

Biological Analysis Report

CEN-DIST-2017-03-01-02

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Overflow Analyses Performed By:
Flowers Chemical Laboratories Inc. - Altamonte
Springs
481 Newburyport Avenue
Altamonte Springs, Florida 32701
DOH Accreditation E83018

Event Description: **Rose Bay/Strickland x2/Spruce (s)/UnBranch 2642**
Request ID: **RQ-2017-02-20-44**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

For additional information please contact
Cheryl Swanson - Administrator
J. Marshall Faircloth - Aquatic Toxicology
Jacqueline Savage - Bench Biology
Jacqueline Savage - Microbiology
Daisys Matthews - Molecular Biology
Jennifer Walters - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8177

Certified by: Cheryl A. Swanson, Environmental Manager

Date Certified: 10-APR-2017 15:40



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: Strickland Bay @ 875M East (Downstream) of RR crossing **Collection Date/Time: 02/28/2017 10:30**

Field ID: G5CE0074

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876403	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.1		ug/L	P321025	
		Phaeophytin-a	0.86	IV	ug/L	P321025	
		Chlorophyll/Phaeophytin Ratio	1.5			P321025	
		Chlorophyll-a, Uncorrected	3.7		ug/L	P321025	

Sample Location: Unnamed Branch @ 750M US of Confluence w/ Tomoka River **Collection Date/Time: 02/28/2017 12:38**

Field ID: G5CE0017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876404	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.7		ug/L	P321025	
		Phaeophytin-a	1.7	V	ug/L	P321025	
		Chlorophyll/Phaeophytin Ratio	1.6			P321025	
		Chlorophyll-a, Uncorrected	8.0		ug/L	P321025	

Sample Location: Strickland Bay @ 100M SW of US1 Bridge **Collection Date/Time: 02/28/2017 10:51**

Field ID: G5CE0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876401	Enterolert/QT	Enterococci-Quanti-Tray	173		MPN/100 mL		
1876405	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.7		ug/L	P321025	
		Phaeophytin-a	1.6	V	ug/L	P321025	
		Chlorophyll/Phaeophytin Ratio	1.5			P321025	
		Chlorophyll-a, Uncorrected	4.8		ug/L	P321025	
1876411	SOP-PCR-1.0	HF183-qPCR**	61	T	GEU/100 mL	P321515	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Rose Bay @ 125M NE of Boat Ramp **Collection Date/Time: 02/28/2017 11:30**

Field ID: G5CE0073

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1876402	Enterolert/QT	Enterococci-Quanti-Tray	98.2		MPN/100 mL		
1876406	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.0		ug/L	P321025	
		Phaeophytin-a	0.50	IV	ug/L	P321025	
		Chlorophyll/Phaeophytin Ratio	1.6			P321025	
		Chlorophyll-a, Uncorrected	3.4		ug/L	P321025	
1876412	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: G5CE0091 **Collection Date/Time: 02/28/2017 10:13**

Field ID: G5CE0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879676	Enterolert/QT	Enterococci-Quanti-Tray	107		MPN/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P321025

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.41	I	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P321515

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: P321025

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	96.7		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P321515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	96.5	80.1	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P321515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873033	HF183-qPCR	71.2		P	50 - 175
1873034	HF183-qPCR	86.0		P	50 - 175
1873035	HF183-qPCR	68.7		P	50 - 175
1876411	HF183-qPCR	67.1		P	50 - 175
1879891	HF183-qPCR	92.5		P	50 - 175
1879892	HF183-qPCR	71.8	75.0	P/P	50 - 175
1879893	HF183-qPCR	131		P	50 - 175
1879894	HF183-qPCR	111		P	50 - 175
1879895	HF183-qPCR	66.4		P	50 - 175
1880555	HF183-qPCR	81.8		P	50 - 175
1880578	HF183-qPCR	134		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P321025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876353	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1876353	Chlorophyll-a, Corrected	2.10	Sample	P	0 - 25
1876353	Chlorophyll-a, Uncorrected	2.43	Sample	P	0 - 25
1876353	Phaeophytin-a	6.69	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P321515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879892	HF183-qPCR	4.26	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: 1876411
Field Sample ID: G5CE0090

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	71.8	P	50 - 300
SOP-PCR-1.0	SKETA-qPCR	71800	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio							0.0	
	Chlorophyll-a, Corrected	96.7						2.10	
	Chlorophyll-a, Uncorrected							2.43	
	Phaeophytin-a							6.69	
SOP-PCR-1.0	HF183-qPCR	80.1	96.5	92.5	71.8	75.0	66.4		4.26

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E83018	Enterococci by Enterolert Quanti-Tray method by Flowers Overflow Laboratory for Central District	1876401, 1876402, 1879676
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1876403, 1876404, 1876405, 1876406
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1876411
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1876411, 1876412

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	02/28/2017			02/28/2017 16:03	Flowers - Altamonte Springs	1876401, 1876402, 1879676
SM 10200 H (mod.)	03/01/2017	03/01/2017 14:05	Carina A. Tull	03/06/2017	Jennifer Mihalic	1876403, 1876404, 1876405, 1876406
SOP-PCR-1.0	03/01/2017	03/01/2017 13:45	Puja Jasrotia	03/20/2017	Puja Jasrotia	1876411
SOP-PCR-4.0	03/01/2017	03/01/2017 13:45	Avril Wood	03/17/2017	Daisys Matthews	1876411, 1876412