Biological Analysis Report

NE-DIST-2021-02-23-01

Florida Department of Environmental Protection
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DOH Accreditation E31780

Overflow Analyses Performed By:
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DOH Accreditation E82502

Event Description: **LSJR East 2021**
Request ID: **RQ-2021-02-08-30**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 01-APR-2021 13:10

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: Big Pottsburg CR Bowden Rd. **Collection Date/Time: 02/22/2021 08:35**

Field ID: 20030068 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2226456	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	127		MPN/100 mL		

Sample Location: Little Pottsburg Creek at Emerson **Collection Date/Time: 02/22/2021 09:20**

Field ID: 20030070 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2226448	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.3	I	ug/L	P394503	
		Phaeophytin-a	2.7	I	ug/L	P394503	
		Chlorophyll-a, Uncorrected	2.9		ug/L	P394503	
2226453	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	959		MPN/100 mL		
2226457	SOP-PCR-1.0	HF183-qPCR**	3.8E+03	I	TSC/100 mL	P394083	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P394083	
	SOP-PCR-1.5	DG3-qPCR**	1.6E+03	I	TSC/100 mL	P394083	

Ref. Method and Comment:
SOP-PCR-1.5: Duplicate was analyzed and result is 1.3E+03 U

Sample Location: Drainage Ditch Parental Home Rd. **Collection Date/Time: 02/22/2021 08:50**

Field ID: 20030071 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2226449	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P394503	
		Phaeophytin-a	2.6	I	ug/L	P394503	
		Chlorophyll-a, Uncorrected	1.7	I	ug/L	P394503	
2226454	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	794		MPN/100 mL		
2226458	SOP-PCR-1.0	HF183-qPCR**	3.3E+03	U	TSC/100 mL	P394083	
	SOP-PCR-1.2	GULL2-qPCR**	3.6E+03	U	TSC/100 mL	P394083	MS
	SOP-PCR-1.3	GFD-qPCR**	720	U	TSC/100 mL	P394083	
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P394083	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P394083	

Ref. Method and Comment:
SOP-PCR-1.2: Precision data unavailable for Gull2-qPCR component.
SOP-PCR-1.3: Precision data unavailable for GFD-qPCR component.

Sample Location: Red Bay Branch at Lone Star Road **Collection Date/Time: 02/22/2021 09:50**

Field ID: 20030674 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2226450	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P394503	
		Phaeophytin-a	0.90	U	ug/L	P394503	
		Chlorophyll-a, Uncorrected	0.85	I	ug/L	P394503	
2226455	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	770		MPN/100 mL		

Sample Location: Greenfield Creek @ Queens Harbour Blvd. **Collection Date/Time: 02/22/2021 10:50**

Field ID: 20030809 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2226446	SM 10200 H (mod.)	Chlorophyll-a, Corrected	20		ug/L	P394503	

Field ID: 20030809 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2226446	SM 10200 H (mod.)	Phaeophytin-a	5.8		ug/L	P394503	
		Chlorophyll-a, Uncorrected	24		ug/L	P394503	
2226451	ASTM D650399	ENTEROCOCCI-ENTEROLERT	1990		MPN/100 mL		

Sample Location: Greenfield CR at Hodges Rd. **Collection Date/Time: 02/22/2021 10:25**

Field ID: G2NE1145 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2226447	SM 10200 H (mod.)	Chlorophyll-a, Corrected	10		ug/L	P394503	
		Phaeophytin-a	6.2		ug/L	P394503	
		Chlorophyll-a, Uncorrected	14		ug/L	P394503	
2226452	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1300		MPN/100 mL		

