

Biological Analysis Report

SE-DIST-2024-01-30-02

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

Event Description: **SMP - Goat Creek/Local**
Request ID: **RQ-2024-01-29-18**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Andrew Luering

For additional information please contact
Cheryl Swanson - Administrator
Sarah Menz, Ph.D. - Bench Biology & Aquatic
Toxicity
Puja Jasrotia, Ph.D. - Molecular Biology & Taxonomy
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Sarah Menz, Environmental Administrator

Date Certified: 12-MAR-2024 14:29

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, 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: GOAT CREEK NEAR TADLOCK AVE

Collection Date/Time: 01/29/2024 12:15

Field ID: G5SE0130

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2464186	SM 10150 B	Chlorophyll-a, Corrected	3.6	I	ug/L	P441040	
		Phaeophytin-a	1.8	U	ug/L	P441040	
		Chlorophyll-a, Uncorrected	3.8		ug/L	P441040	
2464189	Enterolert/QT	Enterococci-Quanti-Tray	437.8	AQ	MPN/100 mL	P440975	
2464191	SM 9222 D	Fecal Coliforms-Membrane Filter	240	Q	cfu/100 mL	P441115	
2464193	SOP-PCR-1.0	HF183-qPCR**	1.7E+03	U	TSC/100 mL	P440624	
	SOP-PCR-1.2	GULL2-qPCR**	1.8E+03	U	TSC/100 mL	P440624	
	SOP-PCR-1.3	GFD-qPCR**	840	I	TSC/100 mL	P440624	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P440624	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P440624	

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.
SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: KID CREEK AT OLD DIXIE HIGHWAY

Collection Date/Time: 01/29/2024 12:30

Field ID: G5SE0050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2464187	SM 10150 B	Chlorophyll-a, Corrected	0.82	U	ug/L	P441040	
		Phaeophytin-a	0.90	U	ug/L	P441040	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P441040	
2464194	SOP-PCR-1.0	HF183-qPCR**	1.1E+03	U	TSC/100 mL	P440624	
	SOP-PCR-1.2	GULL2-qPCR**	1.2E+03	U	TSC/100 mL	P440624	
	SOP-PCR-1.3	GFD-qPCR**	870	I	TSC/100 mL	P440624	
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P440624	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P440624	
2464204	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	594.0	Q	MPN/100 mL	P440975	

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.

Quality Assurance Report
Method Blank Results

Reference Method: Enterolert/QT
Batch ID: P440975

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

Reference Method: SM 10150 B
Batch ID: P441040

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 9222 D
Batch ID: P441115

Component	Result	Code	Units
Fecal Coliforms-Membrane Filter	2	U	cfu/100 mL

Reference Method: SM 9223 B Quanti-Tray
Batch ID: P440975

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

Reference Method: SOP-PCR-1.0
Batch ID: P440624

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

Reference Method: SOP-PCR-1.2
Batch ID: P440624

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

Reference Method: SOP-PCR-1.3
Batch ID: P440624

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

Reference Method: SOP-PCR-1.4
Batch ID: P440624

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

Reference Method: SOP-PCR-1.5
Batch ID: P440624

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: P441040

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	98.1		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P440624

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

Reference Method: SOP-PCR-1.0
Batch ID: P440624

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	88.8	87.7	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P440624

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	102	84.5	P/P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P440624

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	95.1	86.2	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P440624

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	90.0	87.7	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P440624

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	101	85.0	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P440624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2464107	HF183-qPCR	91.8	91.9	P/P	50 - 175
2464108	HF183-qPCR	109		P	50 - 175
2464193	HF183-qPCR	97.7		P	50 - 175
2464194	HF183-qPCR	92.8		P	50 - 175
2464225	HF183-qPCR	90.6		P	50 - 175
2464226	HF183-qPCR	97.9		P	50 - 175
2464227	HF183-qPCR	86.6		P	50 - 175
2464228	HF183-qPCR	84.1		P	50 - 175
2464229	HF183-qPCR	86.1		P	50 - 175
2464563	HF183-qPCR	94.3		P	50 - 175
2464564	HF183-qPCR	93.1		P	50 - 175
2464565	HF183-qPCR	103		P	50 - 175
2464566	HF183-qPCR	83.8		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P440624

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: P440624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2464107	GULL2-qPCR	85.6	91.9	P/P	50 - 175
2464108	GULL2-qPCR	78.4		P	50 - 175
2464193	GULL2-qPCR	66.1		P	50 - 175
2464194	GULL2-qPCR	91.5		P	50 - 175
2464225	GULL2-qPCR	85.2		P	50 - 175
2464226	GULL2-qPCR	86.9		P	50 - 175
2464227	GULL2-qPCR	94.4		P	50 - 175
2464229	GULL2-qPCR	93.3		P	50 - 175
2464564	GULL2-qPCR	89.8		P	50 - 175
2464565	GULL2-qPCR	94.5		P	50 - 175
2464566	GULL2-qPCR	95.0		P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P440624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2464107	GFD-qPCR	106	112	P/P	50 - 175
2464108	GFD-qPCR	106		P	50 - 175
2464193	GFD-qPCR	107		P	50 - 175
2464194	GFD-qPCR	108		P	50 - 175
2464225	GFD-qPCR	93.5		P	50 - 175
2464226	GFD-qPCR	110		P	50 - 175
2464227	GFD-qPCR	108		P	50 - 175
2464229	GFD-qPCR	110		P	50 - 175
2464564	GFD-qPCR	104		P	50 - 175
2464565	GFD-qPCR	107		P	50 - 175
2464566	GFD-qPCR	100		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P440624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2464107	BacR-qPCR	89.0	90.8	P/P	50 - 175
2464108	BacR-qPCR	88.7		P	50 - 175
2464193	BacR-qPCR	76.1		P	50 - 175
2464194	BacR-qPCR	86.5		P	50 - 175
2464225	BacR-qPCR	77.7		P	50 - 175
2464226	BacR-qPCR	87.1		P	50 - 175
2464227	BacR-qPCR	77.1		P	50 - 175
2464228	BacR-qPCR	82.5		P	50 - 175
2464229	BacR-qPCR	82.8		P	50 - 175
2464563	BacR-qPCR	87.6		P	50 - 175
2464564	BacR-qPCR	87.9		P	50 - 175
2464565	BacR-qPCR	84.9		P	50 - 175
2464566	BacR-qPCR	81.2		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P440624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2464107	DG3-qPCR	95.4	97.7	P/P	50 - 175
2464108	DG3-qPCR	97.9		P	50 - 175

