

Biological Analysis Report

NW-DIST-2018-04-17-02

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**
Request ID: **RQ-2018-03-12-21**
Customer: **NW-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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
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Thekkekalathil Chandrasekhar, Ph.D, QA Officer
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 13-JUL-2018 16:06



NON-CONFORMANCE REPORT INCLUDED

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, 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: Bayou Chico at W St. Bridge

Collection Date/Time: 04/16/2018 14:50

Field ID: 33020JF1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984947	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.7		ug/L	P344346	
		Phaeophytin-a	0.84	I	ug/L	P344346	
		Chlorophyll-a, Uncorrected	4.3		ug/L	P344346	

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 at W St. Bridge

Collection Date/Time: 04/16/2018 14:50

Field ID: 33020JF1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984961	Enterolert/QT	Enterococci-Quanti-Tray	48.9	JQ	MPN/100 mL	P343721	
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	410.6	Q	MPN/100 mL	P343721	

Ref. Method and Comment:

Enterolert/QT: See Non-Conformance Report # 6995.

Sample Location: Bayou Chico at Navy Blvd. Bridge

Collection Date/Time: 04/16/2018 14:25

Field ID: 33020JE20

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984948	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.8		ug/L	P344346	
		Phaeophytin-a	0.51	I	ug/L	P344346	
		Chlorophyll-a, Uncorrected	4.2		ug/L	P344346	
2002063	Enterolert/QT	Enterococci-Quanti-Tray	20		MPN/100 mL		

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 Old Corry Road

Collection Date/Time: 04/16/2018 11:10

Field ID: 33020221

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984949	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.7	I	ug/L	P344346	
		Phaeophytin-a	0.45	U	ug/L	P344346	
		Chlorophyll-a, Uncorrected	1.7		ug/L	P344346	
1984967	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	313		MPN/100 mL		
1984971	SOP-PCR-1.0	HF183-qPCR**	630		GEU/100 mL	P342991	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

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: Jones Creek Upstream of New Warrington Rd

Collection Date/Time: 04/16/2018 12:20

Field ID: 33020117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984950	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.8		ug/L	P344346	
		Phaeophytin-a	0.40	U	ug/L	P344346	

Field ID: 33020117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984950	SM 10200 H (mod.)	Chlorophyll-a, Uncorrected	2.1		ug/L	P344346	
1984968	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	171		MPN/100 mL		
1984972	SOP-PCR-1.0	HF183-qPCR**	46	T	GEU/100 mL	P342991	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

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: Pensacola Bay at Sanders Beach

Collection Date/Time: 04/16/2018 09:50

Field ID: 33020J10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984951	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.8		ug/L	P344346	
		Phaeophytin-a	0.40	U	ug/L	P344346	
		Chlorophyll-a, Uncorrected	1.9		ug/L	P344346	

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: Jones Creek at Old Corry Road

Collection Date/Time: 04/16/2018 10:45

Field ID: 33020118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984952	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.2	I	ug/L	P344019	
		Phaeophytin-a	0.40	U	ug/L	P344019	
		Chlorophyll-a, Uncorrected	1.4		ug/L	P344019	

Sample Location: Jones Creek at Old Corry Road

Collection Date/Time: 04/16/2018 10:45

Field ID: 33020118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984962	Enterolert/QT	Enterococci-Quanti-Tray	88.0	JQ	MPN/100 mL	P343721	
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	193.5	Q	MPN/100 mL	P343721	

Ref. Method and Comment:

Enterolert/QT: See Non-Conformance Report # 6995.

Sample Location: Bayou Chico at Mandalay Drive

Collection Date/Time: 04/16/2018 10:15

Field ID: 33020JD4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984953	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.6		ug/L	P344019	
		Phaeophytin-a	0.73	I	ug/L	P344019	
		Chlorophyll-a, Uncorrected	6.2		ug/L	P344019	
2002062	Enterolert/QT	Enterococci-Quanti-Tray	86		MPN/100 mL		

Sample Location: Jackson Creek at New Warrington Rd

Collection Date/Time: 04/16/2018 12:00

Field ID: 33020222

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: 33020222

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984954	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.84	I	ug/L	P344019	
		Phaeophytin-a	0.45	U	ug/L	P344019	
		Chlorophyll-a, Uncorrected	0.78	I	ug/L	P344019	

Sample Location: Jackson Creek at New Warrington Rd

Collection Date/Time: 04/16/2018 12:00

Field ID: 33020222

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984963	Enterolert/QT	Enterococci-Quanti-Tray	No Result	O	MPN/100 mL	P343721	
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	307.6	Q	MPN/100 mL	P343721	

Ref. Method and Comment:
 Enterolert/QT: See Non-Conformance Report # 6999.

Non-Conformance Report

NCR ID: 6995

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
NW-DIST-2018-04-17-02	TLH-2018-04-17-52	1984961	
NW-DIST-2018-04-17-02	TLH-2018-04-17-52	1984962	

NCR Type: ANALYSIS

NCR Category: Analytical Measurement

Observation: Samples for Test ID ENT-24-QT were not sealed properly due to a sealer malfunction.

Resolution: The data will be reported with a J qualifier as a precautionary measure due to possible contamination. The customer, Stephanie Sunderman-Barnes has been contacted.

Authorized by/Date: Colin Wright 6/6/2018

NCR ID: 6999

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
NW-DIST-2018-04-17-02	TLH-2018-04-17-52	1984963	

NCR Type: ANALYSIS

NCR Category: Analytical Measurement

Observation: The sample for Test ID ENT-24-QT was not sealed properly due to a sealer malfunction. Some of the sample was lost.

