

Biological Analysis Report

CEN-DIST-2018-03-13-01

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: **Crane Strand / CS Drain / UnDrain 3037**
Request ID: **RQ-2018-03-12-55**
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
Puja Jasrotia, Ph.D. - Molecular Biology
Cheryl Swanson - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 01-MAY-2018 14:47



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: Unnamed Drain @ Lake Live Oak Rd (3037)

Collection Date/Time: 03/12/2018 10:57

Field ID: G2CE0168

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1974124	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	154		MPN/100 mL		
1974130	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	I	ug/L	P341770	
		Phaeophytin-a	0.71	I	ug/L	P341770	RPD
		Chlorophyll-a, Uncorrected	2.0		ug/L	P341770	

Ref. Method and Comment:
 SM 10200 H (mod.): Quality control failure(s) observed. See QA report for details.

Sample Location: Unnamed Drain @ Avalon Park Blvd (3037)

Collection Date/Time: 03/12/2018 11:25

Field ID: G2CE0169

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1974125	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	194		MPN/100 mL		
1974131	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.0		ug/L	P341770	
		Phaeophytin-a	0.49	I	ug/L	P341770	RPD
		Chlorophyll-a, Uncorrected	2.4		ug/L	P341770	

Ref. Method and Comment:
 SM 10200 H (mod.): Quality control failure(s) observed. See QA report for details.

Sample Location: Crane Strand Drain @ 100m US of University Blvd (3014)

Collection Date/Time: 03/12/2018 13:05

Field ID: G2CE0077

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1974122	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	2420		MPN/100 mL		
1974128	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.2	I	ug/L	P341770	
		Phaeophytin-a	0.63	I	ug/L	P341770	RPD
		Chlorophyll-a, Uncorrected	1.6		ug/L	P341770	
1974132	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P342991	
	SOP-PCR-1.4	BacR-qPCR**	130	T	TSC/100 mL	P342991	RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
 SM 10200 H (mod.): Quality control failure(s) observed. See QA report for details.
 SOP-PCR-1.0: No amplification of HF183 marker.

Sample Location: Crane Strand Drain @ 250m North of University Blvd (3014)

Collection Date/Time: 03/12/2018 13:20

Field ID: G2CE0157

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1974123	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	2420	J	MPN/100 mL		
1974129	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.1	I	ug/L	P341770	
		Phaeophytin-a	0.46	I	ug/L	P341770	RPD
		Chlorophyll-a, Uncorrected	1.5		ug/L	P341770	
1974133	SOP-PCR-1.0	HF183-qPCR**	62	T	GEU/100 mL	P342991	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
 SM 9223 Quanti-Tray: All Quanti-Tray wells were positive. Result may be higher than reported.
 SM 10200 H (mod.): Quality control failure(s) observed. See QA report for details.

Sample Location: G2CE0076

Collection Date/Time: 03/12/2018 12:20

Field ID: G2CE0076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1979663	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	31.3		MPN/100 mL		

Sample Location: G2CE0156

Collection Date/Time: 03/12/2018 12:30

Field ID: G2CE0156

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1979664	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	53.0		MPN/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P341770

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: P342991

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

Reference Method: SOP-PCR-1.4

Batch ID: P342991

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: P341770

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	98.4		P	84 - 116

Reference Method: SOP-PCR-1.0

Batch ID: P342991

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	89.3	104	P/P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P342991

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	109	61.8	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P342991

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974132	HF183-qPCR	83.5		P	50 - 175
1974133	HF183-qPCR	82.2		P	50 - 175
1975971	HF183-qPCR	61.3		P	50 - 175
1983204	HF183-qPCR	80.9		P	50 - 175
1983223	HF183-qPCR	66.4	58.9	P/P	50 - 175
1983445	HF183-qPCR	72.4		P	50 - 175
1984969	HF183-qPCR	74.7		P	50 - 175
1984970	HF183-qPCR	72.3		P	50 - 175
1984971	HF183-qPCR	73.6		P	50 - 175
1984972	HF183-qPCR	74.2		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P342991

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974132	BacR-qPCR	88.3		P	50 - 175
1983204	BacR-qPCR	101		P	50 - 175
1983223	BacR-qPCR	79.1	61.3	P/P	50 - 175
1985418	BacR-qPCR	80.9		P	50 - 175
1985611	BacR-qPCR	82.2		P	50 - 175
1985612	BacR-qPCR	72.5		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P341770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974207	Chlorophyll-a, Corrected	2.85	Sample	P	0 - 25
1974207	Chlorophyll-a, Uncorrected	5.76	Sample	P	0 - 25
1974207	Phaeophytin-a	27.0	Sample	F	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P342991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983223	HF183-qPCR	12.0	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P342991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983223	BacR-qPCR	25.3	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: 1974132
Field Sample ID: G2CE0077

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	90.3	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	91.1	P	50 - 300

Lab Sample ID: 1974133
Field Sample ID: G2CE0157

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	101	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
				LCS				
SM 10200 H (mod.)	Chlorophyll-a, Corrected	98.4					2.85	
	Chlorophyll-a, Uncorrected						5.76	
	Phaeophytin-a						27.0	
SOP-PCR-1.0	HF183-qPCR	104	89.3	73.6	74.2	61.3		12.0
				82.2				
SOP-PCR-1.4	BacR-qPCR	61.8	109	88.3	101	79.1		25.3
				61.3				

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1974128, 1974129, 1974130, 1974131
SM 9223 Quanti-Tray / E83018	Escherichia coli by Colilert 18 Quanti-Tray method by FlowersOverflow Laboratory for Central District	1974122, 1974123, 1974124, 1974125, 1979663, 1979664
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1974132, 1974133
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1974132
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1974132, 1974133

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	03/13/2018	03/13/2018 13:02	Mariam Hanna	03/19/2018 07:35	Kim M. Spencer	1974128, 1974129, 1974130, 1974131
SM 9223 Quanti-Tray	03/12/2018	03/12/2018 15:01		03/13/2018 11:02	Flowers - Altamonte Springs	1974122, 1974123, 1974124, 1974125, 1979663, 1979664
SOP-PCR-1.0	03/13/2018	03/13/2018 13:40	Sarah Menz	04/19/2018 13:30	Mailin Lopez	1974132, 1974133
SOP-PCR-1.4	03/13/2018	03/13/2018 13:40	Sarah Menz	04/20/2018 14:30	Sarah Menz	1974132
SOP-PCR-4.0	03/13/2018	03/13/2018 13:40	Sarah Menz	04/17/2018 14:27	Puja Jasrotia	1974132, 1974133