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P394503

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: P394083

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

Reference Method: SOP-PCR-1.2
Batch ID: P394083

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

Reference Method: SOP-PCR-1.3
Batch ID: P394083

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

Reference Method: SOP-PCR-1.4
Batch ID: P394083

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

Reference Method: SOP-PCR-1.5
Batch ID: P394083

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: P394503

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: P394083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	90.0	98.0	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P394083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	83.7	92.0	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P394083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	78.3	101	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P394083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	93.8	92.5	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P394083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	87.1	90.9	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P394083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226353	HF183-qPCR	119		P	50 - 175
2226457	HF183-qPCR	102	95.7	P/P	50 - 175
2226458	HF183-qPCR	89.3		P	50 - 175
2226548	HF183-qPCR	86.9		P	50 - 175
2226549	HF183-qPCR	87.1		P	50 - 175
2227364	HF183-qPCR	92.6		P	50 - 175
2227365	HF183-qPCR	88.9		P	50 - 175
2227460	HF183-qPCR	97.3		P	50 - 175
2228603	HF183-qPCR	79.2		P	50 - 175
2228979	HF183-qPCR	94.7		P	50 - 175
2229009	HF183-qPCR	84.1		P	50 - 175
2229458	HF183-qPCR	76.2		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P394083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229537	HF183-qPCR	79.2		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P394083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226353	GULL2-qPCR	75.8		P	50 - 300
2226458	GULL2-qPCR	86.0		P	50 - 300
2226548	GULL2-qPCR	62.7		P	50 - 300
2226549	GULL2-qPCR	45.8		F	50 - 300
2227364	GULL2-qPCR	77.5		P	50 - 300
2227365	GULL2-qPCR	80.3		P	50 - 300
2227460	GULL2-qPCR	46.0		F	50 - 300
2228979	GULL2-qPCR	80.3		P	50 - 300
2229537	GULL2-qPCR	71.4		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P394083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226353	GFD-qPCR	91.2		P	50 - 175
2226458	GFD-qPCR	79.4		P	50 - 175
2226548	GFD-qPCR	73.9		P	50 - 175
2226549	GFD-qPCR	77.1		P	50 - 175
2227364	GFD-qPCR	79.7		P	50 - 175
2227365	GFD-qPCR	87.3		P	50 - 175
2227460	GFD-qPCR	113		P	50 - 175
2228979	GFD-qPCR	96.1		P	50 - 175
2229537	GFD-qPCR	63.6		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P394083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226353	BacR-qPCR	90.4		P	50 - 175
2226457	BacR-qPCR	96.2	85.9	P/P	50 - 175
2226458	BacR-qPCR	85.6		P	50 - 175
2226548	BacR-qPCR	76.8		P	50 - 175
2226549	BacR-qPCR	69.8		P	50 - 175
2227364	BacR-qPCR	94.5		P	50 - 175
2227365	BacR-qPCR	87.2		P	50 - 175
2227460	BacR-qPCR	84.9		P	50 - 175
2228603	BacR-qPCR	80.9		P	50 - 175
2228979	BacR-qPCR	101		P	50 - 175
2229009	BacR-qPCR	63.8		P	50 - 175
2229458	BacR-qPCR	71.7		P	50 - 175
2229537	BacR-qPCR	76.2		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P394083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.5
Batch ID: P394083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226353	DG3-qPCR	83.2		P	50 - 175
2226457	DG3-qPCR	85.9	88.2	P/P	50 - 175
2226458	DG3-qPCR	86.8		P	50 - 175
2226548	DG3-qPCR	89.2		P	50 - 175
2226549	DG3-qPCR	88.3		P	50 - 175
2227364	DG3-qPCR	88.3		P	50 - 175
2227365	DG3-qPCR	92.0		P	50 - 175
2227460	DG3-qPCR	79.9		P	50 - 175
2228603	DG3-qPCR	84.3		P	50 - 175
2228979	DG3-qPCR	97.4		P	50 - 175
2229009	DG3-qPCR	82.1		P	50 - 175
2229458	DG3-qPCR	85.1		P	50 - 175
2229537	DG3-qPCR	95.4		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P394503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226421	Chlorophyll-a, Corrected	2.89	Sample	P	0 - 25
2226421	Chlorophyll-a, Uncorrected	2.97	Sample	P	0 - 25
2226421	Phaeophytin-a	4.36	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P394083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226457	HF183-qPCR	6.53	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P394083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226457	BacR-qPCR	11.2	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P394083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226457	DG3-qPCR	2.60	Spike	P	0 - 25

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2226457
Field Sample ID: 20030070

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.0	SKETA-qPCR	108	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	108	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	104	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	99.7	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	99.5	P	50 - 300

Lab Sample ID: 2226458
Field Sample ID: 20030071

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	113	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	106	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	111	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	104	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	95.4	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	99.0			2.89	
	Chlorophyll-a, Uncorrected				2.97	
	Phaeophytin-a				4.36	
SOP-PCR-1.0	HF183-qPCR	98.0 90.0	119 102 95.7 89.3			6.53
SOP-PCR-1.2	GULL2-qPCR	92.0 83.7	75.8 86.0 62.7 45.8			
SOP-PCR-1.3	GFD-qPCR	101 78.3	91.2 73.9 79.4 77.1			
SOP-PCR-1.4	BacR-qPCR	92.5 93.8	90.4 96.2 85.9 85.6			11.2
SOP-PCR-1.5	DG3-qPCR	90.9 87.1	83.2 85.9 88.2 86.8			2.60

Reference Method Descriptions

Method	Description	Associated Samples
ASTM D650399	Enterococci by Enterolert/QT by ALS in Jacksonville	2226451
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2226446, 2226447, 2226448, 2226449, 2226450
SM 9223 B Quanti-Tray	E. coli by Colilert/QT by ALS in Jacksonville	2226452, 2226453, 2226454, 2226455, 2226456
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2226457, 2226458
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2226458
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2226458
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2226457, 2226458

Reference Method Descriptions

Method	Description	Associated Samples
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2226457, 2226458

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
ASTM D650399	02/22/2021	02/22/2021 15:33		02/23/2021 18:51	ALS Environmental, Jax	2226451
SM 10200 H (mod.)	02/23/2021	02/23/2021 14:58	Yuliya Danyuk	03/02/2021 10:03	Carina A. Tull	2226446, 2226447, 2226448, 2226449, 2226450
SM 9223 B Quanti-Tray	02/22/2021	02/22/2021 15:30		02/23/2021 18:54	ALS Environmental, Jax	2226452, 2226453, 2226454, 2226455, 2226456
SOP-PCR-1.0	02/23/2021	02/23/2021 13:00	DeAsia Armster	03/11/2021 15:27	Mailin Lopez	2226457, 2226458
SOP-PCR-1.2	02/23/2021	02/23/2021 13:00	DeAsia Armster	03/15/2021 09:15	Mailin Lopez	2226458
SOP-PCR-1.3	02/23/2021	02/23/2021 13:00	DeAsia Armster	03/15/2021 11:32	Mailin Lopez	2226458
SOP-PCR-1.4	02/23/2021	02/23/2021 13:00	DeAsia Armster	03/12/2021 12:17	Mailin Lopez	2226457, 2226458
SOP-PCR-1.5	02/23/2021	02/23/2021 13:00	DeAsia Armster	03/12/2021 13:01	Mailin Lopez	2226457, 2226458