

Biological Analysis Report

NE-DIST-2022-01-11-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **LSJR South West 2022**
Request ID: **RQ-2022-01-10-24**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 22-FEB-2022 16:15



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: Swimming Pen Creek at Eagles Creek Dr.

Collection Date/Time: 01/10/2022 10:00

Field ID: G2NE1188

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2298517	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	488.4	Q	MPN/100 mL	P408534	

Sample Location: Swimming Pen CR @ SR 220

Collection Date/Time: 01/10/2022 10:20

Field ID: 20030191

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2298510	SM 10200 H (mod.)	Chlorophyll-a, Corrected	20		ug/L	P408501	
		Phaeophytin-a	5.3		ug/L	P408501	
		Chlorophyll-a, Uncorrected	24		ug/L	P408501	
2298516	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	52.9	Q	MPN/100 mL	P408534	

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.

Sample Location: Bull CR SW Crossing CR 215

Collection Date/Time: 01/10/2022 12:50

Field ID: 20030480

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2298521	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	290.9	Q	MPN/100 mL	P408534	

Sample Location: Little Black Creek at SR 220

Collection Date/Time: 01/10/2022 10:50

Field ID: 20030667

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2298518	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	248.1	Q	MPN/100 mL	P408534	

Sample Location: Little Black CR at SR 21

Collection Date/Time: 01/10/2022 11:25

Field ID: 20030629

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2298519	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	214.3	Q	MPN/100 mL	P408534	

Sample Location: Peters Creek @ Rosemary Hill RD

Collection Date/Time: 01/10/2022 13:40

Field ID: 20030571

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2298520	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	410.6	Q	MPN/100 mL	P408534	
2298531	SOP-PCR-1.0	HF183-qPCR**	1.7E+03	U	TSC/100 mL	P408168	
	SOP-PCR-1.2	GULL2-qPCR**	1.8E+03	UJ	TSC/100 mL	P408168	MS
	SOP-PCR-1.3	GFD-qPCR**	360	U	TSC/100 mL	P408168	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P408168	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	UJ	TSC/100 mL	P408168	SUR

Ref. Method and Comment:

SOP-PCR-1.2: Refer to the Lab Analysis Report for an explanation of QC Codes.

SOP-PCR-1.5: Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P408501

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: P408534

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

Reference Method: SOP-PCR-1.0
Batch ID: P408168

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

Reference Method: SOP-PCR-1.2
Batch ID: P408168

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

Reference Method: SOP-PCR-1.3
Batch ID: P408168

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

Reference Method: SOP-PCR-1.4
Batch ID: P408168

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

Reference Method: SOP-PCR-1.5
Batch ID: P408168

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: P408501

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	88.6		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P408168

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	79.6	75.9	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P408168

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	93.5	89.1	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P408168

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	69.5	75.3	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P408168

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	91.4	77.8	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P408168

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	62.4	67.9	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P408168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297979	HF183-qPCR	83.5	91.9	P/P	50 - 175
2298531	HF183-qPCR	87.5		P	50 - 175
2298631	HF183-qPCR	87.4		P	50 - 175
2298632	HF183-qPCR	84.4		P	50 - 175
2298810	HF183-qPCR	95.6		P	50 - 175
2298811	HF183-qPCR	77.9		P	50 - 175
2298812	HF183-qPCR	78.1		P	50 - 175
2299098	HF183-qPCR	75.9		P	50 - 175
2299099	HF183-qPCR	70.5		P	50 - 175
2299100	HF183-qPCR	76.3		P	50 - 175
2299101	HF183-qPCR	85.9		P	50 - 175
2299102	HF183-qPCR	83.5		P	50 - 175
2299103	HF183-qPCR	76.7		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P408168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.2

