425829	
2386195	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	275.5	Q	MPN/100 mL	P425861	

Ref. Method and Comment:

SM 10200 H (mod.): 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: Precision data is unavailable for E. coli due to the small amount of analyte in the QC sample for the batch.

Sample Location: Alachua Sink at end of Boardwalk

Collection Date/Time: 02/08/2023 10:45

Field ID: G1NE0953

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386186	SM 10200 H (mod.)	Chlorophyll-a, Corrected	8.7		ug/L	P425829	
		Phaeophytin-a	2.1	I	ug/L	P425829	
		Chlorophyll-a, Uncorrected	10		ug/L	P425829	
2386196	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	7.5	Q	MPN/100 mL	P425861	

Ref. Method and Comment:

SM 10200 H (mod.): 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: Precision data is unavailable for E. coli due to the small amount of analyte in the QC sample for the batch.

Sample Location: Possum Cr. 400m Downstream of NW 16th ave.

Collection Date/Time: 02/08/2023 11:30

Field ID: G1NE0930

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386199	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1046.2	Q	MPN/100 mL	P425861	

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: Lake Alice Outlet at Newell

Collection Date/Time: 02/08/2023 11:55

Field ID: G1NE0898

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386200	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	2419.6	JQ	MPN/100 mL	P425861	

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. All Quanti-Tray wells were positive. Result may be higher than reported.

Sample Location: Lake Alice Outlet @ Gale Lemerand Dr.

Collection Date/Time: 02/08/2023 12:20

Field ID: G3NE0010

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386197	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	30.1	Q	MPN/100 mL	P425861	
2386201	SOP-PCR-1.0	HF183-qPCR**	1.7E+03	U	TSC/100 mL	P425465	
	SOP-PCR-1.2	GULL2-qPCR**	1.8E+03	U	TSC/100 mL	P425465	
	SOP-PCR-1.3	GFD-qPCR**	360	U	TSC/100 mL	P425465	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P425465	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P425465	

Field ID: G3NE0010

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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: Hogtown Creek -Upstream of Haile Sink Collection Date/Time: 02/08/2023 13:05

Field ID: G1NE0913

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386198	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	111.9	Q	MPN/100 mL	P425861	
2386202	SOP-PCR-1.0	HF183-qPCR**	1.1E+03	U	TSC/100 mL	P425465	
	SOP-PCR-1.2	GULL2-qPCR**	1.2E+03	U	TSC/100 mL	P425465	
	SOP-PCR-1.3	GFD-qPCR**	1.5E+03		TSC/100 mL	P425465	
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P425465	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P425465	

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 10200 H (mod.)
Batch ID: P425829

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: SM 9223 B Quanti-Tray
Batch ID: P425861

