

Biological Analysis Report

SE-DIST-2022-07-13-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Basinger 4/5**
Request ID: **RQ-2022-05-23-36**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Puja Jasrotia, Environmental Administrator

Date Certified: 25-AUG-2022 13:15

A handwritten signature in black ink, appearing to be 'Puja Jasrotia', with a horizontal line 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: Chandler Slough @ Southern US98 Culvert

Collection Date/Time: 07/12/2022 09:30

Field ID: G4SE0142

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340821	SM 10200 H (mod.)	Chlorophyll-a, Corrected	14		ug/L	P416868	
		Phaeophytin-a	1.3	U	ug/L	P416868	
		Chlorophyll-a, Uncorrected	15		ug/L	P416868	
2340827	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	101.7	Q	MPN/100 mL	P416726	

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: Chandler Slough @ Northern US98 Culvert

Collection Date/Time: 07/12/2022 09:40

Field ID: G4SE0141

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340822	SM 10200 H (mod.)	Chlorophyll-a, Corrected	13		ug/L	P416868	
		Phaeophytin-a	0.90	U	ug/L	P416868	
		Chlorophyll-a, Uncorrected	14		ug/L	P416868	
2340828	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	11.0	Q	MPN/100 mL	P416726	

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: Chandler Slough @ NW 160th Dr

Collection Date/Time: 07/12/2022 10:10

Field ID: G4SE0143

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340823	SM 10200 H (mod.)	Chlorophyll-a, Corrected	17		ug/L	P416868	
		Phaeophytin-a	1.9	U	ug/L	P416868	
		Chlorophyll-a, Uncorrected	18		ug/L	P416868	
2340829	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	88.6	Q	MPN/100 mL	P416726	

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: Oak Creek @ 68

Collection Date/Time: 07/12/2022 10:30

Field ID: G4SE0080

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340825	SM 10200 H (mod.)	Chlorophyll-a, Corrected	14		ug/L	P416868	
		Phaeophytin-a	4.8	I	ug/L	P416868	
		Chlorophyll-a, Uncorrected	18		ug/L	P416868	
2340831	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	17.5	Q	MPN/100 mL	P416726	

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: Gore Branch @ 724

Collection Date/Time: 07/12/2022 11:05

Field ID: G4SE0130

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340832	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	22.8	Q	MPN/100 mL	P416726	

Field ID: G4SE0130

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340836	SOP-PCR-1.0	HF183-qPCR**	3.3E+03	U	TSC/100 mL	P416493	
	SOP-PCR-1.4	BacR-qPCR**	1.13E+05		TSC/100 mL	P416493	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P416493	

Sample Location: Chandler Slough @ NW 190th

Collection Date/Time: 07/12/2022 11:20

Field ID: G4SE0136

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340833	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	73.5	AQ	MPN/100 mL	P416726	
2340837	SOP-PCR-1.0	HF183-qPCR**	3.3E+03	U	TSC/100 mL	P416493	
	SOP-PCR-1.4	BacR-qPCR**	3.5E+04		TSC/100 mL	P416493	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P416493	

Sample Location: Gore Branch / Chandler Slough @ NW 240th St

Collection Date/Time: 07/12/2022 11:45

Field ID: G4SE0145

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340824	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.7		ug/L	P416868	
		Phaeophytin-a	0.90	U	ug/L	P416868	
		Chlorophyll-a, Uncorrected	6.1		ug/L	P416868	
2340830	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	193.5	Q	MPN/100 mL	P416726	

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.

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P416868

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.89	U	ug/L
Chlorophyll-a, Uncorrected	0.65	U	ug/L
Phaeophytin-a	0.98	U	ug/L

Reference Method: SM 9223 B Quanti-Tray
Batch ID: P416726

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

Reference Method: SOP-PCR-1.0
Batch ID: P416493

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

Reference Method: SOP-PCR-1.4
Batch ID: P416493

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.4
Batch ID: P416493

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

Reference Method: SOP-PCR-1.5
Batch ID: P416493

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: P416868

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: P416493

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	69.4	82.6	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P416493

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	101	67.9	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P416493

