

Biological Analysis Report

NW-DIST-2017-09-29-01

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: **ENR C WBID 49A 722 742 789 712 BLANK DUP**
Request ID: **RQ-2017-09-25-18**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208A
Pensacola, FL 32502-5794
Attn: Michael King

For additional information please contact
Cheryl Swanson - Administrator
J. Marshall Faircloth - Aquatic Toxicology
Jacqueline Savage - Bench Biology
Jacqueline Savage - Microbiology
Puja Jasrotia, Ph.D. - Molecular Biology
Jennifer Walters - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Jacqueline Savage, Environmental Specialist III

Date Certified: 21-DEC-2017 14:20



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 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: Rocky Bayou Mouth

Collection Date/Time: 09/28/2017 11:20

Field ID: G3NW0031

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932798	SM 10200 H (mod.)	Chlorophyll-a, Corrected	9.0	A	ug/L	P332848	
		Phaeophytin-a	0.40	U	ug/L	P332848	
		Chlorophyll-a, Uncorrected	9.3	A	ug/L	P332848	

Ref. Method and Comment:

SM 10200 H (mod.): Laboratory duplicate result is 0.40 U for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: Rocky Bayou Mouth

Collection Date/Time: 09/28/2017 11:20

Field ID: G3NW0031

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932808	Enterolert/QT	Enterococci-Quanti-Tray	10	U	MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	3	B	cfu/100 mL		

Sample Location: Rocky Bayou Mouth

Collection Date/Time: 09/28/2017 11:20

Field ID: G3NW0031

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932814	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Mullet Creek upstream of Hwy 20

Collection Date/Time: 09/28/2017 12:00

Field ID: G3NW0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932799	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.75	I	ug/L	P332848	
		Phaeophytin-a	0.40	U	ug/L	P332848	
		Chlorophyll-a, Uncorrected	0.95	I	ug/L	P332848	

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: Mullet Creek upstream of Hwy 20

Collection Date/Time: 09/28/2017 12:00

Field ID: G3NW0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932809	Enterolert/QT	Enterococci-Quanti-Tray	355		MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	250		cfu/100 mL		

Sample Location: Mullet Creek upstream of Hwy 20

Collection Date/Time: 09/28/2017 12:00

Field ID: G3NW0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932815	SOP-PCR-1.0	HF183-qPCR**	9.2	T	GEU/100 mL	P334071	
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P332183	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: Precision data unavailable.

SOP-PCR-1.4: No amplification of BACR marker.

Sample Location: Basin Bayou at Inlet

Collection Date/Time: 09/28/2017 12:35

Field ID: G3NW0101

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932800	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.8		ug/L	P332848	
		Phaeophytin-a	0.40	U	ug/L	P332848	
		Chlorophyll-a, Uncorrected	2.0		ug/L	P332848	

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: Basin Bayou at Inlet

Collection Date/Time: 09/28/2017 12:35

Field ID: G3NW0101

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932810	Enterolert/QT	Enterococci-Quanti-Tray	10	U	MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	10	B	cfu/100 mL		

Sample Location: Basin Bayou at Inlet

Collection Date/Time: 09/28/2017 12:40

Field ID: G3NW0101DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932801	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.9		ug/L	P332848	
		Phaeophytin-a	0.40	U	ug/L	P332848	
		Chlorophyll-a, Uncorrected	2.0		ug/L	P332848	

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: Basin Bayou at Inlet

Collection Date/Time: 09/28/2017 12:40

Field ID: G3NW0101DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932811	Enterolert/QT	Enterococci-Quanti-Tray	10	U	MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	11	B	cfu/100 mL		

Sample Location: Basin Bayou at Inlet

Collection Date/Time: 09/28/2017 12:45

Field ID: FIELDBLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932802	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P332848	
		Phaeophytin-a	0.40	U	ug/L	P332848	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P332848	

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: Basin Bayou at Inlet

Collection Date/Time: 09/28/2017 12:45

Field ID: FIELDBLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932812	Enterolert/QT	Enterococci-Quanti-Tray	1	U	MPN/100 mL		

Field ID: FIELDBLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932812	SM 9222 D	Fecal Coliforms-Membrane Filter	1	U	cfu/100 mL		

Sample Location: LaGrange Bayou, Middle

Collection Date/Time: 09/28/2017 13:30

Field ID: G3NW0036

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932803	SM 10200 H (mod.)	Chlorophyll-a, Corrected	11		ug/L	P332850	
		Phaeophytin-a	0.77	I	ug/L	P332850	
		Chlorophyll-a, Uncorrected	12		ug/L	P332850	

Sample Location: Basin Bayou at Inlet

Collection Date/Time: 09/28/2017 12:35

Field ID: G3NW0101

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932857	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P332183	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:
SOP-PCR-1.4: No amplification of BACR marker.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P332848

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Reference Method: SM 10200 H (mod.)

