

Biological Analysis Report

CEN-DIST-2023-08-17-02

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

Event Description: **Run 1**
Request ID: **RQ-2023-08-14-16**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Matthew Bearden

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Certified by: Sarah Menz, Environmental Administrator

Date Certified: 27-SEP-2023 12:12

A handwritten signature in black ink, appearing to be 'Sarah Menz', written in a cursive style.

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: UNNAMED DITCH AT 100M US OF MADELINE AVE **Collection Date/Time:** 08/16/2023 12:35

Field ID: G5CE0092 **Matrix:** W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2431926	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	70.3	Q	MPN/100 mL	P434289	

Ref. Method and Comment:
SM 9223 B Quanti-Tray: Precision data is unavailable for E. coli due to the high amount of analyte in the QC sample for the batch.

Sample Location: REED CANAL AT REED CANAL PARK **Collection Date/Time:** 08/16/2023 12:13

Field ID: G5CE0156 **Matrix:** W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2431924	SM 10150 B	Chlorophyll-a, Corrected	17		ug/L	P434192	
		Phaeophytin-a	1.4	I	ug/L	P434192	
		Chlorophyll-a, Uncorrected	19		ug/L	P434192	
2431925	Enterolert/QT	Enterococci-Quanti-Tray	866.4	AQ	MPN/100 mL	P434289	
2431927	SOP-PCR-1.0	HF183-qPCR**	1.7E+03	U	TSC/100 mL	P433860	
	SOP-PCR-1.2	GULL2-qPCR**	1.8E+03	U	TSC/100 mL	P433860	
	SOP-PCR-1.3	GFD-qPCR**	630	I	TSC/100 mL	P433860	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P433860	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P433860	

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: P434289

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

Reference Method: SM 10150 B
Batch ID: P434192

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: P434289

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

Reference Method: SOP-PCR-1.0
Batch ID: P433860

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.2
Batch ID: P433860

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

Reference Method: SOP-PCR-1.3
Batch ID: P433860

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

Reference Method: SOP-PCR-1.4
Batch ID: P433860

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

Reference Method: SOP-PCR-1.5
Batch ID: P433860

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: P434192

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	95.0		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P433860

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	71.3	92.7	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P433860

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	91.6	91.5	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P433860

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	86.1	98.6	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P433860

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

Reference Method: SOP-PCR-1.4
Batch ID: P433860

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	109	80.7	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P433860

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	70.0	83.7	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P433860

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430851	HF183-qPCR	100	109	P	50 - 175
2431094	HF183-qPCR	84.5		P	50 - 175
2431095	HF183-qPCR	98.4		P/P	50 - 175
2431333	HF183-qPCR	79.9		P	50 - 175
2431927	HF183-qPCR	84.0	109	P	50 - 175
2432153	HF183-qPCR	79.4		P	50 - 175
2432726	HF183-qPCR	78.7		P	50 - 175
2432727	HF183-qPCR	65.5		P	50 - 175
2432729	HF183-qPCR	74.4	109	P	50 - 175
2432730	HF183-qPCR	72.9		P	50 - 175
2433019	HF183-qPCR	74.8		P	50 - 175
2433716	HF183-qPCR	90.9		P	50 - 175
2433717	HF183-qPCR	93.0		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P433860

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430851	GULL2-qPCR	78.0	83.8	P	50 - 300
2431094	GULL2-qPCR	88.1		P	50 - 300
2431095	GULL2-qPCR	87.4		P/P	50 - 300
2431333	GULL2-qPCR	78.1		P	50 - 300
2431927	GULL2-qPCR	82.1	83.8	P	50 - 300
2432726	GULL2-qPCR	81.9		P	50 - 300
2432729	GULL2-qPCR	66.6		P	50 - 300
2432730	GULL2-qPCR	70.8		P	50 - 300
2433019	GULL2-qPCR	77.0	83.8	P	50 - 300
2433716	GULL2-qPCR	91.7		P	50 - 300
2433717	GULL2-qPCR	85.6		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P433860

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430851	GFD-qPCR	95.0	93.8	P	50 - 175
2431094	GFD-qPCR	93.8		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3

Batch ID: P433860

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2431095	GFD-qPCR	95.1	77.4	P/P	50 - 175
2431333	GFD-qPCR	75.2		P	50 - 175
2431927	GFD-qPCR	56.0		P	50 - 175
2432726	GFD-qPCR	90.5		P	50 - 175
2432729	GFD-qPCR	87.1		P	50 - 175
2432730	GFD-qPCR	85.9		P	50 - 175
2433019	GFD-qPCR	90.7		P	50 - 175
2433716	GFD-qPCR	88.1		P	50 - 175
2433717	GFD-qPCR	78.4		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P433860