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SOP-PCR-1.5

Batch ID: P440624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2464193	DG3-qPCR	82.0		P	50 - 175
2464194	DG3-qPCR	93.7		P	50 - 175
2464225	DG3-qPCR	91.1		P	50 - 175
2464226	DG3-qPCR	99.2		P	50 - 175
2464227	DG3-qPCR	95.9		P	50 - 175
2464228	DG3-qPCR	91.9		P	50 - 175
2464229	DG3-qPCR	94.9		P	50 - 175
2464563	DG3-qPCR	95.4		P	50 - 175
2464564	DG3-qPCR	94.4		P	50 - 175
2464565	DG3-qPCR	83.9		P	50 - 175
2464566	DG3-qPCR	90.8		P	50 - 175

Quality Assurance Report

Precision

Reference Method: SM 10150 B

Batch ID: P441040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2464303	Chlorophyll-a, Corrected	1.06	Sample	P	0 - 25
2464303	Chlorophyll-a, Uncorrected	2.07	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0

Batch ID: P440624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2464107	HF183-qPCR	0.120	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2

Batch ID: P440624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2464107	GULL2-qPCR	7.05	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3

Batch ID: P440624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2464107	GFD-qPCR	5.58	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4

Batch ID: P440624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2464107	BacR-qPCR	2.05	Spike	P	0 - 25

Quality Assurance Report

Precision

Reference Method: SOP-PCR-1.5

Batch ID: P440624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2464107	DG3-qPCR	2.33	Spike	P	0 - 25

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

Quality Assurance Report

Surrogates

Lab Sample ID: 2464193

Field Sample ID: G5SE0130

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	52.1	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	122	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	114	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	112	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	67.1	P	50 - 300

Lab Sample ID: 2464194

Field Sample ID: G5SE0050

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	80.9	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	132	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	117	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	117	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	
									SMP	MS
SM 10150 B	Chlorophyll-a, Corrected	98.1							1.06	
	Chlorophyll-a, Uncorrected								2.07	
SOP-PCR-1.0	HF183-qPCR	87.7	88.8		91.8	91.9	109			0.120
SOP-PCR-1.2	GULL2-qPCR	84.5	102		97.7	91.9	78.4			7.05
					66.1					
SOP-PCR-1.3	GFD-qPCR	86.2	95.1		93.5	106	112			5.58
SOP-PCR-1.4	BacR-qPCR	87.7	90.0		106	82.5	82.8			2.05
					77.1					
SOP-PCR-1.5	DG3-qPCR	85.0	101		87.6	97.7	97.9			2.33
					95.4					
					82.0					

Reference Method Descriptions

Method	Description	Associated Samples
Enterolert/QT	Enterococci by Enterolert Quanti-Tray method - non-chlorinated water systems	2464189

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
SM 10150 B	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2464186, 2464187
SM 9222 D	Fecal coliforms by membrane filter method - non-chlorinated water systems	2464191
SM 9223 B Quanti-Tray	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2464204
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2464193, 2464194
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2464193, 2464194
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2464193, 2464194
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2464193, 2464194
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2464193, 2464194

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	01/30/2024	01/30/2024 14:04	Callie Williams	01/31/2024 16:35	Callie Williams	2464189
SM 10150 B	01/30/2024	01/30/2024 12:58	Keanu Thijm	02/05/2024 10:33	Megan Higbee	2464186, 2464187
SM 9222 D	01/30/2024	01/30/2024 13:18	Julia Herten	01/31/2024 13:25	Callie Williams	2464191
SM 9223 B Quanti-Tray	01/30/2024	01/30/2024 16:59	Callie Williams	01/31/2024 13:35	Julia Herten	2464204
SOP-PCR-1.0	01/30/2024	01/30/2024 15:06	Lily Gregson	02/20/2024 09:00	Roberta Tatti	2464193, 2464194
SOP-PCR-1.2	01/30/2024	01/30/2024 15:06	Lily Gregson	02/22/2024 18:06	Madeline Gruver	2464193, 2464194
SOP-PCR-1.3	01/30/2024	01/30/2024 15:06	Lily Gregson	02/22/2024 15:21	Madeline Gruver	2464193, 2464194
SOP-PCR-1.4	01/30/2024	01/30/2024 15:06	Lily Gregson	02/20/2024 13:27	Roberta Tatti	2464193, 2464194
SOP-PCR-1.5	01/30/2024	01/30/2024 15:06	Lily Gregson	02/20/2024 14:18	Roberta Tatti	2464193, 2464194