Biological Analysis Report

SW-DIST-2022-08-11-01

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

Overflow Analyses Performed By:
Benchmark EnvironAnalytical, Inc.
1711 12th Street East
Palmetto, FL 34221
DOH Accreditation E84167

Event Description: **Pinellas Continuous Monitoring**
Request ID: **RQ-2022-08-08-71**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 22-SEP-2022 11:24

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: Salt Creek @ Bartlett Park Dock **Collection Date/Time: 08/10/2022 13:00**

Field ID: G5SW0188 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2348206	SM 10200 H (mod.)	Chlorophyll-a, Corrected	28	A	ug/L	P418524	
		Phaeophytin-a	1.8	U	ug/L	P418524	
		Chlorophyll-a, Uncorrected	30	A	ug/L	P418524	
2348208	Enterolert/QT	Enterococci-Quanti-Tray	19863		MPN/100 mL		

Ref. Method and Comment:
SM 10200 H (mod.): Laboratory duplicate result is 1.8 U for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: Clam Bayou (East Drainage-North) @ 26th Ave S **Collection Date/Time: 08/10/2022 12:15**

Field ID: G5SW0190 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2348207	SOP-PCR-1.0	HF183-qPCR**	1.7E+03	U	TSC/100 mL	P417905	
	SOP-PCR-1.2	GULL2-qPCR**	1.8E+03	U	TSC/100 mL	P417905	
	SOP-PCR-1.3	GFD-qPCR**	780	I	TSC/100 mL	P417905	RPD
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P417905	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P417905	
2348209	Enterolert/QT	Enterococci-Quanti-Tray	3076		MPN/100 mL		

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P418524

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: SOP-PCR-1.0
Batch ID: P417905

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

Reference Method: SOP-PCR-1.2
Batch ID: P417905

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

Reference Method: SOP-PCR-1.3
Batch ID: P417905

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

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.4
Batch ID: P417905

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

Reference Method: SOP-PCR-1.5
Batch ID: P417905

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: P418524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	105		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P417905

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	75.7	79.7	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P417905

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	90.3	91.8	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P417905

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	85.8	80.9	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P417905

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	94.8	80.7	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P417905

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	103	91.3	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P417905

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347794	HF183-qPCR	93.0	92.1	P/P	50 - 175
2347795	HF183-qPCR	82.7		P	50 - 175
2348155	HF183-qPCR	80.6		P	50 - 175
2348179	HF183-qPCR	74.0		P	50 - 175
2348180	HF183-qPCR	94.2		P	50 - 175
2348191	HF183-qPCR	88.2		P	50 - 175
2348207	HF183-qPCR	82.1		P	50 - 175
2348515	HF183-qPCR	82.2		P	50 - 175
2348654	HF183-qPCR	75.5		P	50 - 175
2348655	HF183-qPCR	82.4		P	50 - 175
2348656	HF183-qPCR	89.9		P	50 - 175
2348722	HF183-qPCR	93.1		P	50 - 175
2349383	HF183-qPCR	91.7		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P417905

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347794	GULL2-qPCR	74.7	88.0	P/P	50 - 300
2347795	GULL2-qPCR	79.5		P	50 - 300
2348155	GULL2-qPCR	12.6		F	50 - 300
2348179	GULL2-qPCR	79.8		P	50 - 300
2348180	GULL2-qPCR	74.4		P	50 - 300
2348191	GULL2-qPCR	90.5		P	50 - 300
2348207	GULL2-qPCR	60.6		P	50 - 300
2348654	GULL2-qPCR	90.2		P	50 - 300
2348655	GULL2-qPCR	91.2		P	50 - 300
2348656	GULL2-qPCR	98.4		P	50 - 300
2348722	GULL2-qPCR	83.8		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P417905

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347794	GFD-qPCR	86.5	92.2	P/P	50 - 175
2347795	GFD-qPCR	101		P	50 - 175
2348155	GFD-qPCR	82.2		P	50 - 175
2348179	GFD-qPCR	97.1		P	50 - 175
2348180	GFD-qPCR	99.2		P	50 - 175
2348191	GFD-qPCR	93.2		P	50 - 175
2348207	GFD-qPCR	85.8		P	50 - 175
2348654	GFD-qPCR	88.9		P	50 - 175
2348655	GFD-qPCR	94.6		P	50 - 175
2348656	GFD-qPCR	95.3		P	50 - 175
2348722	GFD-qPCR	97.1		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P417905

