

Biological Analysis Report

CEN-DIST-2017-01-26-02

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/UnBranch 2642/**
Request ID: **RQ-2017-01-16-29**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Daisys Matthews,

Date Certified: 16-MAR-2017 08:07

A handwritten signature in cursive script that reads "D Matthews". The signature is written in dark ink on a white background.

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 @ 525 m East (DS) of RR Crossing

Collection Date/Time: 01/25/2017 12:36

Field ID: G5CE0082

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866849	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.7	I	ug/L	P319244	
		Phaeophytin-a	0.76	I	ug/L	P319244	
		Chlorophyll/Phaeophytin Ratio	1.5			P319244	
		Chlorophyll-a, Uncorrected	2.2		ug/L	P319244	

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: Strickland Bay @ 100 m East (DS) of RR Crossing

Collection Date/Time: 01/25/2017 12:48

Field ID: G5CE0081

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866848	Enterolert/QT	Enterococci-Quanti-Tray	145		MPN/100 mL		
1866850	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	I	ug/L	P319244	
		Phaeophytin-a	0.65	I	ug/L	P319244	
		Chlorophyll/Phaeophytin Ratio	1.5			P319244	
		Chlorophyll-a, Uncorrected	2.1		ug/L	P319244	
1866855	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P319590	
	SOP-PCR-1.2	GULL2-qPCR**	9400	T	TSC/100 mL	P319590	MS, RPD
	SOP-PCR-1.3	GFD-purified-qPCR**	700	TJ	TSC/100 mL	P320062	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above 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.

SOP-PCR-1.0: No amplification of HF183 marker.

SOP-PCR-1.3: Sample processed with an additional purification step to reduce inhibition, which can reduce overall DNA recovery.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P319244

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: SOP-PCR-1.0

Batch ID: P319590

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

Reference Method: SOP-PCR-1.2

Batch ID: P319590

Component	Result	Code	Units
GULL2-qPCR	1.7E+04	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
 Batch ID: P319244

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	89.3		P	84 - 116

Reference Method: SOP-PCR-1.0
 Batch ID: P319590

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	93.3	76.8	P/P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P319590

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	77.9		P	50 - 300

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P319590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1864645	HF183-qPCR	74.4		P	50 - 175
1866758	HF183-qPCR	89.3		P	50 - 175
1866855	HF183-qPCR	143		P	50 - 175
1868574	HF183-qPCR	132		P	50 - 175
1868575	HF183-qPCR	116		P	50 - 175
1868829	HF183-qPCR	110		P	50 - 175
1871159	HF183-qPCR	72.5		P	50 - 175
1871160	HF183-qPCR	108	136	P/P	50 - 175
1871161	HF183-qPCR	132		P	50 - 175
1871162	HF183-qPCR	85.8		P	50 - 175
1871755	HF183-qPCR	117		P	50 - 175
1871756	HF183-qPCR	87.9		P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P319590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866758	GULL2-qPCR	125		P	50 - 300
1866855	GULL2-qPCR	83.8		P	50 - 300
1871160	GULL2-qPCR	87.7	302	P/F	50 - 300

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P319590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1871160	HF183-qPCR	6.13	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P319590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1871160	HF183-qPCR	22.6	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
 Batch ID: P319590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1871160	GULL2-qPCR	110	Spike	F	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: 1866855
 Field Sample ID: G5CE0081

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	105	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	89.3							
SOP-PCR-1.0	HF183-qPCR	76.8	93.3	87.9	72.5	108		6.13	22.6
				136					
SOP-PCR-1.2	GULL2-qPCR	77.9		125	83.8	87.7			110
				302					

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	1866848
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1866849, 1866850
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1866855
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium genetic marker with quantitative polymerase chain reaction	1866855
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter genetic marker with quantitative polymerase chain reaction	1866855
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1866855

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	01/25/2017			01/25/2017 16:03	Flowers - Altamonte Springs	1866848
SM 10200 H (mod.)	01/26/2017	01/26/2017 13:05	Morgan Lane	02/01/2017	Brian Cumbie	1866849, 1866850
SOP-PCR-1.0	01/26/2017	01/26/2017 13:20	Sarah Menz	02/15/2017	Sarah Menz	1866855
SOP-PCR-1.2	01/26/2017	01/26/2017 13:20	Daisys Matthews	02/28/2017	Sarah Menz	1866855
SOP-PCR-1.3	01/26/2017	01/26/2017 13:20	Sarah Menz	02/28/2017	Sarah Menz	1866855
SOP-PCR-4.0	01/26/2017	01/26/2017 13:20	Puja Jasrotia	02/14/2017	Daisys Matthews	1866855