

Biological Analysis Report

NW-DIST-2016-09-07-01

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: **Project Greenshores**
Request ID: **RQ-2016-09-05-57**
Customer: **NW-DIST**
Project ID: **DISTRICT**

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Certified by: Daisys Matthews,

Date Certified: 29-SEP-2016 07:56

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 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: RANGE MARKER EAST OF TEXAR

Collection Date/Time: 09/06/2016 10:39

Field ID: 1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829265	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.94	I	mg/L	P311158	
1829271	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.2		ug/L	P311454	
		Phaeophytin-a	0.40	U	ug/L	P311454	
		Chlorophyll/Phaeophytin Ratio	1.7			P311454	
		Chlorophyll-a, Uncorrected	4.5		ug/L	P311454	
1829281	EPA 1600 (MF)	Enterococci-Membrane Filter	2	U	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	9	B	cfu/100 mL		

Ref. Method and Comment:

SM 5210 B: Precision data is unavailable due to the small amount of analyte in the QC sample.

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: 1/2 BRIDGE AND MUSCOGEE

Collection Date/Time: 09/06/2016 10:54

Field ID: 2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829266	SM 5210 B	Biochemical Oxygen Demand-5 Day	1.4	I	mg/L	P311158	
1829272	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.8		ug/L	P311454	
		Phaeophytin-a	0.40	U	ug/L	P311454	
		Chlorophyll/Phaeophytin Ratio	1.7			P311454	
		Chlorophyll-a, Uncorrected	7.2		ug/L	P311454	
1829282	EPA 1600 (MF)	Enterococci-Membrane Filter	2	U	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	32	B	cfu/100 mL		

Ref. Method and Comment:

SM 5210 B: Precision data is unavailable due to the small amount of analyte in the QC sample.

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: EAST OF PRIMARY STORM DRAIN PGS1

Collection Date/Time: 09/06/2016 11:02

Field ID: 3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829267	SM 5210 B	Biochemical Oxygen Demand-5 Day	1.3	I	mg/L	P311158	
1829273	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.3		ug/L	P311454	
		Phaeophytin-a	0.40	U	ug/L	P311454	
		Chlorophyll/Phaeophytin Ratio	1.7			P311454	
		Chlorophyll-a, Uncorrected	4.7		ug/L	P311454	
1829283	EPA 1600 (MF)	Enterococci-Membrane Filter	2	B	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	9	B	cfu/100 mL		

Ref. Method and Comment:

SM 5210 B: Precision data is unavailable due to the small amount of analyte in the QC sample.

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: 100 FT SOUTH OF OUTFALL

Collection Date/Time: 09/06/2016 11:07

Field ID: 4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: 4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829268	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.42	I	mg/L	P311158	
1829274	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.5		ug/L	P311454	
		Phaeophytin-a	0.40	U	ug/L	P311454	
		Chlorophyll/Phaeophytin Ratio	1.6			P311454	
		Chlorophyll-a, Uncorrected	3.8		ug/L	P311454	
1829284	EPA 1600 (MF)	Enterococci-Membrane Filter	2	U	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	13	B	cfu/100 mL		

Ref. Method and Comment:

SM 5210 B: Precision data is unavailable due to the small amount of analyte in the QC sample.

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: END OF CHASE

Collection Date/Time: 09/06/2016 11:14

Field ID: 5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829269	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.46	I	mg/L	P311158	
1829275	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.8		ug/L	P311454	
		Phaeophytin-a	0.40	U	ug/L	P311454	
		Chlorophyll/Phaeophytin Ratio	1.6			P311454	
		Chlorophyll-a, Uncorrected	3.1		ug/L	P311454	
1829285	EPA 1600 (MF)	Enterococci-Membrane Filter	12	B	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	19	B	cfu/100 mL		

Ref. Method and Comment:

SM 5210 B: Precision data is unavailable due to the small amount of analyte in the QC sample.

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: 1/2 MUSCOGEE AND HAWKSHAW 400FT FROM SHORE

Collection Date/Time: 09/06/2016 11:29

Field ID: 6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829270	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.60	I	mg/L	P311158	
1829276	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.1	A	ug/L	P311454	
		Phaeophytin-a	0.40	U	ug/L	P311454	
		Chlorophyll/Phaeophytin Ratio	1.7	A		P311454	
		Chlorophyll-a, Uncorrected	4.3	A	ug/L	P311454	
1829286	EPA 1600 (MF)	Enterococci-Membrane Filter	4	B	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	13	B	cfu/100 mL		

Ref. Method and Comment:

SM 5210 B: Precision data is unavailable due to the small amount of analyte in the QC sample.

SM 10200 H (mod.): Laboratory duplicate result is 0.40 U for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: 1/2 BRIDGE AND PORT

Collection Date/Time: 09/06/2016 11:45

Field ID: 7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1830420	EPA 1600 (MF)	Enterococci-Membrane Filter	2	U	cfu/100 mL		

Field ID: 7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1830420	SM 9222 D	Fecal Coliforms-Membrane Filter	20	B	cfu/100 mL		

Sample Location: WEST OF STORM DRAIN INSIDE ROCKS

Collection Date/Time: 09/06/2016 11:21

Field ID: 8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1830421	EPA 1600 (MF)	Enterococci-Membrane Filter	12	B	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	33	B	cfu/100 mL		

Sample Location: WEST END OF HAWKSHAW, 100FT SOUTH OF OUTFALL

Collection Date/Time: 09/06/2016 12:18

Field ID: 9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1830422	EPA 1600 (MF)	Enterococci-Membrane Filter	6	B	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	134		cfu/100 mL		

