

Biological Analysis Report

NW-DIST-2018-10-16-01

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: **Bayou Chico BMAP Source Blank**
Request ID: **RQ-2018-09-17-09**
Customer: **NW-DIST**
Project ID: **BMAP**

Send Reports to:
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160 Government Center
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Date Certified: 16-NOV-2018 16:50



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: Jones Creek Upstream of New Warrington Rd **Collection Date/Time: 10/15/2018 13:30**

Field ID: 33020117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2032830	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P353578	
		Phaeophytin-a	0.60	U	ug/L	P353578	
		Chlorophyll-a, Uncorrected	0.59	I	ug/L	P353578	
2032839	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	231		MPN/100 mL		
2032847	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P352839	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Jones Creek Upstream of New Warrington Rd **Collection Date/Time: 10/15/2018 13:35**

Field ID: 33020117 DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2032831	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.69	U	ug/L	P353578	
		Phaeophytin-a	0.75	U	ug/L	P353578	
		Chlorophyll-a, Uncorrected	0.73	I	ug/L	P353578	
2032840	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	259		MPN/100 mL		
2032848	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P352839	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Jackson Creek at Old Corry Road **Collection Date/Time: 10/15/2018 12:30**

Field ID: 33020221

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2032832	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.5	I	ug/L	P353578	
		Phaeophytin-a	0.61	I	ug/L	P353578	
		Chlorophyll-a, Uncorrected	1.9		ug/L	P353578	
2032841	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	631		MPN/100 mL		
2032849	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P352839	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P352839	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	U	TSC/100 mL	P354126	LCS, MS, RPD
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P352839	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

SOP-PCR-1.2: Precision data unavailable for Analysis Batch A87590

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A87549

Sample Location: Bayou Chico at W St. Bridge **Collection Date/Time: 10/15/2018 15:25**

Field ID: 33020JF1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2032828	SM 10200 H (mod.)	Chlorophyll-a, Corrected	33	A	ug/L	P353578	
		Phaeophytin-a	5.4	A	ug/L	P353578	
		Chlorophyll-a, Uncorrected	37	A	ug/L	P353578	
2032837	Enterolert/QT	Enterococci-Quanti-Tray	74		MPN/100 mL		
2032845	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P352839	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Bayou Chico at Navy Blvd Bridge

Collection Date/Time: 10/15/2018 15:00

Field ID: 3302JE20

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2032829	SM 10200 H (mod.)	Chlorophyll-a, Corrected	10		ug/L	P353578	
		Phaeophytin-a	1.4	I	ug/L	P353578	
		Chlorophyll-a, Uncorrected	12		ug/L	P353578	
2032838	Enterolert/QT	Enterococci-Quanti-Tray	10		MPN/100 mL		
2032846	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P352839	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Pensacola Bay at Sanders Beach

Collection Date/Time: 10/15/2018 11:00

Field ID: 33020J10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2032833	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.3		ug/L	P353611	
		Phaeophytin-a	0.60	U	ug/L	P353611	
		Chlorophyll-a, Uncorrected	2.0		ug/L	P353611	

Sample Location: Jones Creek at Old Corry Road

Collection Date/Time: 10/15/2018 11:55

Field ID: 33020118

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2032834	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.5	I	ug/L	P353611	
		Phaeophytin-a	0.60	U	ug/L	P353611	
		Chlorophyll-a, Uncorrected	1.1	I	ug/L	P353611	
2032842	Enterolert/QT	Enterococci-Quanti-Tray	195		MPN/100 mL		

Sample Location: Bayou Chico at Mandalay Drive

Collection Date/Time: 10/15/2018 11:20

Field ID: 33020JD4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2032835	SM 10200 H (mod.)	Chlorophyll-a, Corrected	11		ug/L	P353611	
		Phaeophytin-a	0.60	U	ug/L	P353611	
		Chlorophyll-a, Uncorrected	12		ug/L	P353611	
2032843	Enterolert/QT	Enterococci-Quanti-Tray	20		MPN/100 mL		

Sample Location: Jackson Creek at New Warrington Road

Collection Date/Time: 10/15/2018 13:05

Field ID: 33020222

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2032836	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.0	I	ug/L	P353611	
		Phaeophytin-a	0.82	U	ug/L	P353611	
		Chlorophyll-a, Uncorrected	1.5	I	ug/L	P353611	
2032844	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	238		MPN/100 mL		

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P353578

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.60	U	ug/L

Reference Method: SM 10200 H (mod.)
Batch ID: P353611

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.60	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P352839

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

Reference Method: SOP-PCR-1.2
Batch ID: P352839

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

Reference Method: SOP-PCR-1.3
Batch ID: P354126

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

Reference Method: SOP-PCR-1.4
Batch ID: P352839

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: P353578

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	98.7		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P353611

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.0		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P352839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	110	130	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P352839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	179	131	P/P	50 - 300
GULL2-qPCR	131	102	P/P	50 - 300
GULL2-qPCR	179	123	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P354126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	145	32.4	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P352839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	184	126	F/P	50 - 175
BacR-qPCR	311	102	F/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P352839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028729	HF183-qPCR	100		P	50 - 175
2029548	HF183-qPCR	103		P	50 - 175
2032519	HF183-qPCR	95.7		P	50 - 175
2032845	HF183-qPCR	99.4		P	50 - 175
2032846	HF183-qPCR	102	96.0	P/P	50 - 175
2032847	HF183-qPCR	79.5		P	50 - 175
2032848	HF183-qPCR	84.4		P	50 - 175
2032849	HF183-qPCR	104		P	50 - 175
2033938	HF183-qPCR	99.7		P	50 - 175
2033939	HF183-qPCR	108		P	50 - 175
2034669	HF183-qPCR	103		P	50 - 175
2034670	HF183-qPCR	95.3		P	50 - 175
2034671	HF183-qPCR	100		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.2

