Biological Analysis Report

NW-DIST-2018-06-19-02

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: **Bayou Chico BMAP Source Blank**
Request ID: **RQ-2018-05-14-17**
Customer: **NW-DIST**
Project ID: **BMAP**

Send Reports to:
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160 Government Center
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Date Certified: 01-AUG-2018 10:48

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: Pensacola Bay at Sanders Beach **Collection Date/Time: 06/18/2018 10:10**

Field ID: 33020J10 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001842	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.9		ug/L	P347675	
		Phaeophytin-a	0.44	I	ug/L	P347675	
		Chlorophyll-a, Uncorrected	4.3		ug/L	P347675	

Sample Location: Bayou Chico at Mandalay Drive **Collection Date/Time: 06/18/2018 10:40**

Field ID: 33020JD4 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001843	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.4		ug/L	P347675	
		Phaeophytin-a	0.65	I	ug/L	P347675	
		Chlorophyll-a, Uncorrected	6.0		ug/L	P347675	
2001850	Enterolert/QT	Enterococci-Quanti-Tray	20		MPN/100 mL		

Sample Location: Jones Creek at Old Corry Road **Collection Date/Time: 06/18/2018 11:05**

Field ID: 33020118 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001844	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.6		ug/L	P347675	
		Phaeophytin-a	0.57	I	ug/L	P347675	
		Chlorophyll-a, Uncorrected	6.1		ug/L	P347675	
2001851	Enterolert/QT	Enterococci-Quanti-Tray	121		MPN/100 mL		

Sample Location: Jackson Creek at Old Corry Road **Collection Date/Time: 06/18/2018 11:25**

Field ID: 33020221 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001840	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.62	I	ug/L	P347675	
		Phaeophytin-a	0.40	U	ug/L	P347675	
		Chlorophyll-a, Uncorrected	0.71	I	ug/L	P347675	
2001848	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	331		MPN/100 mL		
2001855	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P347054	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Jones Creek Upstream of New Warrington Rd **Collection Date/Time: 06/18/2018 12:10**

Field ID: 33020117 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001841	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.3	I	ug/L	P347675	
		Phaeophytin-a	0.78	I	ug/L	P347675	
		Chlorophyll-a, Uncorrected	1.9		ug/L	P347675	
2001849	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	480		MPN/100 mL		
2001856	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P347054	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P347054	
	SOP-PCR-1.3	GFD-purified-qPCR**	190	I	TSC/100 mL	P348222	MS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P347054	LCS

Field ID: 33020117 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001856	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
SOP-PCR-1.2: Precision data unavailable for Analysis Batch A85146.
SOP-PCR-1.4: Precision data unavailable for Analysis Batch A85127.

Sample Location: Bayou Chico at Navy Blvd Bridge **Collection Date/Time: 06/18/2018 13:40**

Field ID: 33020JE20 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001838	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.2		ug/L	P347675	
		Phaeophytin-a	0.57	I	ug/L	P347675	
		Chlorophyll-a, Uncorrected	7.8		ug/L	P347675	
2001846	Enterolert/QT	Enterococci-Quanti-Tray	20		MPN/100 mL		
2001853	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P347054	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Bayou Chico at W St. Bridge **Collection Date/Time: 06/18/2018 14:00**

Field ID: 33020JF1 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001839	SM 10200 H (mod.)	Chlorophyll-a, Corrected	8.3		ug/L	P347675	
		Phaeophytin-a	1.6		ug/L	P347675	
		Chlorophyll-a, Uncorrected	9.5		ug/L	P347675	
2001847	Enterolert/QT	Enterococci-Quanti-Tray	63		MPN/100 mL		
2001854	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P347054	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Jackson Creek at New Warrington Road **Collection Date/Time: 06/18/2018 12:00**

Field ID: 33020222 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001845	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.1		ug/L	P347675	
		Phaeophytin-a	0.43	I	ug/L	P347675	
		Chlorophyll-a, Uncorrected	2.4		ug/L	P347675	
2001852	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	223		MPN/100 mL		

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P347675

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

Quality Assurance Report
Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P347054

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

Reference Method: SOP-PCR-1.2
Batch ID: P347054

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

Reference Method: SOP-PCR-1.3
Batch ID: P348222

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

Reference Method: SOP-PCR-1.4
Batch ID: P347054

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P347675

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	92.4		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P347054

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	116	140	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P347054

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	63.2	119	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P348222

