

Biological Analysis Report

NW-DIST-2018-05-15-02

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 DUP**
Request ID: **RQ-2018-04-09-18**
Customer: **NW-DIST**
Project ID: **BMAP**

Send Reports to:
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160 Government Center
Suite 308
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Report Comment: The matrix for Jones Creek Upstream of New Warrington Rd and Jones Creek at Old Corry Road was changed from W-SURF-SLT to W-SURF-FRH.

Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 03-JUL-2018 17:16



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: Bayou Chico at W St. Bridge

Collection Date/Time: 05/14/2018 14:00

Field ID: 33020JF1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992686	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.8		ug/L	P345762	
		Phaeophytin-a	1.5		ug/L	P345762	
		Chlorophyll-a, Uncorrected	7.9		ug/L	P345762	
1992695	Enterolert/QT	Enterococci-Quanti-Tray	52		MPN/100 mL		
1992703	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P345263	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:
 SOP-PCR-1.0: No amplification of HF183 marker.

Sample Location: Bayou Chico at W St. Bridge

Collection Date/Time: 05/14/2018 14:05

Field ID: 33020JF1_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992687	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.9		ug/L	P345762	
		Phaeophytin-a	2.0		ug/L	P345762	
		Chlorophyll-a, Uncorrected	9.5		ug/L	P345762	
1992696	Enterolert/QT	Enterococci-Quanti-Tray	41		MPN/100 mL		
1992704	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P345263	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:
 SOP-PCR-1.0: No amplification of HF183 marker.

Sample Location: Bayou Chico at Navy Blvd. Bridge

Collection Date/Time: 05/14/2018 13:20

Field ID: 33020JE20

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992688	SM 10200 H (mod.)	Chlorophyll-a, Corrected	10		ug/L	P345818	
		Phaeophytin-a	0.45	U	ug/L	P345818	
		Chlorophyll-a, Uncorrected	11		ug/L	P345818	
1992697	Enterolert/QT	Enterococci-Quanti-Tray	86		MPN/100 mL		
1992705	SOP-PCR-1.0	HF183-qPCR**	1.85E+03		GEU/100 mL	P345263	
	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. Lab blank failure. Chl-a Corr and Uncorr results are >10 times blank

Sample Location: Jones Creek Upstream of New Warrington Rd

Collection Date/Time: 05/14/2018 12:00

Field ID: 33020117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992689	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.0	IV	ug/L	P345818	
		Phaeophytin-a	1.3		ug/L	P345818	
		Chlorophyll-a, Uncorrected	1.9	V	ug/L	P345818	
1992698	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	537		MPN/100 mL		
1992706	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P345263	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Field ID: 33020117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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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. Result V-qualified due to lab blank failure for Chl-a Corr and Uncorr.

Sample Location: Jackson Creek at Old Corry Road

Collection Date/Time: 05/14/2018 11:15

Field ID: 33020221

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1992690	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.1	V	ug/L	P345818	
		Phaeophytin-a	0.73	I	ug/L	P345818	
		Chlorophyll-a, Uncorrected	4.7	V	ug/L	P345818	
1992699	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	275		MPN/100 mL		
1992707	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P345263	
	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. Result V-qualified due to lab blank failure for Chl-a Corr and Uncorr.

Sample Location: Pensacola Bay at Sanders Beach

Collection Date/Time: 05/14/2018 10:00

Field ID: 33020J10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1992691	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.9	V	ug/L	P345818	
		Phaeophytin-a	0.40	U	ug/L	P345818	
		Chlorophyll-a, Uncorrected	3.1	V	ug/L	P345818	

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. Result V-qualified due to lab blank failure for Chl-a Corr and Uncorr.

Sample Location: Bayou Chico at Mandalay Drive

Collection Date/Time: 05/14/2018 10:25

Field ID: 33020JD4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1992692	SM 10200 H (mod.)	Chlorophyll-a, Corrected	8.8		ug/L	P345818	
		Phaeophytin-a	0.91	I	ug/L	P345818	
		Chlorophyll-a, Uncorrected	9.7		ug/L	P345818	
1992700	Enterolert/QT	Enterococci-Quanti-Tray	10		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. Lab blank failure. Chl-a Corr and Uncorr results >10 times blank.

Sample Location: Jones Creek at Old Corry Road

Collection Date/Time: 05/14/2018 10:50

Field ID: 33020118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1992693	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.4	IV	ug/L	P345818	
		Phaeophytin-a	1.1	I	ug/L	P345818	
		Chlorophyll-a, Uncorrected	2.0	V	ug/L	P345818	
1992701	Enterolert/QT	Enterococci-Quanti-Tray	120		MPN/100 mL		

Field ID: 33020118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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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. Result V-qualified due to lab blank failure for Chl-a Corr and Uncorr.