Batch ID: P352839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2029548	GULL2-qPCR	84.1	84.1	P/P	50 - 300
2032849	GULL2-qPCR	121		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P354126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030527	GFD-purified-qPCR	123		P	50 - 175
2030628	GFD-purified-qPCR	109		P	50 - 175
2031964	GFD-purified-qPCR	111		P	50 - 175
2032849	GFD-purified-qPCR	141		P	50 - 175
2038796	GFD-purified-qPCR	208	147	F/P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P352839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2029548	BacR-qPCR	88.1		P	50 - 175
2032519	BacR-qPCR	108		P	50 - 175
2032849	BacR-qPCR	91.7		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P353578

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2032828	Chlorophyll-a, Corrected	0.597	Sample	P	0 - 25
2032828	Chlorophyll-a, Uncorrected	0.823	Sample	P	0 - 25
2032828	Phaeophytin-a	3.12	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)

Batch ID: P353611

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2032901	Chlorophyll-a, Corrected	3.65	Sample	P	0 - 25
2032901	Chlorophyll-a, Uncorrected	3.81	Sample	P	0 - 25
2032901	Phaeophytin-a	6.00	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0

Batch ID: P352839

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2032846	HF183-qPCR	6.35	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.3
Batch ID: P354126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2038796	GFD-purified-qPCR	34.2	Spike	F	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P352839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026987	BacR-qPCR	16.2	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: 2032845
Field Sample ID: 33020JF1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	92.0	P	50 - 300

Lab Sample ID: 2032846
Field Sample ID: 3302JE20

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	93.0	P	50 - 300

Lab Sample ID: 2032847
Field Sample ID: 33020117

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	83.8	P	50 - 300

Lab Sample ID: 2032848
Field Sample ID: 33020117 DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	86.7	P	50 - 300

Lab Sample ID: 2032849
Field Sample ID: 33020221

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	100	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	113	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	139	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision	MS
									SMP	
SM 10200 H (mod.)	Chlorophyll-a, Corrected	98.7							0.597	
	Chlorophyll-a, Corrected	97.0							3.65	
	Chlorophyll-a, Uncorrected								0.823	
	Chlorophyll-a, Uncorrected								3.81	
	Phaeophytin-a								3.12	
	Phaeophytin-a								6.00	
SOP-PCR-1.0	HF183-qPCR	130	110		99.4	102	96.0			6.35
SOP-PCR-1.2	GULL2-qPCR	179	131	123	79.5	121	84.1			
		102			84.1	121	84.1			
SOP-PCR-1.3	GFD-purified-qPCR	32.4	145		208	147	123			34.2
SOP-PCR-1.4	BacR-qPCR	184	102	311	109	88.1	108			16.2
		126			91.7	88.1	108			

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E71969	Enterococci by Enterolert Quanti-Tray method by UWF Laboratory in Pensacola	2032837, 2032838, 2032842, 2032843
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2032828, 2032829, 2032830, 2032831, 2032832, 2032833, 2032834, 2032835, 2032836
SM 9223 B Quanti-Tray / E71969	Escherichia coli by Colilert 18 Quanti-Tray method by UWF Laboratory in Pensacola	2032839, 2032840, 2032841, 2032844
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2032845, 2032846, 2032847, 2032848, 2032849
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2032849
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2032849
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2032849
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2032845, 2032846, 2032847, 2032848, 2032849

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	10/15/2018	10/15/2018 17:51		10/16/2018 18:17	UWF Lab	2032837, 2032838, 2032842, 2032843
SM 10200 H (mod.)	10/16/2018	10/16/2018 14:20	Mariam Hanna	10/23/2018 17:40	Peterson Janvier	2032828, 2032829, 2032830, 2032831, 2032832
	10/16/2018	10/16/2018 14:20	Mariam Hanna	10/24/2018 07:15	Peterson Janvier	2032833, 2032834, 2032835, 2032836
SM 9223 B Quanti-Tray	10/15/2018	10/15/2018 17:55		10/16/2018 13:21	UWF Lab	2032839, 2032840, 2032841, 2032844
SOP-PCR-1.0	10/16/2018	10/16/2018 14:30	Sarah Menz	10/22/2018 11:48	Mailin Lopez	2032845, 2032846, 2032847, 2032848, 2032849
SOP-PCR-1.2	10/16/2018	10/16/2018 14:30	Sarah Menz	11/07/2018 09:59	Mailin Lopez	2032849
SOP-PCR-1.3	10/16/2018	10/16/2018 14:30	Angela Smith	11/07/2018 15:48	Sarah Menz	2032849
SOP-PCR-1.4	10/16/2018	10/16/2018 14:30	Sarah Menz	11/06/2018 10:40	Mailin Lopez	2032849
SOP-PCR-4.0	10/16/2018	10/16/2018 14:30	Angela Smith	10/30/2018 13:44	Sarah Menz	2032845, 2032846, 2032847, 2032848, 2032849