Batch ID: P408168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297979	GULL2-qPCR	59.1	50.1	P/P	50 - 300
2298531	GULL2-qPCR	44.2		F	50 - 300
2298810	GULL2-qPCR	65.1		P	50 - 300
2298811	GULL2-qPCR	66.3		P	50 - 300
2298812	GULL2-qPCR	59.4		P	50 - 300
2299098	GULL2-qPCR	79.8		P	50 - 300
2299099	GULL2-qPCR	80.3		P	50 - 300
2299100	GULL2-qPCR	87.3		P	50 - 300
2299101	GULL2-qPCR	85.3		P	50 - 300
2299102	GULL2-qPCR	85.8		P	50 - 300
2299103	GULL2-qPCR	95.0		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P408168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297979	GFD-qPCR	91.0	86.7	P/P	50 - 175
2298531	GFD-qPCR	93.4		P	50 - 175
2298810	GFD-qPCR	95.8		P	50 - 175
2298811	GFD-qPCR	92.2		P	50 - 175
2298812	GFD-qPCR	93.2		P	50 - 175
2299098	GFD-qPCR	98.5		P	50 - 175
2299099	GFD-qPCR	104		P	50 - 175
2299100	GFD-qPCR	84.5		P	50 - 175
2299101	GFD-qPCR	83.4		P	50 - 175
2299102	GFD-qPCR	75.9		P	50 - 175
2299103	GFD-qPCR	86.3		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P408168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297979	BacR-qPCR	70.5	60.9	P/P	50 - 175
2298531	BacR-qPCR	53.6		P	50 - 175
2298631	BacR-qPCR	72.5		P	50 - 175
2298632	BacR-qPCR	74.7		P	50 - 175
2298810	BacR-qPCR	59.3		P	50 - 175
2298811	BacR-qPCR	60.5		P	50 - 175
2298812	BacR-qPCR	53.7		P	50 - 175
2299098	BacR-qPCR	64.7		P	50 - 175
2299099	BacR-qPCR	58.9		P	50 - 175
2299100	BacR-qPCR	65.7		P	50 - 175
2299101	BacR-qPCR	71.0		P	50 - 175
2299102	BacR-qPCR	73.6		P	50 - 175
2299103	BacR-qPCR	72.3		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P408168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297979	DG3-qPCR	54.5	53.0	P/P	50 - 175
2298531	DG3-qPCR	51.0		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.5
Batch ID: P408168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298631	DG3-qPCR	73.5		P	50 - 175
2298632	DG3-qPCR	69.6		P	50 - 175
2298810	DG3-qPCR	55.9		P	50 - 175
2298811	DG3-qPCR	70.2		P	50 - 175
2298812	DG3-qPCR	58.2		P	50 - 175
2299098	DG3-qPCR	68.3		P	50 - 175
2299099	DG3-qPCR	67.1		P	50 - 175
2299100	DG3-qPCR	69.6		P	50 - 175
2299101	DG3-qPCR	72.3		P	50 - 175
2299102	DG3-qPCR	73.7		P	50 - 175
2299103	DG3-qPCR	78.2		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 9223 B Quanti-Tray
Batch ID: P408534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298495	Escherichia Coli-Quanti-Tray	66.7	Sample	P	0 - 80
2298630	Escherichia Coli-Quanti-Tray	7.29	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P408168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297979	HF183-qPCR	9.52	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P408168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297979	GULL2-qPCR	16.5	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P408168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297979	GFD-qPCR	4.96	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P408168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297979	BacR-qPCR	14.6	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.5

Batch ID: P408168

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297979	DG3-qPCR	2.68	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2298531

Field Sample ID: 20030571

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	58.3	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	92.0	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	87.3	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	93.2	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	46.3	F	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	88.6							
SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray							66.7 7.29	
SOP-PCR-1.0	HF183-qPCR	75.9	79.6	83.5	91.9	87.5			9.52
				87.4					
SOP-PCR-1.2	GULL2-qPCR	89.1	93.5	59.1	50.1	44.2			16.5
				65.1					
SOP-PCR-1.3	GFD-qPCR	75.3	69.5	91.0	86.7	93.4			4.96
				95.8					
SOP-PCR-1.4	BacR-qPCR	77.8	91.4	70.5	60.9	53.6			14.6
				72.5					
SOP-PCR-1.5	DG3-qPCR	67.9	62.4	54.5	53.0	51.0			2.68
				73.5					

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2298510
SM 9223 B Quanti-Tray	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2298516, 2298517, 2298518, 2298519, 2298520, 2298521
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2298531
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2298531
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2298531
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2298531

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2298531

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	01/11/2022	01/11/2022 14:31	Ethan Wickline	01/13/2022 09:20	Joel Wharton	2298510
SM 9223 B Quanti-Tray	01/11/2022	01/11/2022 16:21	Tynan A Branch	01/12/2022 12:35	Amber S. Eells	2298516, 2298517, 2298518, 2298519, 2298520, 2298521
SOP-PCR-1.0	01/11/2022	01/11/2022 14:20	Luke Hudson	01/25/2022 11:15	DeAsia Armster	2298531
SOP-PCR-1.2	01/11/2022	01/11/2022 14:20	Luke Hudson	01/28/2022 10:47	DeAsia Armster	2298531
SOP-PCR-1.3	01/11/2022	01/11/2022 14:20	Luke Hudson	02/01/2022 12:34	DeAsia Armster	2298531
SOP-PCR-1.4	01/11/2022	01/11/2022 14:20	Luke Hudson	01/26/2022 09:39	DeAsia Armster	2298531
SOP-PCR-1.5	01/11/2022	01/11/2022 14:20	Luke Hudson	01/28/2022 12:25	DeAsia Armster	2298531