

Biological Analysis Report

SW-DIST-2019-06-28-01

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

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

Event Description: **Run 10: Longboat and such**
Request ID: **RQ-2019-06-24-15**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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13051 N. Telecom Parkway
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Date Certified: 30-JUL-2019 14:26



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: Braden River Below Ward Lake@ramp

Collection Date/Time: 06/27/2019 09:50

Field ID: G2SW0111

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099587	Enterolert/QT	Enterococci-Quanti-Tray	63		MPN/100 mL		

Sample Location: Wares Creek Fresh@30th Ave West

Collection Date/Time: 06/27/2019 10:50

Field ID: G2SW0109

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099572	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.7	I	ug/L	P367078	
		Phaeophytin-a	6.4	A	ug/L	P367078	
		Chlorophyll-a, Uncorrected	7.5	A	ug/L	P367078	
2099577	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold			P366402	
2099581	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	259		MPN/100 mL		

Ref. Method and Comment:

SM 10200 H (mod.): Laboratory duplicate result is 3.2 I for Chlorophyll-a Corrected. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: Wares Crk @ 36th Ave

Collection Date/Time: 06/27/2019 11:10

Field ID: G2SW0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099573	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.8		ug/L	P367078	
		Phaeophytin-a	2.6	I	ug/L	P367078	
		Chlorophyll-a, Uncorrected	7.6		ug/L	P367078	
2099578	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold			P366402	
2099582	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	86		MPN/100 mL		

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: Longboat Key@Bishops Bayou

Collection Date/Time: 06/27/2019 11:45

Field ID: G3SW0052

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099574	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.6	I	ug/L	P367078	
		Phaeophytin-a	2.2	U	ug/L	P367078	
		Chlorophyll-a, Uncorrected	2.5	I	ug/L	P367078	
2099583	Enterolert/QT	Enterococci-Quanti-Tray	85		MPN/100 mL		
2099584	SM 9222 D	Fecal Coliforms-Membrane Filter	23		cfu/100 mL		

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: Wares Creek Tidal by Watertower

Collection Date/Time: 06/27/2019 10:30

Field ID: G2SW0108

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099575	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.6		ug/L	P367078	
		Phaeophytin-a	2.2	U	ug/L	P367078	
		Chlorophyll-a, Uncorrected	7.5		ug/L	P367078	

Field ID: G2SW0108

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099579	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P367129	LCS
	SOP-PCR-1.2	GULL2-qPCR**	5.6E+03	U	TSC/100 mL	P367129	
	SOP-PCR-1.3	GFD-purified-qPCR**	110	UJ	TSC/100 mL	P367347	MS
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P367129	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold			P366402	
2099585	Enterolert/QT	Enterococci-Quanti-Tray	3654		MPN/100 mL		

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.

SOP-PCR-1.0: Precision data unavailable for Analysis Batch A92935

SOP-PCR-1.2: Precision data unavailable for Analysis Batch A93006

SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.

Sample Location: Wares Crk @ 9th Ave

Collection Date/Time: 06/27/2019 10:15

Field ID: G2SW0029

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099576	SM 10200 H (mod.)	Chlorophyll-a, Corrected	11		ug/L	P367078	
		Phaeophytin-a	1.8	U	ug/L	P367078	
		Chlorophyll-a, Uncorrected	11		ug/L	P367078	
2099580	SOP-PCR-1.0	HF183-qPCR**	550		GEU/100 mL	P367129	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold			P366402	
2099586	Enterolert/QT	Enterococci-Quanti-Tray	2481		MPN/100 mL		

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.

SOP-PCR-1.0: Precision data unavailable for Analysis Batch A92935

Quality Assurance Report

Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P367078

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: P367129

Component	Result	Code	Units
HF183-qPCR	280	U	GEU/100 mL

Reference Method: SOP-PCR-1.2

Batch ID: P367129

Component	Result	Code	Units
GULL2-qPCR	1.7E+04	U	TSC/100 mL

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.3
Batch ID: P367347

Component	Result	Code	Units
GFD-purified-qPCR	340	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P367129

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P367078

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	88.4		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P367129

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	146	185	P/F	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P367129

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	119	243	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P367347

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	106	54.0	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P367129

