

Biological Analysis Report

NW-DIST-2016-09-20-01

Florida Department of Environmental Protection
Central Laboratory
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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**
Request ID: **RQ-2016-09-19-15**
Customer: **NW-DIST**
Project ID: **BMAP**

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

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Certified by: Daisys Matthews,

Date Certified: 19-OCT-2016 10:26

A handwritten signature in black ink, appearing to read "D Matthews". The signature is stylized with a large, sweeping initial "D" and a cursive "Matthews".

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, Microbiology 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: 09/19/2016 10:10

Field ID: A

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832676	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.2		ug/L	P312237	
		Phaeophytin-a	0.47	I	ug/L	P312237	
		Chlorophyll/Phaeophytin Ratio	1.6			P312237	
		Chlorophyll-a, Uncorrected	4.6		ug/L	P312237	
1832683	SM 9222 D	Fecal Coliforms-Membrane Filter	58		cfu/100 mL		
1832690	SOP-PCR01	HF183-qPCR**	1.0E+03	U	GEU/100 mL	P311207	

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-PCR01: No amplification of HF183 marker.

Sample Location: BAYOU CHICO @ MANDALAY PARK

Collection Date/Time: 09/19/2016 10:35

Field ID: B

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832677	SM 10200 H (mod.)	Chlorophyll-a, Corrected	26	A	ug/L	P312237	
		Phaeophytin-a	0.99	I	ug/L	P312237	
		Chlorophyll/Phaeophytin Ratio	1.7	A		P312237	
		Chlorophyll-a, Uncorrected	27	A	ug/L	P312237	
1832684	EPA 1600 (MF)	Enterococci-Membrane Filter	104		cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	325	B	cfu/100 mL		
1832691	SOP-PCR01	HF183-qPCR**	1.4E+03	U	GEU/100 mL	P311207	

Ref. Method and Comment:

SM 10200 H (mod.): Laboratory duplicate result is 0.97 I for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

SM 9222 D: Verified

SOP-PCR01: No amplification of HF183 marker.

Sample Location: JONES CREEK @ OLD CORRY ROAD

Collection Date/Time: 09/19/2016 11:10

Field ID: C

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832678	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.98	I	ug/L	P312237	
		Phaeophytin-a	0.40	U	ug/L	P312237	
		Chlorophyll/Phaeophytin Ratio	1.7			P312237	
		Chlorophyll-a, Uncorrected	1.0	I	ug/L	P312237	
1832685	EPA 1600 (MF)	Enterococci-Membrane Filter	300		cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	177	B	cfu/100 mL		
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	259		MPN/100 mL		
1832692	SOP-PCR01	HF183-qPCR**	6.8E+03	U	GEU/100 mL	P312287	

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-PCR01: No amplification of HF183 marker. Precision data unavailable due to inhibition in QC sample.

Sample Location: JACKSON CREEK @ OLD CORRY ROAD

Collection Date/Time: 09/19/2016 11:40

Field ID: D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832679	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.77	I	ug/L	P312237	
		Phaeophytin-a	0.40	U	ug/L	P312237	
		Chlorophyll/Phaeophytin Ratio	1.8			P312237	
		Chlorophyll-a, Uncorrected	0.76	I	ug/L	P312237	
1832686	SM 9222 D	Fecal Coliforms-Membrane Filter	1464	B	cfu/100 mL		
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	933		MPN/100 mL		
1832693	SOP-PCR01	HF183-qPCR**	3.96E+04		GEU/100 mL	P311207	

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: JACKSON CREEK AT NEW WARRINGTON ROAD

Collection Date/Time: 09/19/2016 12:10

Field ID: E

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832680	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.59	I	ug/L	P312237	
		Phaeophytin-a	0.40	U	ug/L	P312237	
		Chlorophyll/Phaeophytin Ratio	1.7			P312237	
		Chlorophyll-a, Uncorrected	0.59	I	ug/L	P312237	
1832687	SM 9222 D	Fecal Coliforms-Membrane Filter	490		cfu/100 mL		
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	404		MPN/100 mL		
1832694	SOP-PCR01	HF183-qPCR**	9.49E+03		GEU/100 mL	P311207	