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

Reference Method: SOP-PCR-1.0
Batch ID: P425465

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

Reference Method: SOP-PCR-1.2
Batch ID: P425465

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

Reference Method: SOP-PCR-1.3
Batch ID: P425465

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.4
Batch ID: P425465

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

Reference Method: SOP-PCR-1.5
Batch ID: P425465

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P425829

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	99.8		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P425465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	97.0	96.4	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P425465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	103	127	P/P	50 - 300
GULL2-qPCR	97.6	84.6	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P425465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	93.1	91.4	P/P	50 - 175
GFD-qPCR	100	94.8	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P425465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	105	111	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P425465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	99.0	108	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P425465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2385071	HF183-qPCR	83.0	85.7	P/P	50 - 175
2385072	HF183-qPCR	88.6		P	50 - 175
2385073	HF183-qPCR	93.8		P	50 - 175
2385804	HF183-qPCR	78.9		P	50 - 175
2385851	HF183-qPCR	76.8		P	50 - 175
2385907	HF183-qPCR	79.0		P	50 - 175
2386142	HF183-qPCR	73.6		P	50 - 175
2386201	HF183-qPCR	94.3		P	50 - 175
2386202	HF183-qPCR	83.9		P	50 - 175
2386211	HF183-qPCR	105		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P425465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2385071	GULL2-qPCR	85.5	93.8	P/P	50 - 300
2385072	GULL2-qPCR	82.2		P	50 - 300
2385073	GULL2-qPCR	90.3		P	50 - 300
2385428	GULL2-qPCR	98.9		P	50 - 300
2385429	GULL2-qPCR	93.9		P	50 - 300
2385430	GULL2-qPCR	98.8		P	50 - 300
2385804	GULL2-qPCR	88.4		P	50 - 300
2385907	GULL2-qPCR	80.2		P	50 - 300
2386201	GULL2-qPCR	78.8		P	50 - 300
2386202	GULL2-qPCR	73.5		P	50 - 300
2386211	GULL2-qPCR	88.2		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P425465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2385071	GFD-qPCR	96.7	88.6	P/P	50 - 175
2385072	GFD-qPCR	88.8		P	50 - 175
2385073	GFD-qPCR	91.0		P	50 - 175
2385428	GFD-qPCR	82.7		P	50 - 175
2385429	GFD-qPCR	89.1		P	50 - 175
2385430	GFD-qPCR	94.1		P	50 - 175
2385804	GFD-qPCR	101		P	50 - 175
2385907	GFD-qPCR	90.8		P	50 - 175
2386201	GFD-qPCR	93.3		P	50 - 175
2386202	GFD-qPCR	87.6		P	50 - 175
2386211	GFD-qPCR	106		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P425465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2385071	BacR-qPCR	94.3	95.2	P/P	50 - 175
2385072	BacR-qPCR	93.6		P	50 - 175
2385073	BacR-qPCR	92.9		P	50 - 175
2385804	BacR-qPCR	88.0		P	50 - 175
2385851	BacR-qPCR	71.4		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P425465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2385907	BacR-qPCR	81.5		P	50 - 175
2386142	BacR-qPCR	70.2		P	50 - 175
2386201	BacR-qPCR	89.3		P	50 - 175
2386202	BacR-qPCR	80.3		P	50 - 175
2386211	BacR-qPCR	102	75.9	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P425465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2385071	DG3-qPCR	89.9	96.2	P/P	50 - 175
2385072	DG3-qPCR	100		P	50 - 175
2385073	DG3-qPCR	101		P	50 - 175
2385428	DG3-qPCR	103		P	50 - 175
2385429	DG3-qPCR	105		P	50 - 175
2385430	DG3-qPCR	99.3		P	50 - 175
2385804	DG3-qPCR	104		P	50 - 175
2385851	DG3-qPCR	96.8		P	50 - 175
2385907	DG3-qPCR	104		P	50 - 175
2386142	DG3-qPCR	92.1		P	50 - 175
2386201	DG3-qPCR	105		P	50 - 175
2386202	DG3-qPCR	88.9		P	50 - 175
2386211	DG3-qPCR	105		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P425829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386128	Chlorophyll-a, Corrected	3.89	Sample	P	0 - 25
2386128	Chlorophyll-a, Uncorrected	3.88	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P425465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2385071	HF183-qPCR	3.22	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P425465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2385071	GULL2-qPCR	9.19	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.3
Batch ID: P425465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2385071	GFD-qPCR	8.73	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P425465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2385071	BacR-qPCR	1.00	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P425465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2385071	DG3-qPCR	6.79	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2386201
Field Sample ID: G3NE0010

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	96.0	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	83.9	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	98.5	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	93.8	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	93.0	P	50 - 300

Lab Sample ID: 2386202
Field Sample ID: G1NE0913

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	73.6	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	96.9	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	93.9	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	90.0	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	68.7	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	99.8			3.89	
	Chlorophyll-a, Uncorrected				3.88	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SOP-PCR-1.0	HF183-qPCR	96.4	97.0		83.0	85.7	88.6			3.22
SOP-PCR-1.2	GULL2-qPCR	103	84.6	97.6	80.2	85.5	93.8			9.19
SOP-PCR-1.3	GFD-qPCR	93.1	94.8	100	96.7	88.6	88.8			8.73
SOP-PCR-1.4	BacR-qPCR	111	105		75.9	80.3	102			1.00
SOP-PCR-1.5	DG3-qPCR	108	99.0		89.9	96.2	100			6.79

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2386185, 2386186
SM 9223 B Quanti-Tray	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2386195, 2386196, 2386197, 2386198, 2386199, 2386200
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2386201, 2386202
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2386201, 2386202
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2386201, 2386202
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2386201, 2386202
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2386201, 2386202

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	02/09/2023	02/09/2023 13:48	Callie Williams	02/14/2023 10:50	Aidan Cronin	2386185, 2386186
SM 9223 B Quanti-Tray	02/09/2023	02/09/2023 16:00	Megan Higbee	02/10/2023 11:43	Tynan A Branch	2386195, 2386196, 2386197, 2386198, 2386199, 2386200
SOP-PCR-1.0	02/09/2023	02/09/2023 14:00	Claudia Castro	02/20/2023 23:05	Roberta Tatti	2386201, 2386202
SOP-PCR-1.2	02/09/2023	02/09/2023 14:00	Claudia Castro	03/01/2023 14:20	Jennifer Mihalic	2386201, 2386202
SOP-PCR-1.3	02/09/2023	02/09/2023 14:00	Claudia Castro	02/23/2023 12:20	Jennifer Mihalic	2386201, 2386202
SOP-PCR-1.4	02/09/2023	02/09/2023 14:00	Claudia Castro	02/20/2023 12:18	Roberta Tatti	2386201, 2386202
SOP-PCR-1.5	02/09/2023	02/09/2023 14:00	Claudia Castro	02/20/2023 15:32	Roberta Tatti	2386201, 2386202