

Biological Analysis Report

SO-DIST-2024-03-27-02

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

Overflow Analyses Performed By:
Sanders Laboratories
10090 Bavaria Road
Ft. Myers, FL 33913
DOH Accreditation E85457

Event Description: **2024 SMP: Later Gator**

Request ID: **RQ-2024-03-25-14**

Customer: **SO-DIST**

Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
2295 Victoria Ave. Suite 314
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Date Certified: 15-MAY-2024 10:46



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: WINEGOURD CRK TRIB HERITAGE

Collection Date/Time: 03/26/2024 12:05

Field ID: G2SD0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2477836	SM 10150 B	Chlorophyll-a, Corrected	100		ug/L	P443581	
		Phaeophytin-a	32		ug/L	P443581	
		Chlorophyll-a, Uncorrected	130		ug/L	P443581	
2477840	Colilert-18	Escherichia Coli-Quanti-Tray	906		MPN/100 mL		

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.

Sample Location: YUCCAFLATWOODS MID

Collection Date/Time: 03/26/2024 12:25

Field ID: G2SD0052

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2477834	SM 10150 B	Chlorophyll-a, Corrected	3.4		ug/L	P443581	
		Phaeophytin-a	1.5	I	ug/L	P443581	
		Chlorophyll-a, Uncorrected	4.5		ug/L	P443581	
2477838	Enterolert/QT	ENTEROCOCCI-ENTEROLERT	175		MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	44.0		cfu/100 mL		

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.

Sample Location: YUCCA PEN MARINE AT N OF OLD BURNSTORE

Collection Date/Time: 03/26/2024 12:45

Field ID: G2SD0015

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2477835	SM 10150 B	Chlorophyll-a, Corrected	2.1	I	ug/L	P443581	
		Phaeophytin-a	1.0	U	ug/L	P443581	
		Chlorophyll-a, Uncorrected	2.1		ug/L	P443581	
2477837	SOP-PCR-1.0	HF183-qPCR**	1.1E+03	U	TSC/100 mL	P443121	
	SOP-PCR-1.2	GULL2-qPCR**	1.2E+03	U	TSC/100 mL	P443121	
	SOP-PCR-1.3	GFD-qPCR**	4.5E+03		TSC/100 mL	P443121	RPD
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P443121	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P443121	
2477839	Enterolert/QT	ENTEROCOCCI-ENTEROLERT	84.0		MPN/100 mL		

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.

Sample Location: EMERALD POINTE CANAL

Collection Date/Time: 03/26/2024 14:20

Field ID: G3SD0216

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2477875	SM 10150 B	Chlorophyll-a, Corrected	15		ug/L	P443644	
		Phaeophytin-a	1.5	I	ug/L	P443644	
		Chlorophyll-a, Uncorrected	16		ug/L	P443644	
2477876	Enterolert/QT	ENTEROCOCCI-ENTEROLERT	30.0		MPN/100 mL		

Sample Location: ALLIGATOR CREEK TAYLOR RD

Collection Date/Time: 03/26/2024 13:20

Field ID: G2SD0059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2477896	Colilert-18	Escherichia Coli-Quanti-Tray	63.7		MPN/100 mL		

Sample Location: ALLIGATOR NORTH AT JONES LOOP RD Collection Date/Time: 03/26/2024 13:50

Field ID: G2SD0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2477953	Colilert-18	Escherichia Coli-Quanti-Tray	71.7		MPN/100 mL		

Quality Assurance Report
Method Blank Results

Reference Method: SM 10150 B
Batch ID: P443581

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.93	U	ug/L
Chlorophyll-a, Uncorrected	0.68	U	ug/L
Phaeophytin-a	1.0	U	ug/L

Reference Method: SM 10150 B
Batch ID: P443644

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.93	U	ug/L
Chlorophyll-a, Uncorrected	0.68	U	ug/L
Phaeophytin-a	1.0	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P443121

