

Biological Analysis Report

CEN-DIST-2018-05-01-03

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 / CS / CSD / UnDrain**
Request ID: **RQ-2018-04-23-52**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 06-JUN-2018 11:11



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 (3030) Collection Date/Time: 04/30/2018 11:25

Field ID: G2CE0036

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988952	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	201		MPN/100 mL		
1988957	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.64	I	ug/L	P345155	
		Phaeophytin-a	0.40	U	ug/L	P345155	
		Chlorophyll-a, Uncorrected	0.68	I	ug/L	P345155	
1988960	SOP-PCR-4.0	HF183 - Human Source Marker**	Below 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.

Sample Location: CRANE STRAND @ 100M DS OF ECON TRI BRIDGE (3023) Collection Date/Time: 04/30/2018 12:37

Field ID: G2CE0076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988953	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	36.4		MPN/100 mL		

Sample Location: CRANE STRAND @ HERRELL RD (3023) Collection Date/Time: 04/30/2018 13:00

Field ID: G2CE0156

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988954	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	109		MPN/100 mL		

Sample Location: CRANE STRAND DRAIN @ 100M US OF UNIVERSITY BLVD (3014) Collection Date/Time: 04/30/2018 13:35

Field ID: G2CE0077

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988950	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	770		MPN/100 mL		
1988955	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.2	I	ug/L	P345155	
		Phaeophytin-a	0.40	U	ug/L	P345155	
		Chlorophyll-a, Uncorrected	1.4		ug/L	P345155	
1988958	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P345373	
	SOP-PCR-1.4	BacR-qPCR**	1.73E+04		TSC/100 mL	P345373	LCS
	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-1.4: Precision data unavailable for Analysis Batch A84199

Sample Location: CRANE STRAND DRAIN @ 250M NORTH OF UNIVERSITY BLVD (3014) Collection Date/Time: 04/30/2018 13:45

Field ID: G2CE0157

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988951	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	816		MPN/100 mL		
1988956	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.1	I	ug/L	P345155	
		Phaeophytin-a	0.41	I	ug/L	P345155	
		Chlorophyll-a, Uncorrected	1.4		ug/L	P345155	

Field ID: G2CE0157

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988959	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P345373	
	SOP-PCR-1.2	GULL2-qPCR**	5.6E+03	U	TSC/100 mL	P345373	
	SOP-PCR-1.3	GFD-purified-qPCR**	120	I	TSC/100 mL	P346102	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P345373	LCS
	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-1.4: Precision data unavailable for Analysis Batch A84199

Quality Assurance Report

Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P345155

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: P345373

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

Reference Method: SOP-PCR-1.2
Batch ID: P345373

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

Reference Method: SOP-PCR-1.3
Batch ID: P346102

Component	Result	Code	Units
GFD-purified-qPCR	340	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P345373

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: P345155

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	96.5		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P345373

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	100	161	P/P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P345373

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	138	108	P/P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P346102

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	131	37.2	P/F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P345373

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	107	251	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P345373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985267	HF183-qPCR	95.9		P	50 - 175
1988864	HF183-qPCR	79.7		P	50 - 175
1988865	HF183-qPCR	93.2		P	50 - 175
1988866	HF183-qPCR	93.8		P	50 - 175
1988867	HF183-qPCR	89.5		P	50 - 175
1988868	HF183-qPCR	90.3	96.9	P/P	50 - 175
1988870	HF183-qPCR	92.4		P	50 - 175
1988958	HF183-qPCR	87.3		P	50 - 175
1988959	HF183-qPCR	85.9		P	50 - 175
1988978	HF183-qPCR	96.2		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P345373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985267	GULL2-qPCR	154		P	50 - 300
1988864	GULL2-qPCR	103		P	50 - 300
1988870	GULL2-qPCR	107		P	50 - 300
1988959	GULL2-qPCR	107		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P346102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
 Batch ID: P346102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985267	GFD-purified-qPCR	0.0		F	50 - 175
1987901	GFD-purified-qPCR	160	141	P/P	50 - 175
1987903	GFD-purified-qPCR	160		P	50 - 175
1987904	GFD-purified-qPCR	152		P	50 - 175
1988864	GFD-purified-qPCR	131		P	50 - 175
1988870	GFD-purified-qPCR	73.0		P	50 - 175
1988959	GFD-purified-qPCR	115		P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P345373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985267	BacR-qPCR	81.8		P	50 - 175
1988864	BacR-qPCR	60.1		P	50 - 175
1988870	BacR-qPCR	82.2		P	50 - 175
1988958	BacR-qPCR	79.6		P	50 - 175
1988959	BacR-qPCR	79.1		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P345373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988868	HF183-qPCR	7.06	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
 Batch ID: P345373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987901	GULL2-qPCR	1.94	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P346102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987901	GFD-purified-qPCR	12.6	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

Quality Assurance Report Surrogates

Lab Sample ID: 1988958
Field Sample ID: G2CE0077

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	103	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	98.5	P	50 - 300

Lab Sample ID: 1988959
Field Sample ID: G2CE0157

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	98.7	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	104	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	90.7	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	96.5							
SOP-PCR-1.0	HF183-qPCR	161	100	95.9	79.7	93.2			7.06
SOP-PCR-1.2	GULL2-qPCR	108	138	154	103	107			1.94
SOP-PCR-1.3	GFD-purified-qPCR	37.2	131	0.0	160	141			12.6
SOP-PCR-1.4	BacR-qPCR	251	107	81.8	60.1	82.2			
				79.6					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1988955, 1988956, 1988957
SM 9223 Quanti-Tray / E83018	Escherichia coli by Colilert 18 Quanti-Tray method by FlowersOverflow Laboratory for Central District	1988950, 1988951, 1988952, 1988953, 1988954
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1988958, 1988959
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1988959
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1988959
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1988958, 1988959
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1988958, 1988959, 1988960

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	05/01/2018	05/01/2018 14:13	Mariam Hanna	05/07/2018 08:30	Carina A. Tull	1988955, 1988956, 1988957
SM 9223 Quanti-Tray	04/30/2018	04/30/2018 15:25		05/01/2018 10:01	Flowers - Altamonte Springs	1988950, 1988951, 1988952, 1988953, 1988954
SOP-PCR-1.0	05/01/2018	05/01/2018 13:05	Sarah Menz	05/23/2018 12:01	Mailin Lopez	1988958, 1988959
SOP-PCR-1.2	05/01/2018	05/01/2018 13:05	Sarah Menz	05/29/2018 16:30	Mailin Lopez	1988959
SOP-PCR-1.3	05/01/2018	05/01/2018 13:05	Mailin Lopez	05/31/2018 09:23	Sarah Menz	1988959
SOP-PCR-1.4	05/01/2018	05/01/2018 13:05	Sarah Menz	05/25/2018 10:17	Mailin Lopez	1988958, 1988959
SOP-PCR-4.0	05/01/2018	05/01/2018 13:05	Angela Smith	05/22/2018 13:40	Puja Jasrotia	1988958, 1988959, 1988960