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: BAYOU CHICO @ NAVY BLVD BRIDGE

Collection Date/Time: 09/19/2016 13:30

Field ID: F

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832681	SM 10200 H (mod.)	Chlorophyll-a, Corrected	14		ug/L	P312237	
		Phaeophytin-a	0.53	I	ug/L	P312237	
		Chlorophyll/Phaeophytin Ratio	1.7			P312237	
		Chlorophyll-a, Uncorrected	15		ug/L	P312237	
1832688	EPA 1600 (MF)	Enterococci-Membrane Filter	14	B	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	189	B	cfu/100 mL		
1832695	SOP-PCR01	HF183-qPCR**	1.4E+03	U	GEU/100 mL	P311207	

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-PCR01: No amplification of HF183 marker.

Sample Location: BAYOU CHICO @ W STREET

Collection Date/Time: 09/19/2016 13:50

Field ID: G

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832682	SM 10200 H (mod.)	Chlorophyll-a, Corrected	16		ug/L	P312237	
		Phaeophytin-a	2.7		ug/L	P312237	

Field ID: G

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832682	SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio	1.6			P312237	
		Chlorophyll-a, Uncorrected	19		ug/L	P312237	
1832689	EPA 1600 (MF)	Enterococci-Membrane Filter	200		cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	260		cfu/100 mL		
1832696	SOP-PCR01	HF183-qPCR**	1.4E+03	U	GEU/100 mL	P311207	

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.

EPA 1600 (MF): Verified

SOP-PCR01: No amplification of HF183 marker.

Sample Location: FIELD BLANK

Collection Date/Time: 09/19/2016 14:05

Field ID: FIELD BLANK

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834138	EPA 1600 (MF)	Enterococci-Membrane Filter	1	U	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	1	U	cfu/100 mL		
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	2	U	MPN/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P312237

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-PCR01

Batch ID: P311207

Component	Result	Code	Units
HF183-qPCR	4.1E+03	U	GEU/100 mL

Reference Method: SOP-PCR01

Batch ID: P312287

Component	Result	Code	Units
HF183-qPCR	4.1E+03	U	GEU/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)

Batch ID: P312237

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	106		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR01
Batch ID: P311207

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	76.3	101	P/P	50 - 175

Reference Method: SOP-PCR01
Batch ID: P312287

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	75.3	51.4	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR01
Batch ID: P311207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1831897	HF183-qPCR	70.9		P	50 - 175
1831898	HF183-qPCR	81.7		P	50 - 175
1831899	HF183-qPCR	79.8	70.4	P/P	50 - 175
1831900	HF183-qPCR	64.7		P	50 - 175
1831901	HF183-qPCR	83.1		P	50 - 175
1832690	HF183-qPCR	101		P	50 - 175
1832691	HF183-qPCR	103		P	50 - 175
1832693	HF183-qPCR	102		P	50 - 175
1832694	HF183-qPCR	74.4		P	50 - 175
1832695	HF183-qPCR	97.2		P	50 - 175
1832696	HF183-qPCR	76.8		P	50 - 175

Reference Method: SOP-PCR01
Batch ID: P312287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828498	HF183-qPCR	106		P	50 - 175
1828800	HF183-qPCR	113		P	50 - 175
1829657	HF183-qPCR	107		P	50 - 175
1830496	HF183-qPCR	108		P	50 - 175
1832615	HF183-qPCR	94.6		P	50 - 175
1832617	HF183-qPCR	104		P	50 - 175
1832692	HF183-qPCR	109		P	50 - 175
1833516	HF183-qPCR	107		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P312237

