

Biological Analysis Report

NW-DIST-2016-08-16-01

Florida Department of Environmental Protection
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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-2016-08-15-12**
Customer: **NW-DIST**
Project ID: **BMAP**

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Date Certified: 03-OCT-2016 15:51



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: 08/15/2016 10:20

Field ID: A

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823632	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.6		ug/L	P310265	
		Phaeophytin-a	4.1		ug/L	P310265	
		Chlorophyll/Phaeophytin Ratio	1.5			P310265	
		Chlorophyll-a, Uncorrected	10		ug/L	P310265	
1823639	SM 9222 D	Fecal Coliforms-Membrane Filter	128	B	cfu/100 mL		
1823646	SOP-PCR01	GULL2-qPCR**	9.3E+04	I	TSC/100 mL	P309793	
		HF183-qPCR**	1.4E+03	U	GEU/100 mL	P309793	

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 AT MANDALAY PARK

Collection Date/Time: 08/15/2016 10:45

Field ID: B

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823633	SM 10200 H (mod.)	Chlorophyll-a, Corrected	10		ug/L	P310265	
		Phaeophytin-a	0.52	I	ug/L	P310265	
		Chlorophyll/Phaeophytin Ratio	1.7			P310265	
		Chlorophyll-a, Uncorrected	11		ug/L	P310265	
1823640	EPA 1600 (MF)	Enterococci-Membrane Filter	6	B	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	106		cfu/100 mL		
1823647	SOP-PCR01	GULL2-qPCR**	6.9E+04	U	TSC/100 mL	P309793	
		HF183-qPCR**	1.4E+03	U	GEU/100 mL	P309793	

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 GULL2 marker.

SOP-PCR01: No amplification of HF183 marker.

Sample Location: JONES CREK AT OLD CORRY ROAD

Collection Date/Time: 08/15/2016 11:25

Field ID: C

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823634	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.58	I	ug/L	P310265	
		Phaeophytin-a	0.40	U	ug/L	P310265	
		Chlorophyll/Phaeophytin Ratio	1.8			P310265	
		Chlorophyll-a, Uncorrected	0.56	I	ug/L	P310265	
1823641	EPA 1600 (MF)	Enterococci-Membrane Filter	230		cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	210		cfu/100 mL		
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	272		MPN/100 mL		
1823648	SOP-PCR01	GULL2-qPCR**	1.0E+05	U	TSC/100 mL	P309793	
		HF183-qPCR**	2.0E+03	U	GEU/100 mL	P309793	

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 GULL2 marker.

SOP-PCR01: No amplification of HF183 marker.

Sample Location: JACKSON CREEK AT OLD CORRY ROAD

Collection Date/Time: 08/15/2016 11:50

Field ID: D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823635	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P310265	
		Phaeophytin-a	0.40	U	ug/L	P310265	
		Chlorophyll/Phaeophytin Ratio	2.2			P310265	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P310265	
1823642	SM 9222 D	Fecal Coliforms-Membrane Filter	340		cfu/100 mL		
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	341		MPN/100 mL		
1823649	SOP-PCR01	GULL2-qPCR**	6.9E+04	U	TSC/100 mL	P309793	
		HF183-qPCR**	298	T	GEU/100 mL	P309793	

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.

SM 9222 D: Verified

SOP-PCR01: No amplification of GULL2 marker.

Sample Location: JACKSON CREEK AT NEW WARRINGTON ROAD

Collection Date/Time: 08/15/2016 12:10

Field ID: E

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823636	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P310265	
		Phaeophytin-a	0.40	U	ug/L	P310265	
		Chlorophyll/Phaeophytin Ratio	1.8			P310265	
		Chlorophyll-a, Uncorrected	0.41	I	ug/L	P310265	
1823643	SM 9222 D	Fecal Coliforms-Membrane Filter	420		cfu/100 mL		
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	480		MPN/100 mL		
1823650	SOP-PCR01	GULL2-qPCR**	6.9E+04	U	TSC/100 mL	P309793	
		HF183-qPCR**	732	T	GEU/100 mL	P309793	

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 GULL2 marker.