Resolution: The data will be reported as No Result with an O qualifier. The customer, Stephanie Sunderman-Barnes, has been contacted.

Authorized by/Date: Cheryl A. Swanson 5/1/2018

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
 Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report

Method Blank Results

Reference Method: Enterolert/QT
 Batch ID: P343721

Component	Result	Code	Units
Enterococci-Quanti-Tray	1.0	U	MPN/100 mL

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P344019

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.62	U	ug/L
Chlorophyll-a, Uncorrected	0.45	U	ug/L
Phaeophytin-a	0.45	U	ug/L

Reference Method: SM 10200 H (mod.)
Batch ID: P344346

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 9223 Quanti-Tray
Batch ID: P343721

Component	Result	Code	Units
Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL

Reference Method: SOP-PCR-1.0
Batch ID: P342991

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P344019

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	88.4		P	84 - 116

Reference Method: SM 10200 H (mod.)
Batch ID: P344346

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	92.3		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P342991

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	89.3	104	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P342991

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974132	HF183-qPCR	83.5		P	50 - 175
1974133	HF183-qPCR	82.2		P	50 - 175
1975971	HF183-qPCR	61.3		P	50 - 175
1983204	HF183-qPCR	80.9		P	50 - 175
1983223	HF183-qPCR	66.4	58.9	P/P	50 - 175
1983445	HF183-qPCR	72.4		P	50 - 175
1984969	HF183-qPCR	74.7		P	50 - 175
1984970	HF183-qPCR	72.3		P	50 - 175
1984971	HF183-qPCR	73.6		P	50 - 175
1984972	HF183-qPCR	74.2		P	50 - 175

Quality Assurance Report Precision

Reference Method: Enterolert/QT
Batch ID: P343721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984897	Enterococci-Quanti-Tray	15.1	Sample	P	0 - 80
1985019	Enterococci-Quanti-Tray	44.9	Sample	P	0 - 80

Reference Method: SM 10200 H (mod.)
Batch ID: P344019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985064	Chlorophyll-a, Corrected	0.719	Sample	P	0 - 25
1985064	Chlorophyll-a, Uncorrected	0.831	Sample	P	0 - 25
1985064	Phaeophytin-a	1.44	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P344346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984655	Chlorophyll-a, Uncorrected	19.9	Sample	P	0 - 25
1984655	Phaeophytin-a	20.6	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
Batch ID: P343721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984897	Escherichia Coli-Quanti-Tray	5.03	Sample	P	0 - 80
1985019	Escherichia Coli-Quanti-Tray	44.8	Sample	P	0 - 80

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P342991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983223	HF183-qPCR	12.0	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: 1984971
 Field Sample ID: 33020221

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	89.8	P	50 - 300

Lab Sample ID: 1984972
 Field Sample ID: 33020117

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	108	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
Enterolert/QT	Enterococci-Quanti-Tray								15.1	44.9
SM 10200 H (mod.)	Chlorophyll-a, Corrected	88.4							0.719	
	Chlorophyll-a, Corrected	92.3								
	Chlorophyll-a, Uncorrected								0.831	
	Chlorophyll-a, Uncorrected								19.9	
	Phaeophytin-a								1.44	
	Phaeophytin-a								20.6	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray								5.03	44.8
SOP-PCR-1.0	HF183-qPCR	104	89.3		73.6	74.2	61.3			12.0
					82.2					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E31780	Enterococci by Enterolert Quanti-Tray method - non-chlorinated water systems	1984961, 1984962, 1984963
Enterolert/QT / E71969	Enterococci by Enterolert Quanti-Tray method by UWF Laboratory	2002062, 2002063
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1984947, 1984948, 1984949, 1984950, 1984951, 1984952, 1984953, 1984954
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1984961, 1984962, 1984963
SM 9223 Quanti-Tray / E71969	Escherichia coli by Colilert 18 Quanti-Tray method by UWF Overflow Laboratory for NWD	1984967, 1984968
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1984971, 1984972
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1984971, 1984972

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	04/16/2018	04/16/2018 17:05		04/17/2018 17:30	UWF Lab	2002062, 2002063
	04/17/2018	04/17/2018 15:10	Edwin Gonzalez-Soto	04/18/2018 16:25	Edwin Gonzalez-Soto	1984961, 1984962, 1984963
SM 10200 H (mod.)	04/17/2018	04/17/2018 14:33	Mariam Hanna	04/23/2018 08:25	Carina A. Tull	1984947, 1984948, 1984949, 1984950, 1984951
	04/17/2018	04/17/2018 14:33	Mariam Hanna	04/23/2018 09:15	Carina A. Tull	1984952, 1984953, 1984954
SM 9223 Quanti-Tray	04/16/2018	04/16/2018 17:30		04/17/2018 13:20	UWF Lab	1984967, 1984968
	04/17/2018	04/17/2018 15:10	Edwin Gonzalez-Soto	04/18/2018 11:20	Edwin Gonzalez-Soto	1984961, 1984962, 1984963
SOP-PCR-1.0	04/17/2018	04/17/2018 14:40	Sarah Menz	04/19/2018 13:30	Mailin Lopez	1984971, 1984972
SOP-PCR-4.0	04/17/2018	04/17/2018 14:40	Angela Smith	05/07/2018 15:05	Puja Jasrotia	1984971, 1984972