

Biological Analysis Report

NW-DIST-2019-08-23-01

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-2019-08-19-12**

Customer: **NW-DIST**

Project ID: **DISTRICT**

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
Jacqueline Savage - Microbiology
Diane Power - Bench Biology
Andrew Tintle - Aquatic Toxicology
Puja Jasrotia, Ph.D. - Molecular Biology
Amelia Rankin - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 19-SEP-2019 08:58



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: 08/22/2019 10:59

Field ID: 1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114169	SM 10200 H (mod.)	Chlorophyll-a, Corrected	40		ug/L	P370110	
		Phaeophytin-a	1.0	U	ug/L	P370110	
		Chlorophyll-a, Uncorrected	42		ug/L	P370110	
2114183	Enterolert/QT	Enterococci-Quanti-Tray	10	U	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: 1/2 BRIDGE AND MUSCOGEE

Collection Date/Time: 08/22/2019 11:15

Field ID: 2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114170	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.0		ug/L	P370110	
		Phaeophytin-a	0.90	U	ug/L	P370110	
		Chlorophyll-a, Uncorrected	6.4		ug/L	P370110	
2114184	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: EAST OF PRIMARY STORMDRAIN PGS1

Collection Date/Time: 08/22/2019 11:22

Field ID: 3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114171	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.4		ug/L	P370110	
		Phaeophytin-a	0.90	U	ug/L	P370110	
		Chlorophyll-a, Uncorrected	6.8		ug/L	P370110	
2114185	Enterolert/QT	Enterococci-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.

Sample Location: 100FT SOUTH OF STORMDRAIN

Collection Date/Time: 08/22/2019 11:30

Field ID: 4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114172	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.3		ug/L	P370110	
		Phaeophytin-a	1.5	U	ug/L	P370110	
		Chlorophyll-a, Uncorrected	6.6		ug/L	P370110	
2114186	Enterolert/QT	Enterococci-Quanti-Tray	75		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: END OF CHASE STREET

Collection Date/Time: 08/22/2019 11:44

Field ID: 5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114173	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.2		ug/L	P370110	

Field ID: 5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114173	SM 10200 H (mod.)	Phaeophytin-a	1.0	U	ug/L	P370110	
		Chlorophyll-a, Uncorrected	7.7		ug/L	P370110	
2114187	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.

Sample Location: 1/2 MUSCOGEE AND HAWKSHAW 400FT FROM SHORE

Collection Date/Time: 08/22/2019 11:52

Field ID: 6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114174	SM 10200 H (mod.)	Chlorophyll-a, Corrected	17		ug/L	P370110	
		Phaeophytin-a	1.0	U	ug/L	P370110	
		Chlorophyll-a, Uncorrected	17		ug/L	P370110	
2114188	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.

Sample Location: 1/2 BRIDGE AND PORT

Collection Date/Time: 08/22/2019 12:00

Field ID: 7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114175	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.2		ug/L	P370110	
		Phaeophytin-a	1.0	U	ug/L	P370110	
		Chlorophyll-a, Uncorrected	6.5		ug/L	P370110	
2114189	Enterolert/QT	Enterococci-Quanti-Tray	10	U	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: WEST OF STORMDRAIN INSIDE ROCKS

Collection Date/Time: 08/22/2019 11:36

Field ID: 8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114176	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.3		ug/L	P370110	
		Phaeophytin-a	1.0	U	ug/L	P370110	
		Chlorophyll-a, Uncorrected	8.2		ug/L	P370110	
2114190	Enterolert/QT	Enterococci-Quanti-Tray	175		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: WEST END OF HAWKSHAW 100FT SOUTH OF OUTFALL

Collection Date/Time: 08/22/2019 12:32

Field ID: 9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114177	SM 10200 H (mod.)	Chlorophyll-a, Corrected	8.2		ug/L	P370110	

Field ID: 9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114177	SM 10200 H (mod.)	Phaeophytin-a	1.0	U	ug/L	P370110	
		Chlorophyll-a, Uncorrected	8.7		ug/L	P370110	
2114191	Enterolert/QT	Enterococci-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.