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832677	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1832677	Chlorophyll-a, Corrected	0.687	Sample	P	0 - 25
1832677	Chlorophyll-a, Uncorrected	0.635	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR01
Batch ID: P311207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1831899	HF183-qPCR	12.5	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: 1832690
Field Sample ID: A

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	99.2	P	50 - 300

Lab Sample ID: 1832691
Field Sample ID: B

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	57.7	P	50 - 300

Lab Sample ID: 1832692
Field Sample ID: C

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	100	P	50 - 300

Lab Sample ID: 1832693
Field Sample ID: D

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	99.6	P	50 - 300

Lab Sample ID: 1832694
Field Sample ID: E

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	102	P	50 - 300

Lab Sample ID: 1832695
Field Sample ID: F

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	82.8	P	50 - 300

Lab Sample ID: 1832696
Field Sample ID: G

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	91.2	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision	MS
								SMP	
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio							0.0	
	Chlorophyll-a, Corrected	106						0.687	
	Chlorophyll-a, Uncorrected							0.635	
SOP-PCR01	HF183-qPCR	101	76.3	70.9	81.7	79.8			12.5
				70.4					
	HF183-qPCR	51.4	75.3	106	113	107			
				108					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1600 (MF) / E71969	Enterococci by membrane filter method by UWF Overflow Laboratory for NWD	1832684, 1832685, 1832688, 1832689, 1834138
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1832676, 1832677, 1832678, 1832679, 1832680, 1832681, 1832682
SM 9222 D / E71969	Fecal coliforms by membrane filter method by UWF Overflow Laboratory for NWD	1832683, 1832684, 1832685, 1832686, 1832687, 1832688, 1832689, 1834138
SM 9223 Quanti-Tray / E71969	Escherichia coli by Colilert 18 Quanti-Tray method by UWF Overflow Laboratory for NWD	1832685, 1832686, 1832687, 1834138
SOP-PCR01 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1832690, 1832691, 1832692, 1832693, 1832694, 1832695, 1832696

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1600 (MF)	09/19/2016			09/19/2016 15:42	UWF Lab	1832684
	09/19/2016			09/19/2016 15:45	UWF Lab	1832685
	09/19/2016			09/19/2016 15:49	UWF Lab	1832688
	09/19/2016			09/19/2016 15:56	UWF Lab	1832689
	09/19/2016			09/19/2016 15:59	UWF Lab	1834138
SM 10200 H (mod.)	09/20/2016	09/20/2016 13:20	Jennifer Mihalic	09/30/2016	Kim M. Spencer	1832676, 1832677, 1832678, 1832679, 1832680, 1832681, 1832682
SM 9222 D	09/19/2016			09/19/2016 16:02	UWF Lab	1832683
	09/19/2016			09/19/2016 16:09	UWF Lab	1832684
	09/19/2016			09/19/2016 16:14	UWF Lab	1832685
	09/19/2016			09/19/2016 16:16	UWF Lab	1834138
	09/19/2016			09/19/2016 16:21	UWF Lab	1832686
	09/19/2016			09/19/2016 16:24	UWF Lab	1832687
	09/19/2016			09/19/2016 16:26	UWF Lab	1832688
	09/19/2016			09/19/2016 16:30	UWF Lab	1832689
SM 9223 Quanti-Tray	09/19/2016			09/19/2016 15:38	UWF Lab	1832685
	09/19/2016			09/19/2016 15:40	UWF Lab	1832686
	09/19/2016			09/19/2016 15:44	UWF Lab	1832687
	09/19/2016			09/19/2016 15:46	UWF Lab	1834138
SOP-PCR01	09/20/2016	09/20/2016 13:00	Sarah Menz	09/26/2016	Sarah Menz	1832690, 1832691, 1832693, 1832694, 1832695, 1832696
	09/20/2016	09/20/2016 13:00	Sarah Menz	10/03/2016	Sarah Menz	1832692