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	82.1	84.6	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P367129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2099579	HF183-qPCR	127		P	50 - 175
2099580	HF183-qPCR	99.4		P	50 - 175
2103031	HF183-qPCR	123		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P367129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2103085	HF183-qPCR	118		P	50 - 175
2103086	HF183-qPCR	61.2		P	50 - 175
2103713	HF183-qPCR	97.2		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P367129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2099579	GULL2-qPCR	106		P	50 - 300
2103315	GULL2-qPCR	120		P	50 - 300
2103317	GULL2-qPCR	132		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P367347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098288	GFD-purified-qPCR	204		F	50 - 175
2098810	GFD-purified-qPCR	170		P	50 - 175
2098811	GFD-purified-qPCR	217		F	50 - 175
2098812	GFD-purified-qPCR	204		F	50 - 175
2099579	GFD-purified-qPCR	195		F	50 - 175
2100818	GFD-purified-qPCR	221		F	50 - 175
2103315	GFD-purified-qPCR	247	230	F/F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P367129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2099579	BacR-qPCR	64.1		P	50 - 175
2102672	BacR-qPCR	51.3	54.6	P/P	50 - 175
2102673	BacR-qPCR	57.9		P	50 - 175
2102674	BacR-qPCR	52.6		P	50 - 175
2103031	BacR-qPCR	64.7		P	50 - 175
2103085	BacR-qPCR	73.1		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P367078

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2099572	Chlorophyll-a, Uncorrected	9.63	Sample	P	0 - 25
2099572	Phaeophytin-a	5.14	Sample	P	0 - 25

Reference Method: SOP-PCR-1.3

Batch ID: P367347

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SOP-PCR-1.3
Batch ID: P367347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2103315	GFD-purified-qPCR	7.21	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P367129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102672	BacR-qPCR	6.66	Spike	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 2099579
Field Sample ID: G2SW0108

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	99.3	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	117	P	50 - 300

Lab Sample ID: 2099580
Field Sample ID: G2SW0029

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	100	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	88.4							
	Chlorophyll-a, Uncorrected							9.63	
	Phaeophytin-a							5.14	
SOP-PCR-1.0	HF183-qPCR	185	146	127	99.4	123			
				118					
SOP-PCR-1.2	GULL2-qPCR	243	119	106	120	132			
SOP-PCR-1.3	GFD-purified-qPCR	54.0	106	247	230	204			7.21
				170					
SOP-PCR-1.4	BacR-qPCR	84.6	82.1	51.3	54.6	57.9			6.66
				52.6					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E84167	Enterococci by Enterolert/QT by BEA in Palmetto	2099583, 2099585, 2099586, 2099587

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2099572, 2099573, 2099574, 2099575, 2099576
SM 9222 D / E84167	Fecal coliforms by MF by BEA in Palmetto	2099584
SM 9223 B Quanti-Tray / E84167	E. coli by Colilert/QT by BEA in Palmetto	2099581, 2099582
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2099579, 2099580
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2099579
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2099579
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2099579
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2099577, 2099578, 2099579, 2099580

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	06/27/2019	06/27/2019 13:07		06/28/2019 13:22	Benchmark EnviroAnalytical - Palmetto	2099583, 2099585, 2099586, 2099587
SM 10200 H (mod.)	06/28/2019	06/28/2019 14:42	Yuliya Danyuk	07/11/2019 09:28	Yuliya Danyuk	2099572, 2099573, 2099574, 2099575, 2099576
SM 9222 D	06/27/2019	06/27/2019 13:36		06/28/2019 12:28	Benchmark EnviroAnalytical - Palmetto	2099584
SM 9223 B Quanti-Tray	06/27/2019	06/27/2019 13:22		06/28/2019 13:32	Benchmark EnviroAnalytical - Palmetto	2099581, 2099582
SOP-PCR-1.0	06/28/2019	06/28/2019 14:30	Angela Smith	07/22/2019 10:15	Mailin Lopez	2099579, 2099580
SOP-PCR-1.2	06/28/2019	06/28/2019 14:30	Sarah Menz	07/24/2019 08:07	Mailin Lopez	2099579
SOP-PCR-1.3	06/28/2019	06/28/2019 14:30	Angela Smith	07/25/2019 11:09	Mailin Lopez	2099579
SOP-PCR-1.4	06/28/2019	06/28/2019 14:30	Angela Smith	07/23/2019 08:08	Mailin Lopez	2099579
SOP-PCR-4.0	06/28/2019	06/28/2019 14:30	Angela Smith	07/15/2019 09:21	Sarah Menz	2099577, 2099578, 2099579, 2099580