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	110	72.5	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P416493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340643	HF183-qPCR	84.5	87.3	P/P	50 - 175
2340644	HF183-qPCR	86.9		P	50 - 175
2340645	HF183-qPCR	82.6		P	50 - 175
2340836	HF183-qPCR	88.6		P	50 - 175
2340837	HF183-qPCR	91.0		P	50 - 175
2341229	HF183-qPCR	74.2		P	50 - 175
2341751	HF183-qPCR	92.3		P	50 - 175
2341934	HF183-qPCR	80.4		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4

Batch ID: P416493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340643	BacR-qPCR	87.3	94.5	P/P	50 - 175
2340644	BacR-qPCR	83.1		P	50 - 175
2340645	BacR-qPCR	76.9		P	50 - 175
2340836	BacR-qPCR	82.5		P	50 - 175
2340837	BacR-qPCR	80.6		P	50 - 175
2341229	BacR-qPCR	73.4		P	50 - 175
2341751	BacR-qPCR	93.0		P	50 - 175
2341934	BacR-qPCR	79.1		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P416493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340643	DG3-qPCR	102	98.0	P/P	50 - 175
2340644	DG3-qPCR	103		P	50 - 175
2340645	DG3-qPCR	94.0		P	50 - 175
2340836	DG3-qPCR	93.7		P	50 - 175
2340837	DG3-qPCR	96.8		P	50 - 175
2341229	DG3-qPCR	90.2		P	50 - 175
2341751	DG3-qPCR	92.1		P	50 - 175
2341934	DG3-qPCR	88.6		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P416868

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340553	Chlorophyll-a, Corrected	2.72	Sample	P	0 - 25
2340553	Chlorophyll-a, Uncorrected	1.99	Sample	P	0 - 25

Reference Method: SM 9223 B Quanti-Tray

Batch ID: P416726

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340776	Escherichia Coli-Quanti-Tray	13.9	Sample	P	0 - 80
2340833	Escherichia Coli-Quanti-Tray	1.36	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0

Batch ID: P416493

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340643	HF183-qPCR	3.27	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.4
Batch ID: P416493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340643	BacR-qPCR	7.90	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P416493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340643	DG3-qPCR	4.02	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2340836
Field Sample ID: G4SE0130

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	114	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	103	P	50 - 300

Lab Sample ID: 2340837
Field Sample ID: G4SE0136

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	75.7	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	97.7	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	81.5	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision	
							LCS	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	95.0					2.72	
	Chlorophyll-a, Uncorrected						1.99	
SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray						13.9	1.36
SOP-PCR-1.0	HF183-qPCR	82.6	69.4	84.5	87.3	86.9		3.27
SOP-PCR-1.4	BacR-qPCR	67.9	101	82.6	87.3	94.5	83.1	7.90
				76.9				
SOP-PCR-1.5	DG3-qPCR	72.5	110	90.2	92.1	88.6		4.02
				102				

Reference Method Descriptions

Method	Description	Associated Samples
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Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2340821, 2340822, 2340823, 2340824, 2340825
SM 9223 B Quanti-Tray	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2340827, 2340828, 2340829, 2340830, 2340831, 2340832, 2340833
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2340836, 2340837
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2340836, 2340837
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2340836, 2340837

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	07/13/2022	07/13/2022 14:13	Tynan A Branch	07/18/2022 09:27	Ethan Wickline	2340821, 2340822, 2340823, 2340824, 2340825
SM 9223 B Quanti-Tray	07/13/2022	07/13/2022 16:31	Ethan Wickline	07/14/2022 10:34	Austin Nolan	2340827, 2340828, 2340829, 2340830, 2340831, 2340832, 2340833
SOP-PCR-1.0	07/13/2022	07/13/2022 13:10	Claudia Castro	08/05/2022 13:11	DeAsia Armster	2340836, 2340837
SOP-PCR-1.4	07/13/2022	07/13/2022 13:10	Claudia Castro	08/08/2022 13:31	Roberta Tatti	2340836, 2340837
SOP-PCR-1.5	07/13/2022	07/13/2022 13:10	Claudia Castro	08/09/2022 11:01	Roberta Tatti	2340836, 2340837