Sample Location: BETWEEN MARINA AND OUTFALL

Collection Date/Time: 08/22/2019 12:23

Field ID: 10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114178	SM 10200 H (mod.)	Chlorophyll-a, Corrected	17		ug/L	P370110	
		Phaeophytin-a	1.0	U	ug/L	P370110	
		Chlorophyll-a, Uncorrected	18		ug/L	P370110	
2114192	Enterolert/QT	Enterococci-Quanti-Tray	98		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: ENTRANCE OF MARINA

Collection Date/Time: 08/22/2019 12:15

Field ID: 11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114179	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.8		ug/L	P370110	
		Phaeophytin-a	0.90	U	ug/L	P370110	
		Chlorophyll-a, Uncorrected	7.2		ug/L	P370110	
2114193	Enterolert/QT	Enterococci-Quanti-Tray	2359		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: 1/4 BETWEEN BRIDGE AND PORT 400FT FROM SHORE

Collection Date/Time: 08/22/2019 12:05

Field ID: 12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114180	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.5		ug/L	P370276	
		Phaeophytin-a	1.0	U	ug/L	P370276	
		Chlorophyll-a, Uncorrected	6.9		ug/L	P370276	
2114194	Enterolert/QT	Enterococci-Quanti-Tray	10	U	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: INSIDE HAWKSHAW LAGOON

Collection Date/Time: 08/22/2019 12:48

Field ID: 13

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114181	SM 10200 H (mod.)	Chlorophyll-a, Corrected	25		ug/L	P370276	
		Phaeophytin-a	2.3	I	ug/L	P370276	

Field ID: 13

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114181	SM 10200 H (mod.)	Chlorophyll-a, Uncorrected	27		ug/L	P370276	
2114195	Enterolert/QT	Enterococci-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.

Sample Location: EAST OF STORMDRAIN INSIDE PGS SITE 2 **Collection Date/Time: 08/22/2019 12:55**

Field ID: 14

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114182	SM 10200 H (mod.)	Chlorophyll-a, Corrected	13	A	ug/L	P370276	
		Phaeophytin-a	1.5	U	ug/L	P370276	
		Chlorophyll-a, Uncorrected	14	A	ug/L	P370276	
2114196	Enterolert/QT	Enterococci-Quanti-Tray	228		MPN/100 mL		

Ref. Method and Comment:

SM 10200 H (mod.): Laboratory duplicate result is 1.5 U for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P370110

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Reference Method: SM 10200 H (mod.)

Batch ID: P370276

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.96	U	ug/L
Chlorophyll-a, Uncorrected	0.70	U	ug/L
Phaeophytin-a	1.0	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)

Batch ID: P370110

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	87.8		P	84 - 116

Reference Method: SM 10200 H (mod.)

Batch ID: P370276

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	86.0		P	84 - 116

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P370110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113767	Chlorophyll-a, Corrected	3.49	Sample	P	0 - 25
2113767	Chlorophyll-a, Uncorrected	2.80	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P370276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114182	Chlorophyll-a, Corrected	1.94	Sample	P	0 - 25
2114182	Chlorophyll-a, Uncorrected	2.21	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	LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	87.8			3.49	
	Chlorophyll-a, Corrected	86.0			1.94	
	Chlorophyll-a, Uncorrected				2.80	
	Chlorophyll-a, Uncorrected				2.21	

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E71969	Enterococci by Enterolert/QT by UWF in Pensacola	2114183, 2114184, 2114185, 2114186, 2114187, 2114188, 2114189, 2114190, 2114191, 2114192, 2114193, 2114194, 2114195, 2114196
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2114169, 2114170, 2114171, 2114172, 2114173, 2114174, 2114175, 2114176, 2114177, 2114178, 2114179, 2114180, 2114181, 2114182

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	08/22/2019	08/22/2019 17:05		08/23/2019 17:30	UWF Lab	2114183, 2114184, 2114185, 2114186, 2114187, 2114188, 2114189, 2114190, 2114191, 2114192, 2114193, 2114194, 2114195, 2114196
SM 10200 H (mod.)	08/23/2019	08/23/2019 14:15	Jessica Fetgatter	08/29/2019 15:08	Yuliya Danyuk	2114169, 2114170, 2114171, 2114172, 2114173, 2114174, 2114175, 2114176, 2114177, 2114178, 2114179
	08/23/2019	08/23/2019 14:15	Jessica Fetgatter	09/03/2019 13:38	Yuliya Danyuk	2114180, 2114181, 2114182