Batch ID: P332850

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Reference Method: SOP-PCR-1.0

Batch ID: P334071

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

Reference Method: SOP-PCR-1.4

Batch ID: P332183

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: P332848

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	101		P	84 - 116

Reference Method: SM 10200 H (mod.)
Batch ID: P332850

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	104		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P334071

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	65.4	112	P/P	50 - 175
HF183-qPCR	57.6	89.3	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P332183

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	74.4	174	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P334071

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932535	HF183-qPCR	105		P	50 - 175
1932815	HF183-qPCR	91.0		P	50 - 175
1932959	HF183-qPCR	88.0		P	50 - 175
1933345	HF183-qPCR	62.2		P	50 - 175
1933697	HF183-qPCR	97.2		P	50 - 175
1939984	HF183-qPCR	79.8	70.7	P/P	50 - 175
1939985	HF183-qPCR	81.7		P	50 - 175
1940220	HF183-qPCR	87.2		P	50 - 175
1940221	HF183-qPCR	98.7		P	50 - 175
1940222	HF183-qPCR	75.5		P	50 - 175
1940825	HF183-qPCR	99.2		P	50 - 175
1940826	HF183-qPCR	64.4		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P332183

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932815	BacR-qPCR	85.2		P	50 - 175
1932857	BacR-qPCR	74.3	67.0	P/P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P332848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932798	Chlorophyll-a, Corrected	3.77	Sample	P	0 - 25
1932798	Chlorophyll-a, Uncorrected	4.55	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
 Batch ID: P332850

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932863	Chlorophyll-a, Corrected	1.67	Sample	P	0 - 25
1932863	Chlorophyll-a, Uncorrected	0.634	Sample	P	0 - 25
1932863	Phaeophytin-a	6.79	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P334071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939984	HF183-qPCR	12.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P332183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932857	BacR-qPCR	10.4	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: 1932815
 Field Sample ID: G3NW0137

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	79.8	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	93.7	P	50 - 300

Lab Sample ID: 1932857
 Field Sample ID: G3NW0101

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	94.5	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision LCS	Precision SMP	Precision MS
-------------	---------	----------------	---------------	------------------	------------------	-----------------

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision	MS
									SMP	
SM 10200 H (mod.)	Chlorophyll-a, Corrected	101							3.77	
	Chlorophyll-a, Corrected	104							1.67	
	Chlorophyll-a, Uncorrected								4.55	
	Chlorophyll-a, Uncorrected								0.634	
	Phaeophytin-a								6.79	
SOP-PCR-1.0	HF183-qPCR	65.4	89.3	57.6	91.0	79.8	70.7			12.1
		112			81.7					
SOP-PCR-1.4	BacR-qPCR	174	74.4		85.2	74.3	67.0			10.4

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E71969	Enterococci by Enterolert Quanti-Tray method by UWF Overflow Laboratory for NWD	1932808, 1932809, 1932810, 1932811, 1932812
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1932798, 1932799, 1932800, 1932801, 1932802, 1932803
SM 9222 D / E71969	Fecal coliforms by membrane filter method by UWF Overflow Laboratory for NWD	1932808, 1932809, 1932810, 1932811, 1932812
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1932815
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1932815, 1932857
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1932814, 1932815, 1932857

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	09/28/2017	09/28/2017 16:25		09/29/2017 17:10	UWF Lab	1932808, 1932809, 1932810, 1932811, 1932812
SM 10200 H (mod.)	09/29/2017	09/29/2017 14:15	Jennifer Mihalic	10/05/2017	Kim M. Spencer	1932798, 1932799, 1932800, 1932801, 1932802, 1932803
SM 9222 D	09/28/2017	09/28/2017 17:10		09/29/2017 16:05	UWF Lab	1932808, 1932809, 1932810, 1932811, 1932812
SOP-PCR-1.0	09/29/2017	09/29/2017 14:00	Sarah Menz	11/03/2017	Sarah Menz	1932815
SOP-PCR-1.4	09/29/2017	09/29/2017 14:00	Avril Wood	10/03/2017	Sarah Menz	1932815, 1932857
SOP-PCR-4.0	09/29/2017	09/29/2017 14:00	Avril Wood	10/30/2017	Puja Jasrotia	1932814, 1932815, 1932857