

Biological Analysis Report

NW-DIST-2019-10-16-01

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

Overflow Analyses Performed By:
University of West Florida
11000 University Parkway
Pensacola, FL 32514
DOH Accreditation E71969

Event Description: **PACE RUN**
Request ID: **RQ-2019-10-14-40**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
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Attn: Cheryl Bunch

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Date Certified: 14-NOV-2019 14:58



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: Manning Creek upstream of Manning Creek Rd **Collection Date/Time: 10/15/2019 10:00**

Field ID: G4NW0435

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2128736	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.89	U	ug/L	P373178	
		Phaeophytin-a	0.98	U	ug/L	P373178	
		Chlorophyll-a, Uncorrected	0.65	U	ug/L	P373178	
2128741	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	2064		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: Big Coldwater Creek West Fork upstream of Walling Rd **Collection Date/Time: 10/15/2019 10:40**

Field ID: G4NW0436

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2128737	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.96	U	ug/L	P373178	
		Phaeophytin-a	1.0	U	ug/L	P373178	
		Chlorophyll-a, Uncorrected	1.1	I	ug/L	P373178	
2128742	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1296		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: Pace Mill Creek upstream of Hwy 90 **Collection Date/Time: 10/15/2019 11:45**

Field ID: G4NW0481

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2128738	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.0	U	ug/L	P373178	
		Phaeophytin-a	3.2	U	ug/L	P373178	
		Chlorophyll-a, Uncorrected	2.2	U	ug/L	P373178	
2128743	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	546		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: Carpenter Creek upstream of 9th Avenue **Collection Date/Time: 10/15/2019 12:20**

Field ID: G4NW0415

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2128739	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P373178	
		Phaeophytin-a	0.90	U	ug/L	P373178	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P373178	
2128744	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	228		MPN/100 mL		
2128751	SOP-PCR-1.0	HF183-qPCR**	980		GEU/100 mL	P372542	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P372542	LCS
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P372542	

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: Carpenter Creek upstream of 9th Avenue **Collection Date/Time: 10/15/2019 12:25**

Field ID: G4NW0415_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2128740	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P373178	
		Phaeophytin-a	0.90	U	ug/L	P373178	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P373178	
2128745	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	374		MPN/100 mL		
2128752	SOP-PCR-1.0	HF183-qPCR**	2.11E+03		GEU/100 mL	P372542	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P372542	LCS
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P372542	

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: Duplicate was analyzed and result is 290 I.

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P373178

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.96	U	ug/L
Chlorophyll-a, Uncorrected	0.70	U	ug/L
Phaeophytin-a	1.0	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P372542

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

Reference Method: SOP-PCR-1.4
Batch ID: P372542

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

Reference Method: SOP-PCR-1.5
Batch ID: P372542

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: P373178

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	108		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P372542

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P372542

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	102	1080	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P372542

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	55.2	237	P/F	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P372542

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	86.0	120	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P372542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128288	HF183-qPCR	129		P	50 - 175
2128289	HF183-qPCR	101		P	50 - 175
2128618	HF183-qPCR	125		P	50 - 175
2128619	HF183-qPCR	99.0		P	50 - 175
2128751	HF183-qPCR	126		P	50 - 175
2128752	HF183-qPCR	87.9	90.9	P/P	50 - 175
2129101	HF183-qPCR	91.3		P	50 - 175
2129102	HF183-qPCR	137		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P372542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128288	BacR-qPCR	92.2		P	50 - 175
2128289	BacR-qPCR	92.9		P	50 - 175
2128647	BacR-qPCR	66.2		P	50 - 175
2128648	BacR-qPCR	77.0		P	50 - 175
2128649	BacR-qPCR	81.0		P	50 - 175
2128650	BacR-qPCR	87.2		P	50 - 175
2128651	BacR-qPCR	88.4		P	50 - 175
2128652	BacR-qPCR	78.7		P	50 - 175
2128751	BacR-qPCR	81.6		P	50 - 175
2128752	BacR-qPCR	76.2	86.4	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P372542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128647	DG3-qPCR	93.1		P	50 - 175
2128648	DG3-qPCR	102		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.5
Batch ID: P372542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128649	DG3-qPCR	96.8		P	50 - 175
2128650	DG3-qPCR	98.8		P	50 - 175
2128651	DG3-qPCR	93.3		P	50 - 175
2128652	DG3-qPCR	87.9		P	50 - 175
2128751	DG3-qPCR	92.7		P	50 - 175
2128752	DG3-qPCR	80.2	88.8	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P373178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128473	Chlorophyll-a, Corrected	11.4	Sample	P	0 - 25
2128473	Chlorophyll-a, Uncorrected	9.53	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P372542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128752	HF183-qPCR	3.57	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P372542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128752	BacR-qPCR	12.4	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P372542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128752	DG3-qPCR	10.2	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2128751
Field Sample ID: G4NW0415

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	128	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	122	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 2128751
 Field Sample ID: G4NW0415

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.5	SKETA-qPCR	104	P	50 - 300

Lab Sample ID: 2128752
 Field Sample ID: G4NW0415_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	121	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	117	P	50 - 300
SOP-PCR-1.5	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	108			11.4	
	Chlorophyll-a, Uncorrected				9.53	
SOP-PCR-1.0	HF183-qPCR	1080 102	129 101 125 99.0			3.57
SOP-PCR-1.4	BacR-qPCR	237 55.2	92.2 92.9 66.2 77.0			12.4
SOP-PCR-1.5	DG3-qPCR	120 86.0	93.1 102 96.8 98.8			10.2

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2128736, 2128737, 2128738, 2128739, 2128740
SM 9223 B Quanti-Tray / E71969	E. coli by Colilert-18/QT by UWF in Pensacola	2128741, 2128742, 2128743, 2128744, 2128745
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2128751, 2128752
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2128751, 2128752
SOP-PCR-1.5 / E31780	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2128751, 2128752

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	10/16/2019	10/16/2019 13:42	Yuliya Danyuk	10/24/2019 10:08	Carina A. Tull	2128736, 2128737, 2128738, 2128739, 2128740
SM 9223 B Quanti-Tray	10/15/2019	10/15/2019 14:55		10/16/2019 11:28	UWF Lab	2128741, 2128742, 2128743, 2128744, 2128745
SOP-PCR-1.0	10/16/2019	10/16/2019 14:00	Angela Smith	11/01/2019 09:57	Lauren Campbell	2128751, 2128752
SOP-PCR-1.4	10/16/2019	10/16/2019 14:00	Angela Smith	11/06/2019 11:25	Lauren Campbell	2128751, 2128752
SOP-PCR-1.5	10/16/2019	10/16/2019 14:00	Angela Smith	11/06/2019 13:58	Lauren Campbell	2128751, 2128752