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347794	BacR-qPCR	80.2	84.3	P/P	50 - 175
2347795	BacR-qPCR	74.2		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P417905

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2348155	BacR-qPCR	49.0		F	50 - 175
2348179	BacR-qPCR	63.9		P	50 - 175
2348180	BacR-qPCR	76.5		P	50 - 175
2348191	BacR-qPCR	78.8		P	50 - 175
2348207	BacR-qPCR	63.9		P	50 - 175
2348515	BacR-qPCR	76.5		P	50 - 175
2348654	BacR-qPCR	74.6		P	50 - 175
2348655	BacR-qPCR	78.6		P	50 - 175
2348656	BacR-qPCR	96.9		P	50 - 175
2348722	BacR-qPCR	98.8		P	50 - 175
2349383	BacR-qPCR	84.6		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P417905

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347794	DG3-qPCR	96.2	91.1	P/P	50 - 175
2347795	DG3-qPCR	96.1		P	50 - 175
2348155	DG3-qPCR	53.2		P	50 - 175
2348179	DG3-qPCR	82.8		P	50 - 175
2348180	DG3-qPCR	77.3		P	50 - 175
2348191	DG3-qPCR	99.3		P	50 - 175
2348207	DG3-qPCR	98.8		P	50 - 175
2348515	DG3-qPCR	100		P	50 - 175
2348654	DG3-qPCR	96.6		P	50 - 175
2348655	DG3-qPCR	96.8		P	50 - 175
2348656	DG3-qPCR	98.5		P	50 - 175
2348722	DG3-qPCR	101		P	50 - 175
2349383	DG3-qPCR	95.2		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P418524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2348206	Chlorophyll-a, Corrected	0.0346	Sample	P	0 - 25
2348206	Chlorophyll-a, Uncorrected	0.152	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P417905

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347794	HF183-qPCR	0.927	Spike	P	0 - 25

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.2
Batch ID: P417905

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347794	GULL2-qPCR	16.3	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P417905

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347794	GFD-qPCR	60.7	Sample	F	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P417905

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347794	BacR-qPCR	5.00	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P417905

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347794	DG3-qPCR	5.47	Spike	P	0 - 25

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2348207
Field Sample ID: G5SW0190

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	99.9	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	103	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	97.4	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	100	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	103	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	105			0.0346	
	Chlorophyll-a, Uncorrected				0.152	
SOP-PCR-1.0	HF183-qPCR	79.7 75.7	93.0 92.1 82.7 80.6			0.927
SOP-PCR-1.2	GULL2-qPCR	91.8 90.3	74.7 88.0 79.5 12.6			16.3

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SOP-PCR-1.3	GFD-qPCR	80.9 85.8	86.5 92.2 101 82.2		60.7	
SOP-PCR-1.4	BacR-qPCR	80.7 94.8	80.2 84.3 74.2 49.0			5.00
SOP-PCR-1.5	DG3-qPCR	91.3 103	96.2 91.1 96.1 53.2			5.47

Reference Method Descriptions

Method	Description	Associated Samples
Enterolert/QT	Enterococci by Enterolert/QT by BEA in Palmetto	2348208, 2348209
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2348206
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2348207
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2348207
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2348207
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2348207
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2348207

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	08/10/2022	08/10/2022 14:45		08/11/2022 15:20	Benchmark EnviroAnalytical - Palmetto	2348208, 2348209
SM 10200 H (mod.)	08/11/2022	08/11/2022 12:37	Ethan Wickline	08/22/2022 09:55	Tynan A Branch	2348206
SOP-PCR-1.0	08/11/2022	08/11/2022 13:35	Claudia Castro	09/06/2022 09:50	DeAsia Armster	2348207
SOP-PCR-1.2	08/11/2022	08/11/2022 13:35	Claudia Castro	09/15/2022 16:13	Roberta Tatti	2348207
SOP-PCR-1.3	08/11/2022	08/11/2022 13:35	Claudia Castro	09/16/2022 09:48	DeAsia Armster	2348207
SOP-PCR-1.4	08/11/2022	08/11/2022 13:35	Claudia Castro	09/08/2022 09:55	DeAsia Armster	2348207
SOP-PCR-1.5	08/11/2022	08/11/2022 13:35	Claudia Castro	09/14/2022 13:22	Roberta Tatti	2348207