

Biological Analysis Report

SO-DIST-2023-08-18-02

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: **2023 SMP: Glades Slough**
Request ID: **RQ-2023-07-31-23**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 314
Fort Myers, FL 33901-3381
Attn: Monica Jaeger

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: Puja Jasrotia, Environmental Administrator

Date Certified: 27-SEP-2023 11:15



NON-CONFORMANCE REPORT INCLUDED

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: FENCELINE DRAIN AT BLUE HEAD RANCH

Collection Date/Time: 08/17/2023 10:30

Field ID: G4SD0193

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432158	Colilert-18	Escherichia Coli-Quanti-Tray	185		MPN/100 mL		

Sample Location: GATOR SLOUGH AT US27

Collection Date/Time: 08/17/2023 11:35

Field ID: G4SD0214

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432149	SM 10150 B	Chlorophyll-a, Corrected	10		ug/L	P434241	
		Phaeophytin-a	7.7		ug/L	P434241	
		Chlorophyll-a, Uncorrected	15		ug/L	P434241	
2432155	Colilert-18	Escherichia Coli-Quanti-Tray	10.0		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: BOOTHEELCREEKEASTBRANCH

Collection Date/Time: 08/17/2023 12:00

Field ID: G4SD0105

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432150	SM 10150 B	Chlorophyll-a, Corrected	1.8	I	ug/L	P434241	
		Phaeophytin-a	1.3	U	ug/L	P434241	
		Chlorophyll-a, Uncorrected	2.6		ug/L	P434241	
2432156	Colilert-18	Escherichia Coli-Quanti-Tray	135		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: RAINEY SLOUGH AT FARABEE RD

Collection Date/Time: 08/17/2023 12:35

Field ID: G4SD0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432159	Colilert-18	Escherichia Coli-Quanti-Tray	74.0		MPN/100 mL		

Sample Location: JOHNHENRYSLOUGH ATCR731

Collection Date/Time: 08/17/2023 12:50

Field ID: G4SD0215

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432152	SM 10150 B	Chlorophyll-a, Corrected	21		ug/L	P434241	
		Phaeophytin-a	2.8		ug/L	P434241	
		Chlorophyll-a, Uncorrected	24		ug/L	P434241	
2432153	SOP-PCR-1.0	HF183-qPCR**	3.3E+03	U	TSC/100 mL	P433860	
	SOP-PCR-1.4	BacR-qPCR**	5.8E+03	I	TSC/100 mL	P433860	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P433860	
2432160	Colilert-18	Escherichia Coli-Quanti-Tray	281		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: GOPHER GULLY AT US27

Collection Date/Time: 08/17/2023 13:20

Field ID: G4SD0216

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432151	SM 10150 B	Chlorophyll-a, Corrected	12	J	ug/L	P434241	
		Phaeophytin-a	2.7	I J	ug/L	P434241	
		Chlorophyll-a, Uncorrected	14	J	ug/L	P434241	
2432157	Colilert-18	Escherichia Coli-Quanti-Tray	41.0		MPN/100 mL		

Ref. Method and Comment:
SM 10150 B: See Non-Conformance Report 10045. 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.

Non-Conformance Report

NCR ID: 10045

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
SO-DIST-2023-08-18-02	TLH-2023-08-18-28	2432151	CHLSUITE-W
NCR Type: ANALYSIS		NCR Category: Analytical Measurement	
Observation: Sample had high turbidity and did not respond as expected to acidification.			
Resolution: Results will be J-qualified and customers Nicole Reistad, John Barrington, and Monica Jaeger will be notified.			

Authorized by/Date: Cheryl A. Swanson 8/28/2023

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report
Method Blank Results

Reference Method: SM 10150 B
Batch ID: P434241

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: P433860

Component	Result	Code	Units
HF183-qPCR	3.3E+03	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: P434241

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	94.9		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-1.4
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		P	50 - 175
2431094	HF183-qPCR	84.5		P	50 - 175
2431095	HF183-qPCR	98.4	109	P/P	50 - 175
2431333	HF183-qPCR	79.9		P	50 - 175
2431927	HF183-qPCR	84.0		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		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-1.4
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

Quality Assurance Report Matrix Spike Accuracy

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

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

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-1.4
 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: 2432153
 Field Sample ID: G4SD0215

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	125	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	111	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	111	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
SM 10150 B	Chlorophyll-a, Corrected	94.9						
SOP-PCR-1.0	HF183-qPCR	92.7	71.3	100	84.5	98.4		10.4
				109				
SOP-PCR-1.4	BacR-qPCR	80.7	109	91.1	88.9	89.9		1.93
				91.7				
SOP-PCR-1.5	DG3-qPCR	83.7	70.0	94.0	89.2	98.2		7.52
				106				

Reference Method Descriptions

Method	Description	Associated Samples
Colilert-18	E. coli by Colilert-18/QT by Sanders in Fort Myers	2432155, 2432156, 2432157, 2432158, 2432159, 2432160
SM 10150 B	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2432149, 2432150, 2432151, 2432152
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2432153
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2432153
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2432153

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Colilert-18	08/17/2023	08/17/2023 15:32		08/18/2023 09:52	Sanders-Fort Myers	2432155, 2432156, 2432157, 2432158, 2432159, 2432160
SM 10150 B	08/18/2023	08/18/2023 13:18	Megan Higbee	08/23/2023 07:50	Keanu Thijm	2432149, 2432150, 2432151, 2432152
SOP-PCR-1.0	08/18/2023	08/18/2023 14:05	Claudia Castro	09/05/2023 12:33	Madeline Gruver	2432153
SOP-PCR-1.4	08/18/2023	08/18/2023 14:05	Claudia Castro	09/06/2023 14:47	Madeline Gruver	2432153
SOP-PCR-1.5	08/18/2023	08/18/2023 14:05	Claudia Castro	09/08/2023 16:40	Madeline Gruver	2432153