Sample Location: BAYOU CHICO AT NAVY BLVD. BRIDGE

Collection Date/Time: 08/15/2016 13:40

Field ID: F

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823637	SM 10200 H (mod.)	Chlorophyll-a, Corrected	30		ug/L	P310265	
		Phaeophytin-a	1.2	I	ug/L	P310265	
		Chlorophyll/Phaeophytin Ratio	1.7			P310265	
		Chlorophyll-a, Uncorrected	32		ug/L	P310265	
1823644	EPA 1600 (MF)	Enterococci-Membrane Filter	100	B	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	148	B	cfu/100 mL		
1823651	SOP-PCR01	GULL2-qPCR**	6.9E+04	U	TSC/100 mL	P309793	
		HF183-qPCR**	1.4E+03	U	GEU/100 mL	P309793	

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 GULL2 marker.

SOP-PCR01: No amplification of HF183 marker.

Sample Location: BAYOU CHICO AT W STREET

Collection Date/Time: 08/15/2016 14:10

Field ID: G

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823638	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.6	A	ug/L	P310265	
		Phaeophytin-a	0.57	U	ug/L	P310265	
		Chlorophyll/Phaeophytin Ratio	1.6	A		P310265	
		Chlorophyll-a, Uncorrected	5.1	A	ug/L	P310265	
1823645	EPA 1600 (MF)	Enterococci-Membrane Filter	94		cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	791	B	cfu/100 mL		
1823652	SOP-PCR01	GULL2-qPCR**	6.9E+04	U	TSC/100 mL	P309793	
		HF183-qPCR**	1.4E+03	U	GEU/100 mL	P309793	

Ref. Method and Comment:

SM 10200 H (mod.): Laboratory duplicate result is 0.57 U for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

SOP-PCR01: No amplification of GULL2 marker.

SOP-PCR01: No amplification of HF183 marker.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P310265

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: P309793

Component	Result	Code	Units
GULL2-qPCR	4.2E+04	U	TSC/100 mL
HF183-qPCR	4.1E+03	U	GEU/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)

Batch ID: P310265

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	94.3		P	84 - 116

Reference Method: SOP-PCR01

Batch ID: P309793

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	104	99.5	P/P	50 - 300
HF183-qPCR	94.8	144	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR01
Batch ID: P309793

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1823646	GULL2-qPCR	143		P	50 - 300
1823646	HF183-qPCR	126		P	50 - 175
1823647	GULL2-qPCR	153		P	50 - 300
1823647	HF183-qPCR	126		P	50 - 175
1823648	GULL2-qPCR	162	165	P/P	50 - 300
1823648	HF183-qPCR	98.1	89.5	P/P	50 - 175
1823649	GULL2-qPCR	163		P	50 - 300
1823649	HF183-qPCR	106		P	50 - 175
1823650	GULL2-qPCR	215		P	50 - 300
1823650	HF183-qPCR	115		P	50 - 175
1823651	GULL2-qPCR	262		P	50 - 300
1823651	HF183-qPCR	96.9		P	50 - 175
1823652	GULL2-qPCR	225		P	50 - 300
1823652	HF183-qPCR	105		P	50 - 175
1824952	HF183-qPCR	121		P	50 - 175
1824953	HF183-qPCR	125		P	50 - 175
1824954	HF183-qPCR	122		P	50 - 175
1824955	HF183-qPCR	124		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P310265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823638	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1823638	Chlorophyll-a, Corrected	2.01	Sample	P	0 - 25
1823638	Chlorophyll-a, Uncorrected	2.47	Sample	P	0 - 25

Reference Method: SOP-PCR01
Batch ID: P309793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823648	GULL2-qPCR	1.33	Spike	P	0 - 25
1823648	HF183-qPCR	9.14	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: 1823646
Field Sample ID: A

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	143	P	50 - 300
SOP-PCR01	SKETA-qPCR	98.1	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 1823647
 Field Sample ID: B

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	134	P	50 - 300
SOP-PCR01	SKETA-qPCR	89.1	P	50 - 300