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	113	79.8	P/P	50 - 175

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P347054

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	384	76.2	F/P	50 - 175
BacR-qPCR	135	82.8	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P347054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969181	HF183-qPCR	89.9		P	50 - 175
1996157	HF183-qPCR	84.6		P	50 - 175
1996529	HF183-qPCR	86.8		P	50 - 175
2000468	HF183-qPCR	111		P	50 - 175
2000469	HF183-qPCR	107		P	50 - 175
2000534	HF183-qPCR	102		P	50 - 175
2000535	HF183-qPCR	96.8		P	50 - 175
2001853	HF183-qPCR	99.5		P	50 - 175
2001854	HF183-qPCR	112	106	P/P	50 - 175
2001855	HF183-qPCR	104		P	50 - 175
2001856	HF183-qPCR	95.0		P	50 - 175
2002922	HF183-qPCR	91.5		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P347054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2000535	GULL2-qPCR	67.2		P	50 - 300
2001856	GULL2-qPCR	70.7		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P348222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001769	GFD-purified-qPCR	143		P	50 - 175
2001856	GFD-purified-qPCR	125		P	50 - 175
2002721	GFD-purified-qPCR	0.0		F	50 - 175
2002843	GFD-purified-qPCR	128		P	50 - 175
2009401	GFD-purified-qPCR	163	146	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P347054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996157	BacR-qPCR	125		P	50 - 175
1996529	BacR-qPCR	60.6		P	50 - 175
2000535	BacR-qPCR	59.9		P	50 - 175
2001856	BacR-qPCR	50.1		P	50 - 175
2002194	BacR-qPCR	73.1		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P347675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001865	Chlorophyll-a, Corrected	4.17	Sample	P	0 - 25
2001865	Chlorophyll-a, Uncorrected	4.10	Sample	P	0 - 25
2001865	Phaeophytin-a	3.80	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P347054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001854	HF183-qPCR	4.96	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P348222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009401	GFD-purified-qPCR	11.1	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: 2001853
Field Sample ID: 33020JE20

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	105	P	50 - 300

Lab Sample ID: 2001854
Field Sample ID: 33020JF1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	98.6	P	50 - 300
SOP-PCR-1.0	SKETA-qPCR	97.4	P	50 - 300

Lab Sample ID: 2001855
Field Sample ID: 33020221

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	105	P	50 - 300

Lab Sample ID: 2001856
Field Sample ID: 33020117

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	105	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	94.1	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	93.6	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	92.4			4.17	
	Chlorophyll-a, Uncorrected				4.10	
	Phaeophytin-a				3.80	
SOP-PCR-1.0	HF183-qPCR	140 116	86.8 111 107 102			4.96
SOP-PCR-1.2	GULL2-qPCR	119 63.2	67.2 70.7			
SOP-PCR-1.3	GFD-purified-qPCR	79.8 113	125 128 143 0.0			11.1
SOP-PCR-1.4	BacR-qPCR	384 82.8 135 76.2	60.6 73.1 125 59.9			

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E71969	Enterococci by Enterolert Quanti-Tray method by UWF Laboratory	2001846, 2001847, 2001850, 2001851
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2001838, 2001839, 2001840, 2001841, 2001842, 2001843, 2001844, 2001845
SM 9223 Quanti-Tray / E71969	Escherichia coli by Colilert 18 Quanti-Tray method by UWF Laboratory	2001848, 2001849, 2001852
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2001853, 2001854, 2001855, 2001856
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2001856
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2001856
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2001856
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2001853, 2001854, 2001855, 2001856

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	06/18/2018	06/18/2018 16:30		06/19/2018 17:00	UWF Lab	2001846, 2001847, 2001850, 2001851
SM 10200 H (mod.)	06/19/2018	06/20/2018 08:21	Mariam Hanna	06/26/2018 13:55	Carina A. Tull	2001838, 2001839, 2001840, 2001841, 2001842, 2001843, 2001844, 2001845
SM 9223 Quanti-Tray	06/18/2018	06/18/2018 16:55		06/19/2018 13:34	UWF Lab	2001848, 2001849, 2001852
SOP-PCR-1.0	06/19/2018	06/19/2018 13:55	Sarah Menz	06/25/2018 15:54	Mailin Lopez	2001853, 2001854, 2001855, 2001856
SOP-PCR-1.2	06/19/2018	06/19/2018 13:55	Sarah Menz	07/11/2018 10:32	Sarah Menz	2001856
SOP-PCR-1.3	06/19/2018	06/19/2018 13:55	Sarah Menz	07/23/2018 09:23	Sarah Menz	2001856
SOP-PCR-1.4	06/19/2018	06/19/2018 13:55	Sarah Menz	07/10/2018 15:39	Sarah Menz	2001856
SOP-PCR-4.0	06/19/2018	06/19/2018 13:55	Angela Smith	07/09/2018 09:36	Puja Jasrotia	2001853, 2001854, 2001855, 2001856