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

Reference Method: SOP-PCR-1.2
Batch ID: P443121

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

Reference Method: SOP-PCR-1.3
Batch ID: P443121

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

Reference Method: SOP-PCR-1.4
Batch ID: P443121

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

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.5
Batch ID: P443121

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: P443581

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	104		P	84 - 116

Reference Method: SM 10150 B
Batch ID: P443644

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	107		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P443121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	76.6	95.0	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P443121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	116	108	P/P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P443121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	129	142	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P443121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	86.3	76.6	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P443121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	85.9	68.3	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P443121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476843	HF183-qPCR	83.3	86.5	P/P	50 - 175
2476844	HF183-qPCR	91.6		P	50 - 175
2476845	HF183-qPCR	99.7		P	50 - 175
2476846	HF183-qPCR	106		P	50 - 175
2476847	HF183-qPCR	98.7		P	50 - 175
2476848	HF183-qPCR	101		P	50 - 175
2477163	HF183-qPCR	82.8		P	50 - 175
2477208	HF183-qPCR	88.1		P	50 - 175
2477648	HF183-qPCR	80.1		P	50 - 175
2477649	HF183-qPCR	81.8		P	50 - 175
2477650	HF183-qPCR	89.8		P	50 - 175
2477837	HF183-qPCR	104		P	50 - 175
2477919	HF183-qPCR	100		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P443121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476843	GULL2-qPCR	85.3	79.0	P/P	50 - 175
2476844	GULL2-qPCR	85.2		P	50 - 175
2476845	GULL2-qPCR	77.8		P	50 - 175
2476846	GULL2-qPCR	87.6		P	50 - 175
2476847	GULL2-qPCR	64.1		P	50 - 175
2476848	GULL2-qPCR	57.1		P	50 - 175
2477163	GULL2-qPCR	102		P	50 - 175
2477208	GULL2-qPCR	68.4		P	50 - 175
2477837	GULL2-qPCR	95.9		P	50 - 175
2477919	GULL2-qPCR	66.8		P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P443121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476843	GFD-qPCR	184	134	F/P	50 - 175
2476844	GFD-qPCR	143		P	50 - 175
2476845	GFD-qPCR	148		P	50 - 175
2476846	GFD-qPCR	142		P	50 - 175
2476847	GFD-qPCR	141		P	50 - 175
2476848	GFD-qPCR	144		P	50 - 175
2477163	GFD-qPCR	158		P	50 - 175
2477208	GFD-qPCR	128		P	50 - 175
2477837	GFD-qPCR	148		P	50 - 175
2477919	GFD-qPCR	132		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P443121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476843	BacR-qPCR	86.7	87.6	P/P	50 - 175
2476844	BacR-qPCR	91.8		P	50 - 175
2476845	BacR-qPCR	79.1		P	50 - 175
2476846	BacR-qPCR	82.4		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P443121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476847	BacR-qPCR	76.7		P	50 - 175
2476848	BacR-qPCR	83.9		P	50 - 175
2477163	BacR-qPCR	83.0		P	50 - 175
2477208	BacR-qPCR	66.4		P	50 - 175
2477648	BacR-qPCR	81.3		P	50 - 175
2477649	BacR-qPCR	91.2		P	50 - 175
2477650	BacR-qPCR	99.3		P	50 - 175
2477837	BacR-qPCR	105		P	50 - 175
2477919	BacR-qPCR	71.7		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P443121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476843	DG3-qPCR	89.2	91.0	P/P	50 - 175
2476844	DG3-qPCR	91.4		P	50 - 175
2476845	DG3-qPCR	93.4		P	50 - 175
2476846	DG3-qPCR	96.9		P	50 - 175
2476847	DG3-qPCR	92.7		P	50 - 175
2476848	DG3-qPCR	103		P	50 - 175
2477163	DG3-qPCR	112		P	50 - 175
2477208	DG3-qPCR	99.6		P	50 - 175
2477837	DG3-qPCR	130		P	50 - 175
2477919	DG3-qPCR	138		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10150 B
Batch ID: P443644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2477915	Chlorophyll-a, Corrected	1.42	Sample	P	0 - 25
2477915	Chlorophyll-a, Uncorrected	1.40	Sample	P	0 - 25
2477915	Phaeophytin-a	1.11	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P443121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476843	HF183-qPCR	3.79	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P443121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476843	GULL2-qPCR	7.71	Spike	P	0 - 25