Lab Sample ID: 1823648
 Field Sample ID: C

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	142	P	50 - 300
SOP-PCR01	SKETA-qPCR	73.4	P	50 - 300

Lab Sample ID: 1823649
 Field Sample ID: D

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	142	P	50 - 300
SOP-PCR01	SKETA-qPCR	101	P	50 - 300

Lab Sample ID: 1823650
 Field Sample ID: E

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	151	P	50 - 300
SOP-PCR01	SKETA-qPCR	99.2	P	50 - 300

Lab Sample ID: 1823651
 Field Sample ID: F

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	133	P	50 - 300
SOP-PCR01	SKETA-qPCR	76.0	P	50 - 300

Lab Sample ID: 1823652
 Field Sample ID: G

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	148	P	50 - 300
SOP-PCR01	SKETA-qPCR	102	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision
				LCS			SMP
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio						0.0
	Chlorophyll-a, Corrected	94.3					2.01
	Chlorophyll-a, Uncorrected						2.47
SOP-PCR01	GULL2-qPCR	99.5	104	262	143	153	
				162			
	HF183-qPCR	144	94.8	126	126	98.1	
				89.5			
							1.33
							9.14

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1600 (MF) / E71969	Enterococci by membrane filter method by UWF Overflow Laboratory for NWD	1823640, 1823641, 1823644, 1823645
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1823632, 1823633, 1823634, 1823635, 1823636, 1823637, 1823638
SM 9222 D / E71969	Fecal coliforms by membrane filter method by UWF Overflow Laboratory for NWD	1823639, 1823640, 1823641, 1823642, 1823643, 1823644, 1823645
SM 9223 Quanti-Tray / E71969	Escherichia coli by Colilert 18 Quanti-Tray method by UWF Overflow Laboratory for NWD	1823641, 1823642, 1823643
SOP-PCR01 / E31780	Detection and quantification of coastal bird specific <i>Catelliboccus marimammalium</i> genetic marker with quantitative polymerase chain reaction	1823646, 1823647, 1823648, 1823649, 1823650, 1823651, 1823652
SOP-PCR01 / E31780	Detection and quantification of human-specific HF183 <i>Bacteroides</i> genetic marker with quantitative polymerase chain reaction	1823646, 1823647, 1823648, 1823649, 1823650, 1823651, 1823652

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1600 (MF)	08/15/2016			08/15/2016 15:58	UWF Lab	1823640
	08/15/2016			08/15/2016 16:05	UWF Lab	1823641
	08/15/2016			08/15/2016 16:09	UWF Lab	1823644
	08/15/2016			08/15/2016 16:13	UWF Lab	1823645
SM 10200 H (mod.)	08/16/2016	08/16/2016 13:13	Carina A. Tull	08/24/2016	Amelia G. Rankin	1823632, 1823633, 1823634, 1823635, 1823636, 1823637, 1823638
SM 9222 D	08/15/2016			08/15/2016 16:27	UWF Lab	1823639
	08/15/2016			08/15/2016 16:33	UWF Lab	1823640
	08/15/2016			08/15/2016 16:37	UWF Lab	1823641
	08/15/2016			08/15/2016 16:40	UWF Lab	1823642
	08/15/2016			08/15/2016 16:44	UWF Lab	1823643
	08/15/2016			08/15/2016 16:47	UWF Lab	1823644
SM 9223 Quanti-Tray	08/15/2016			08/15/2016 16:51	UWF Lab	1823645
	08/15/2016			08/15/2016 15:37	UWF Lab	1823641
	08/15/2016			08/15/2016 15:41	UWF Lab	1823642
	08/15/2016			08/15/2016 15:43	UWF Lab	1823643
SOP-PCR01	08/16/2016	08/16/2016 12:30	Sarah Menz	08/24/2016	Sarah Menz	1823646, 1823647, 1823648, 1823649, 1823650, 1823652
	08/16/2016	08/16/2016 12:30	Sarah Menz	08/26/2016	Sarah Menz	1823646, 1823647, 1823648, 1823649, 1823650, 1823651, 1823652
	08/16/2016	08/16/2016 12:30	Sarah Menz	08/30/2016	Sarah Menz	1823651