Sample Location: BETWEEN MARINA AND OUTFALL

Collection Date/Time: 09/06/2016 12:13

Field ID: 10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1830423	EPA 1600 (MF)	Enterococci-Membrane Filter	2	B	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	46		cfu/100 mL		

Sample Location: ENTRANCE OF MARINA

Collection Date/Time: 09/06/2016 12:04

Field ID: 11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1830424	EPA 1600 (MF)	Enterococci-Membrane Filter	8	B	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	88		cfu/100 mL		

Sample Location: 1/4 B/W BRIDGE AND PORT 400 FT. FROM SHORE

Collection Date/Time: 09/06/2016 11:51

Field ID: 12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1830425	EPA 1600 (MF)	Enterococci-Membrane Filter	2	B	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	1	U	cfu/100 mL		

Sample Location: 13 INSIDE HAWKSHAW LAGOON

Collection Date/Time: 09/06/2016 12:26

Field ID: 13 INSIDE HAWKSHAW LAGOON

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1830426	EPA 1600 (MF)	Enterococci-Membrane Filter	8	B	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	44		cfu/100 mL		

Sample Location: EAST OF STORM DRAIN INSIDE PG5 SITE Z

Collection Date/Time: 09/06/2016 12:41

Field ID: 14

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1830427	EPA 1600 (MF)	Enterococci-Membrane Filter	4	B	cfu/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	5	B	cfu/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P311454

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 5210 B
 Batch ID: P311158

Component	Result	Code	Units
Biochemical Oxygen Demand-5 Day	0.20	U	mg/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
 Batch ID: P311454

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	107		P	84 - 116

Reference Method: SM 5210 B
 Batch ID: P311158

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Biochemical Oxygen Demand-5 Day	99.0		P	84 - 116

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P311454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829276	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1829276	Chlorophyll-a, Corrected	0.880	Sample	P	0 - 25
1829276	Chlorophyll-a, Uncorrected	1.29	Sample	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 Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio				0.0	
	Chlorophyll-a, Corrected	107			0.880	
	Chlorophyll-a, Uncorrected				1.29	
SM 5210 B	Biochemical Oxygen Demand-5 Day	99.0				

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1600 (MF) / E71969	Enterococci by membrane filter method by UWF Overflow Laboratory for NWD	1829281, 1829282, 1829283, 1829284, 1829285, 1829286, 1830420, 1830421, 1830422, 1830423, 1830424, 1830425, 1830426, 1830427
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1829271, 1829272, 1829273, 1829274, 1829275, 1829276
SM 5210 B / E31780	BOD, NOT nitrogen-inhibited	1829265, 1829266, 1829267, 1829268, 1829269, 1829270
SM 9222 D / E71969	Fecal coliforms by membrane filter method by UWF Overflow Laboratory for NWD	1829281, 1829282, 1829283, 1829284, 1829285, 1829286, 1830420, 1830421, 1830422, 1830423, 1830424, 1830425, 1830426, 1830427

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1600 (MF)	09/06/2016			09/06/2016 15:39	UWF Lab	1830427
	09/06/2016			09/06/2016 15:42	UWF Lab	1830426
	09/06/2016			09/06/2016 15:45	UWF Lab	1830425
	09/06/2016			09/06/2016 15:48	UWF Lab	1830424
	09/06/2016			09/06/2016 15:51	UWF Lab	1830423
	09/06/2016			09/06/2016 15:54	UWF Lab	1830422
	09/06/2016			09/06/2016 15:57	UWF Lab	1830421
	09/06/2016			09/06/2016 16:02	UWF Lab	1830420
	09/06/2016			09/06/2016 16:08	UWF Lab	1829286
	09/06/2016			09/06/2016 16:11	UWF Lab	1829285
	09/06/2016			09/06/2016 16:14	UWF Lab	1829284
	09/06/2016			09/06/2016 16:17	UWF Lab	1829283
	09/06/2016			09/06/2016 16:23	UWF Lab	1829282
	09/06/2016			09/06/2016 16:26	UWF Lab	1829281
SM 10200 H (mod.)	09/07/2016	09/07/2016 14:00	Carina A. Tull	09/19/2016	Kim M. Spencer	1829271, 1829272, 1829273, 1829274, 1829275, 1829276
SM 5210 B	09/07/2016			09/08/2016 09:00	Jennifer Mihalic	1829265, 1829266, 1829267, 1829268, 1829269, 1829270
SM 9222 D	09/06/2016			09/06/2016 15:43	UWF Lab	1829281
	09/06/2016			09/06/2016 15:46	UWF Lab	1829282
	09/06/2016			09/06/2016 15:49	UWF Lab	1829283
	09/06/2016			09/06/2016 15:56	UWF Lab	1829284
	09/06/2016			09/06/2016 16:00	UWF Lab	1829285
	09/06/2016			09/06/2016 16:03	UWF Lab	1829286
	09/06/2016			09/06/2016 16:08	UWF Lab	1830420
	09/06/2016			09/06/2016 16:17	UWF Lab	1830421
	09/06/2016			09/06/2016 16:20	UWF Lab	1830422
	09/06/2016			09/06/2016 16:24	UWF Lab	1830423
	09/06/2016			09/06/2016 16:28	UWF Lab	1830424
	09/06/2016			09/06/2016 16:31	UWF Lab	1830425
	09/06/2016			09/06/2016 16:34	UWF Lab	1830426
	09/06/2016			09/06/2016 16:38	UWF Lab	1830427