Quality Assurance Report

Precision

Reference Method: SOP-PCR-1.3

Batch ID: P443121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476843	GFD-qPCR	31.2	Spike	F	0 - 25

Reference Method: SOP-PCR-1.4

Batch ID: P443121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476843	BacR-qPCR	0.962	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5

Batch ID: P443121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476843	DG3-qPCR	1.96	Spike	P	0 - 25

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

Quality Assurance Report

Surrogates

Lab Sample ID: 2477837

Field Sample ID: G2SD0015

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	88.6	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	172	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	140	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	118	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	87.5	P	50 - 300

Quality Assurance Report

Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
SM 10150 B	Chlorophyll-a, Corrected	104						
	Chlorophyll-a, Corrected	107					1.42	
	Chlorophyll-a, Uncorrected						1.40	
	Phaeophytin-a						1.11	
SOP-PCR-1.0	HF183-qPCR	95.0	76.6	83.3	86.5	91.6		3.79
SOP-PCR-1.2	GULL2-qPCR	108	116	99.7				
				85.3	79.0	85.2		7.71
SOP-PCR-1.3	GFD-qPCR	142	129	77.8				
				184	134	143		31.2
SOP-PCR-1.4	BacR-qPCR	76.6	86.3	148				
				86.7	87.6	91.8		0.962
SOP-PCR-1.5	DG3-qPCR	68.3	85.9	79.1				
				89.2	91.0	91.4		1.96
				93.4				

Reference Method Descriptions

Method	Description	Associated Samples
Colilert-18	E. coli by Colilert-18/QT by Sanders in Fort Myers	2477840, 2477896, 2477953
Enterolert/QT	Enterococci by Enterolert/QT by Sanders in Fort Myers	2477838, 2477839, 2477876
SM 10150 B	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2477834, 2477835, 2477836, 2477875
SM 9222 D	Fecal coliforms by MF by Sanders in Fort Myers	2477838
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2477837
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2477837
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2477837
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2477837
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2477837

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Colilert-18	03/26/2024	03/26/2024 16:53	Callie Williams	03/27/2024 11:21	Sanders-Fort Myers	2477840, 2477896, 2477953
Enterolert/QT	03/26/2024	03/26/2024 16:05		03/27/2024 16:21	Sanders-Fort Myers	2477838, 2477839, 2477876
SM 10150 B	03/27/2024	03/27/2024 10:39		03/29/2024 10:23	Megan Higbee	2477834, 2477835, 2477836
	03/27/2024	03/27/2024 10:39		04/01/2024 13:00	Tynan A Branch	2477875
SM 9222 D	03/26/2024	03/26/2024 16:31	Jennifer Mihalic	03/27/2024 14:53	Sanders-Fort Myers	2477838
SOP-PCR-1.0	03/27/2024	03/27/2024 12:45		04/10/2024 09:27	Roberta Tatti	2477837
SOP-PCR-1.2	03/27/2024	03/27/2024 12:45		04/16/2024 20:19	Madeline Gruver	2477837
SOP-PCR-1.3	03/27/2024	03/27/2024 12:45		04/16/2024 18:04	Madeline Gruver	2477837
SOP-PCR-1.4	03/27/2024	03/27/2024 12:45		04/11/2024 14:37	Roberta Tatti	2477837
SOP-PCR-1.5	03/27/2024	03/27/2024 12:45		04/12/2024 09:02	Roberta Tatti	2477837