Biological Analysis Report

NE-DIST-2021-11-05-01

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

Event Description: **LSJR East**
Request ID: **RQ-2021-11-01-33**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Puja Jasrotia, Environmental Administrator

Date Certified: 24-NOV-2021 14:38

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: Greenfield cr. at Hodges rd **Collection Date/Time: 11/04/2021 11:05**

Field ID: G2NE1145 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2288517	SM 10200 H (mod.)	Chlorophyll-a, Corrected	14	A	ug/L	P406287	
		Phaeophytin-a	5.4	I	ug/L	P406287	
		Chlorophyll-a, Uncorrected	18	A	ug/L	P406287	
2288520	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	2419.6	JQ	MPN/100 mL	P406217	

Ref. Method and Comment:
SM 10200 H (mod.): Laboratory duplicate result is 4.4 I for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.
SM 9223 B Quanti-Tray: All Quanti-Tray wells were positive. Result may be higher than reported.

Sample Location: BIG POTTSBURG CR BOWDEN RD **Collection Date/Time: 11/04/2021 12:05**

Field ID: 20030068 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2288523	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	670.0	AQ	MPN/100 mL	P406217	

Sample Location: DRAINAGE DITCH PARENTAL HOME RD **Collection Date/Time: 11/04/2021 12:25**

Field ID: 20030071 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2288519	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.0	I	ug/L	P406287	
		Phaeophytin-a	0.90	U	ug/L	P406287	
		Chlorophyll-a, Uncorrected	1.2	I	ug/L	P406287	
2288522	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	686.7	Q	MPN/100 mL	P406217	
2288525	SOP-PCR-1.0	HF183-qPCR**	1.1E+03	U	TSC/100 mL	P405221	
	SOP-PCR-1.2	GULL2-qPCR**	1.2E+03	U	TSC/100 mL	P405221	
	SOP-PCR-1.3	GFD-qPCR**	340	I	TSC/100 mL	P405221	
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P405221	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P405221	

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: LITTLE POTTSBURG CREEK AT EMERSON **Collection Date/Time: 11/04/2021 12:55**

Field ID: 20030070 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2288518	SM 10200 H (mod.)	Chlorophyll-a, Corrected	8.8		ug/L	P406287	
		Phaeophytin-a	0.90	U	ug/L	P406287	
		Chlorophyll-a, Uncorrected	9.2		ug/L	P406287	
2288521	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	2419.6	JQ	MPN/100 mL	P406217	
2288524	SOP-PCR-1.0	HF183-qPCR**	9.6E+03		TSC/100 mL	P405221	
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P405221	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P405221	

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P406287

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: P406217

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

Reference Method: SOP-PCR-1.0
Batch ID: P405221

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

Reference Method: SOP-PCR-1.2
Batch ID: P405221

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

Reference Method: SOP-PCR-1.3
Batch ID: P405221

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

Reference Method: SOP-PCR-1.4
Batch ID: P405221

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

Reference Method: SOP-PCR-1.5
Batch ID: P405221

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: P406287

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	91.0		P	84 - 116

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P405221

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	92.3	87.9	P/P	50 - 175
HF183-qPCR	70.7	101	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P405221

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	102	97.0	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P405221

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	95.7	108	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P405221

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	90.0	79.5	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P405221