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430851	BacR-qPCR	91.1		P	50 - 175
2431094	BacR-qPCR	88.9		P	50 - 175
2431095	BacR-qPCR	89.9	91.7	P/P	50 - 175
2431333	BacR-qPCR	70.8		P	50 - 175
2431927	BacR-qPCR	75.6		P	50 - 175
2432153	BacR-qPCR	64.6		P	50 - 175
2432726	BacR-qPCR	85.7		P	50 - 175
2432727	BacR-qPCR	69.4		P	50 - 175
2432729	BacR-qPCR	57.1		P	50 - 175
2432730	BacR-qPCR	63.3		P	50 - 175
2433019	BacR-qPCR	77.2		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P433860

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430851	DG3-qPCR	94.0		P	50 - 175
2431094	DG3-qPCR	89.2		P	50 - 175
2431095	DG3-qPCR	98.2	106	P/P	50 - 175
2431333	DG3-qPCR	88.5		P	50 - 175
2431927	DG3-qPCR	93.3		P	50 - 175
2432153	DG3-qPCR	85.9		P	50 - 175
2432726	DG3-qPCR	81.3		P	50 - 175
2432727	DG3-qPCR	73.9		P	50 - 175
2432729	DG3-qPCR	81.9		P	50 - 175
2432730	DG3-qPCR	80.5		P	50 - 175
2433019	DG3-qPCR	82.6		P	50 - 175
2433716	DG3-qPCR	99.1		P	50 - 175
2433717	DG3-qPCR	97.9		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: SM 10150 B
 Batch ID: P434192

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432115	Chlorophyll-a, Corrected	13.1	Sample	P	0 - 25
2432115	Chlorophyll-a, Uncorrected	13.1	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P433860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2431095	HF183-qPCR	10.4	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
 Batch ID: P433860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2431095	GULL2-qPCR	4.21	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P433860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2431095	GFD-qPCR	20.6	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P433860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2431095	BacR-qPCR	1.93	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
 Batch ID: P433860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2431095	DG3-qPCR	7.52	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2431927
 Field Sample ID: G5CE0156

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	118	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	109	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 2431927
 Field Sample ID: G5CE0156

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.3	SKETA-qPCR	113	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	113	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	106	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
SM 10150 B	Chlorophyll-a, Corrected	95.0					13.1	
	Chlorophyll-a, Uncorrected						13.1	
SOP-PCR-1.0	HF183-qPCR	92.7	71.3	100	84.5	98.4		10.4
SOP-PCR-1.2	GULL2-qPCR	91.5	91.6	78.0	88.1	87.4		4.21
SOP-PCR-1.3	GFD-qPCR	98.6	86.1	95.0	93.8	95.1		20.6
SOP-PCR-1.4	BacR-qPCR	80.7	109	91.1	88.9	89.9		1.93
SOP-PCR-1.5	DG3-qPCR	83.7	70.0	94.0	89.2	98.2		7.52

Reference Method Descriptions

Method	Description	Associated Samples
Enterolert/QT	Enterococci by Enterolert Quanti-Tray method - non-chlorinated water systems	2431925
SM 10150 B	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2431924
SM 9223 B Quanti-Tray	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2431926
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2431927
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2431927
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2431927
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2431927
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2431927

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	08/17/2023	08/17/2023 14:18	Julia Herten	08/18/2023 15:30	Julia Herten	2431925
SM 10150 B	08/17/2023	08/17/2023 13:57	Tynan A Branch	08/22/2023 09:53	Aidan Cronin	2431924
SM 9223 B Quanti-Tray	08/17/2023	08/17/2023 14:58	Julia Herten	08/18/2023 11:33	Julia Herten	2431926
SOP-PCR-1.0	08/17/2023	08/17/2023 13:50	Claudia Castro	09/05/2023 12:33	Madeline Gruver	2431927
SOP-PCR-1.2	08/17/2023	08/17/2023 13:50	Claudia Castro	09/11/2023 11:18	Roberta Tatti	2431927
SOP-PCR-1.3	08/17/2023	08/17/2023 13:50	Claudia Castro	09/12/2023 09:59	Roberta Tatti	2431927
SOP-PCR-1.4	08/17/2023	08/17/2023 13:50	Claudia Castro	09/06/2023 14:47	Madeline Gruver	2431927
SOP-PCR-1.5	08/17/2023	08/17/2023 13:50	Claudia Castro	09/08/2023 16:40	Madeline Gruver	2431927