Sample Location: Jackson Creek at New Warrington Road

Collection Date/Time: 05/14/2018 11:40

Field ID: 33020222

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1992694	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.3	V	ug/L	P345818	
		Phaeophytin-a	0.40	U	ug/L	P345818	
		Chlorophyll-a, Uncorrected	2.6	V	ug/L	P345818	
1992702	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	31		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. Result V-qualified due to lab blank failure for Chl-a Corr and Uncorr.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P345762

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 10200 H (mod.)

Batch ID: P345818

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.76	I	ug/L
Chlorophyll-a, Uncorrected	0.71	I	ug/L
Phaeophytin-a	0.40	U	ug/L

Reference Method: SOP-PCR-1.0

Batch ID: P345263

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: P345762

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	94.6		P	84 - 116

Reference Method: SM 10200 H (mod.)

Batch ID: P345818

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P345818

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	94.8		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P345263

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	129	114	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P345263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981928	HF183-qPCR	107		P	50 - 175
1981929	HF183-qPCR	116		P	50 - 175
1986942	HF183-qPCR	101		P	50 - 175
1987901	HF183-qPCR	110	92.7	P/P	50 - 175
1987903	HF183-qPCR	110		P	50 - 175
1987904	HF183-qPCR	113		P	50 - 175
1988267	HF183-qPCR	110		P	50 - 175
1988268	HF183-qPCR	98.8		P	50 - 175
1992703	HF183-qPCR	113		P	50 - 175
1992704	HF183-qPCR	108		P	50 - 175
1992705	HF183-qPCR	108		P	50 - 175
1992706	HF183-qPCR	93.3		P	50 - 175
1992707	HF183-qPCR	113		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P345762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992627	Chlorophyll-a, Corrected	10.7	Sample	P	0 - 25
1992627	Chlorophyll-a, Uncorrected	12.2	Sample	P	0 - 25
1992627	Phaeophytin-a	19.4	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P345818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992784	Chlorophyll-a, Uncorrected	2.27	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P345263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987901	HF183-qPCR	16.9	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: 1992703
Field Sample ID: 33020JF1

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

Lab Sample ID: 1992704
Field Sample ID: 33020JF1_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	107	P	50 - 300

Lab Sample ID: 1992705
Field Sample ID: 33020JE20

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	119	P	50 - 300

Lab Sample ID: 1992706
Field Sample ID: 33020117

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	97.0	P	50 - 300

Lab Sample ID: 1992707
Field Sample ID: 33020221

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			Precision		
							LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	94.6						10.7	
	Chlorophyll-a, Corrected	94.8							
	Chlorophyll-a, Uncorrected							12.2	
	Chlorophyll-a, Uncorrected							2.27	
	Phaeophytin-a							19.4	
SOP-PCR-1.0	HF183-qPCR	114	129	110	113	110			16.9
				98.8					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E71969	Enterococci by Enterolert Quanti-Tray method by UWF Overflow Laboratory for NWD	1992695, 1992696, 1992697, 1992700, 1992701
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1992686, 1992687, 1992688, 1992689, 1992690, 1992691, 1992692, 1992693, 1992694
SM 9223 Quanti-Tray / E71969	Escherichia coli by Colilert 18 Quanti-Tray method by UWF Overflow Laboratory for NWD	1992698, 1992699, 1992702
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1992703, 1992704, 1992705, 1992706, 1992707
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1992703, 1992704, 1992705, 1992706, 1992707

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	05/14/2018	05/14/2018 17:25		05/15/2018 17:50	UWF Lab	1992695, 1992696, 1992697, 1992700, 1992701
SM 10200 H (mod.)	05/15/2018	05/15/2018 13:30	Mariam Hanna	05/22/2018 10:40	Carina A. Tull	1992686, 1992687
	05/15/2018	05/15/2018 13:30	Mariam Hanna	05/23/2018 09:15	Carina A. Tull	1992688, 1992689, 1992690, 1992691, 1992692, 1992693, 1992694
SM 9223 Quanti-Tray	05/14/2018	05/14/2018 17:15		05/15/2018 13:58	UWF Lab	1992698, 1992699, 1992702
SOP-PCR-1.0	05/15/2018	05/15/2018 13:25	Puja Jasrotia	05/16/2018 14:24	Mailin Lopez	1992703, 1992704, 1992705, 1992706, 1992707
SOP-PCR-4.0	05/15/2018	05/15/2018 13:25	Angela Smith	06/04/2018 14:30	Puja Jasrotia	1992703, 1992704, 1992705, 1992706, 1992707