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	89.2	83.3	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P405221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2284305	HF183-qPCR	76.5		P	50 - 175
2284564	HF183-qPCR	76.1	72.4	P/P	50 - 175
2285707	HF183-qPCR	78.7		P	50 - 175
2285741	HF183-qPCR	75.4		P	50 - 175
2286010	HF183-qPCR	86.8		P	50 - 175
2286011	HF183-qPCR	81.4		P	50 - 175
2286215	HF183-qPCR	81.8		P	50 - 175
2286243	HF183-qPCR	82.5		P	50 - 175
2287113	HF183-qPCR	79.8		P	50 - 175
2288289	HF183-qPCR	58.5		P	50 - 175
2288524	HF183-qPCR	70.2		P	50 - 175
2288525	HF183-qPCR	71.9		P	50 - 175
2289017	HF183-qPCR	76.3		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.2
Batch ID: P405221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2284305	GULL2-qPCR	87.8		P	50 - 300
2284564	GULL2-qPCR	76.0	82.5	P/P	50 - 300
2285707	GULL2-qPCR	70.6		P	50 - 300
2285741	GULL2-qPCR	74.6		P	50 - 300
2286010	GULL2-qPCR	71.6		P	50 - 300
2286011	GULL2-qPCR	76.0		P	50 - 300
2286215	GULL2-qPCR	76.1		P	50 - 300
2287113	GULL2-qPCR	74.5		P	50 - 300
2288289	GULL2-qPCR	18.7		F	50 - 300
2288525	GULL2-qPCR	81.9		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P405221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2284305	GFD-qPCR	92.2		P	50 - 175
2284564	GFD-qPCR	90.2	90.7	P/P	50 - 175
2285707	GFD-qPCR	95.1		P	50 - 175
2285741	GFD-qPCR	97.0		P	50 - 175
2286010	GFD-qPCR	93.3		P	50 - 175
2286011	GFD-qPCR	92.9		P	50 - 175
2286215	GFD-qPCR	83.3		P	50 - 175
2287113	GFD-qPCR	77.5		P	50 - 175
2288289	GFD-qPCR	50.5		P	50 - 175
2288525	GFD-qPCR	85.6		P	50 - 175
2289017	GFD-qPCR	79.3		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P405221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2284305	BacR-qPCR	68.4		P	50 - 175
2284564	BacR-qPCR	79.5	77.1	P/P	50 - 175
2285707	BacR-qPCR	70.5		P	50 - 175
2285741	BacR-qPCR	63.5		P	50 - 175
2286010	BacR-qPCR	69.8		P	50 - 175
2286011	BacR-qPCR	76.0		P	50 - 175
2286215	BacR-qPCR	78.9		P	50 - 175
2286243	BacR-qPCR	83.7		P	50 - 175
2287113	BacR-qPCR	67.8		P	50 - 175
2288289	BacR-qPCR	48.4		F	50 - 175
2288524	BacR-qPCR	74.1		P	50 - 175
2288525	BacR-qPCR	73.3		P	50 - 175
2289017	BacR-qPCR	63.4		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P405221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2284305	DG3-qPCR	79.4		P	50 - 175
2284564	DG3-qPCR	74.6	78.2	P/P	50 - 175
2285707	DG3-qPCR	57.6		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.5
Batch ID: P405221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285741	DG3-qPCR	69.4		P	50 - 175
2286010	DG3-qPCR	75.2		P	50 - 175
2286011	DG3-qPCR	75.2		P	50 - 175
2286215	DG3-qPCR	77.3		P	50 - 175
2286243	DG3-qPCR	74.2		P	50 - 175
2287113	DG3-qPCR	62.3		P	50 - 175
2288289	DG3-qPCR	51.2		P	50 - 175
2288524	DG3-qPCR	78.7		P	50 - 175
2288525	DG3-qPCR	76.6		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P406287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2288517	Chlorophyll-a, Corrected	5.40	Sample	P	0 - 25
2288517	Chlorophyll-a, Uncorrected	7.93	Sample	P	0 - 25

Reference Method: SM 9223 B Quanti-Tray
Batch ID: P406217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2288523	Escherichia Coli-Quanti-Tray	2.09	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
Batch ID: P405221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2284564	HF183-qPCR	5.10	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P405221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2284564	GULL2-qPCR	8.19	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P405221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2284564	GFD-qPCR	0.587	Spike	P	0 - 25

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.4
Batch ID: P405221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2284564	BacR-qPCR	3.07	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P405221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2284564	DG3-qPCR	4.59	Spike	P	0 - 25

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2288524
Field Sample ID: 20030070

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	86.8	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	116	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	90.4	P	50 - 300

Lab Sample ID: 2288525
Field Sample ID: 20030071

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	96.1	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	97.4	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	98.8	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	117	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	87.0	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	91.0			5.40	
	Chlorophyll-a, Uncorrected				7.93	
SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray				2.09	
SOP-PCR-1.0	HF183-qPCR	92.3 101 70.7 87.9	58.5 76.5 76.1 72.4			5.10
SOP-PCR-1.2	GULL2-qPCR	97.0 102	87.8 76.0 82.5 70.6			8.19
SOP-PCR-1.3	GFD-qPCR	108 95.7	79.3 92.2 90.2 90.7			0.587
SOP-PCR-1.4	BacR-qPCR	79.5 90.0	68.4 79.5 77.1 70.5			3.07
SOP-PCR-1.5	DG3-qPCR	83.3 89.2	79.4 74.6 78.2 57.6			4.59

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2288517, 2288518, 2288519
SM 9223 B Quanti-Tray	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2288520, 2288521, 2288522, 2288523
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2288524, 2288525
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2288525
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2288525
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2288524, 2288525
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2288524, 2288525

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	11/05/2021	11/05/2021 14:56	Joel Wharton	11/10/2021 08:50	Jillian G Hanley	2288517, 2288518, 2288519
SM 9223 B Quanti-Tray	11/05/2021	11/05/2021 16:17	Amber S. Eells	11/06/2021 12:01	Joel Wharton	2288520, 2288521, 2288522, 2288523
SOP-PCR-1.0	11/05/2021	11/05/2021 13:20	Luke Hudson	11/15/2021 09:59	DeAsia Armster	2288524, 2288525
SOP-PCR-1.2	11/05/2021	11/05/2021 13:20	Luke Hudson	11/16/2021 15:01	DeAsia Armster	2288525
SOP-PCR-1.3	11/05/2021	11/05/2021 13:20	Luke Hudson	11/17/2021 09:05	DeAsia Armster	2288525
SOP-PCR-1.4	11/05/2021	11/05/2021 13:20	Luke Hudson	11/15/2021 14:54	DeAsia Armster	2288524, 2288525
SOP-PCR-1.5	11/05/2021	11/05/2021 13:20	Luke Hudson	11/16/2021 10:21	DeAsia Armster	2288524, 2288525