

Biological Analysis Report

CEN-DIST-2018-08-17-01

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: **Long branch / Salt Creek X2 / Sweet**
Request ID: **RQ-2018-08-13-53**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 20-SEP-2018 20:38



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: LONG BRANCH @ 0.7 MI DS OF CR 13

Collection Date/Time: 08/16/2018 10:27

Field ID: G2CE0036

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017875	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	613		MPN/100 mL		
2017879	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.76	I	ug/L	P351055	
		Phaeophytin-a	0.40	U	ug/L	P351055	
		Chlorophyll-a, Uncorrected	1.0	I	ug/L	P351055	
2017880	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P350505	
	SOP-PCR-1.4	BacR-qPCR**	7.5E+03	I	TSC/100 mL	P350505	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
 SOP-PCR-1.4: Precision data unavailable for Analysis Batch A86258

Sample Location: SWEETWATER CREEK @ US OF DELEON ST

Collection Date/Time: 08/16/2018 11:23

Field ID: G2CE0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017878	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	236		MPN/100 mL		

Sample Location: SALT CREEK @ PACKARD AVENUE

Collection Date/Time: 08/16/2018 11:40

Field ID: G2CE0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017876	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	248		MPN/100 mL		
2017881	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: SALT CREEK @ STONE STREET

Collection Date/Time: 08/16/2018 11:51

Field ID: G2CE0143

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017877	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	172		MPN/100 mL		
2017882	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P351055

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: P350505

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.4
 Batch ID: P350505

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
 Batch ID: P351055

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	90.8		P	84 - 116

Reference Method: SOP-PCR-1.0
 Batch ID: P350505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	88.4	83.1	P/P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P350505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	137	201	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P350505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2013668	HF183-qPCR	68.5		P	50 - 175
2013669	HF183-qPCR	75.1		P	50 - 175
2016247	HF183-qPCR	73.9		P	50 - 175
2016299	HF183-qPCR	67.0		P	50 - 175
2016300	HF183-qPCR	63.3		P	50 - 175
2017880	HF183-qPCR	70.6		P	50 - 175
2018595	HF183-qPCR	73.5		P	50 - 175
2018596	HF183-qPCR	64.6	66.8	P/P	50 - 175
2018597	HF183-qPCR	64.7		P	50 - 175
2018598	HF183-qPCR	68.2		P	50 - 175
2019031	HF183-qPCR	81.1		P	50 - 175
2019032	HF183-qPCR	78.3		P	50 - 175
2020117	HF183-qPCR	84.0		P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P350505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2013668	BacR-qPCR	87.8		P	50 - 175
2013669	BacR-qPCR	92.3		P	50 - 175
2016247	BacR-qPCR	84.9		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P350505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016299	BacR-qPCR	73.6		P	50 - 175
2016300	BacR-qPCR	86.9		P	50 - 175
2017880	BacR-qPCR	79.6		P	50 - 175
2018597	BacR-qPCR	88.6		P	50 - 175
2018598	BacR-qPCR	91.9		P	50 - 175
2020117	BacR-qPCR	112		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P351055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017986	Chlorophyll-a, Corrected	5.06	Sample	P	0 - 25
2017986	Chlorophyll-a, Uncorrected	4.45	Sample	P	0 - 25
2017986	Phaeophytin-a	1.73	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P350505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018596	HF183-qPCR	3.44	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: 2017880
Field Sample ID: G2CE0036

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	111	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	92.4	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	90.8					5.06	
	Chlorophyll-a, Uncorrected						4.45	
	Phaeophytin-a						1.73	
SOP-PCR-1.0	HF183-qPCR	83.1	88.4	73.5	64.6	66.8		3.44
				64.7				
SOP-PCR-1.4	BacR-qPCR	201	137	88.6	91.9	87.8		
				92.3				

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2017879
SM 9223 B Quanti-Tray / E83018	Escherichia coli by Colilert 18 Quanti-Tray method by Flowers Chemical Laboratory in Altamonte Springs	2017875, 2017876, 2017877, 2017878
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2017880
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2017880
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2017880, 2017881, 2017882

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	08/17/2018	08/17/2018 13:49	Mariam Hanna	08/29/2018 09:05	Carina A. Tull	2017879
SM 9223 B Quanti-Tray	08/16/2018	08/16/2018 15:50		08/17/2018 10:02	Flowers - Altamonte Springs	2017875, 2017876, 2017877, 2017878
SOP-PCR-1.0	08/17/2018	08/17/2018 14:00	Angela Smith	08/29/2018 11:31	Mailin Lopez	2017880
SOP-PCR-1.4	08/17/2018	08/17/2018 14:00	Angela Smith	08/31/2018 14:49	Mailin Lopez	2017880
SOP-PCR-4.0	08/17/2018	08/17/2018 14:00	Angela Smith	08/28/2018 11:11	Sarah Menz	2017880, 2017881, 2017882