

Biological Analysis Report

CEN-DIST-2017-03-09-03

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: **Lil Econ / Lil Wekiva Canal**
Request ID: **RQ-2017-02-27-56**
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)
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Certified by: Daisys Matthews,

Date Certified: 17-APR-2017 07:49



NON-CONFORMANCE REPORT INCLUDED

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: 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: Little Econ River

Collection Date/Time: 03/08/2017 12:39

Field ID: G2CE0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879034	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	862		MPN/100 mL		
1879036	SOP-PCR-1.0	HF183-qPCR**	71	U	GEU/100 mL	P321954	RPD
	SOP-PCR-1.2	GULL2-qPCR**	4.2E+03	U	TSC/100 mL	P321954	LCS
	SOP-PCR-1.3	GFD-purified-qPCR**	22	T	TSC/100 mL	P321737	LCS, MS, RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

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

SOP-PCR-1.2: No amplification of GULL2 marker.

SOP-PCR-1.3: Analyte detected at a level below the current nominal MDL.

Sample Location: Little Wekiva Canal

Collection Date/Time: 03/08/2017 13:46

Field ID: G2CE0062

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879035	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	49.6		MPN/100 mL		
1879037	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Non-Conformance Report

NCR ID: 6297

Event(s)

Job(s)

Sample(s)

Test(s)

CEN-DIST-2017-03-09-03

NCR Type: SHIPPING/RECEIVING

NCR Category: Receiving

Observation: RQ-2017-02-27-56 Location Little Econ River and Little Wekiva Canal have no recorded collection times.

Resolution: Customer (Mike Linger) was contacted by phone and email. Collection times for Little Econ River and Little Wekiva Canal were provided by customer, with a copy of the email added to the scanned event file.

Authorised by/Date: Ramsey K. White 3/22/2017

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
 Please address questions to:

Chemistry Colin Wright (850) 245-8085
 Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0

Batch ID: P321954

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

Reference Method: SOP-PCR-1.2

Batch ID: P321954

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.3
Batch ID: P321737

Component	Result	Code	Units
GFD-purified-qPCR	4.0E+04	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P321954

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	96.1	84.5	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P321954

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	85.4	409	P/F	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P321737

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	54.5	32.1	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P321954

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879036	HF183-qPCR	93.1		P	50 - 175
1879879	HF183-qPCR	115		P	50 - 175
1882175	HF183-qPCR	83.6		P	50 - 175
1882176	HF183-qPCR	93.9		P	50 - 175
1882177	HF183-qPCR	72.7	94.9	P/P	50 - 175
1882178	HF183-qPCR	92.5		P	50 - 175
1882540	HF183-qPCR	104		P	50 - 175
1882541	HF183-qPCR	95.4		P	50 - 175
1882542	HF183-qPCR	116		P	50 - 175
1882543	HF183-qPCR	92.9		P	50 - 175
1882544	HF183-qPCR	95.7		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P321954

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879036	GULL2-qPCR	56.1		P	50 - 300

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3

Batch ID: P321737

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879036	GFD-purified-qPCR	57.7		P	50 - 175
1879937	GFD-purified-qPCR	86.9		P	50 - 175
1879938	GFD-purified-qPCR	68.6		P	50 - 175
1880174	GFD-purified-qPCR	32.2		F	50 - 175
1880175	GFD-purified-qPCR	60.6		P	50 - 175
1880177	GFD-purified-qPCR	44.5		F	50 - 175
1880179	GFD-purified-qPCR	57.9		P	50 - 175
1880223	GFD-purified-qPCR	91.1		P	50 - 175
1881136	GFD-purified-qPCR	47.5		F	50 - 175
1881137	GFD-purified-qPCR	8.76		F	50 - 175
1881138	GFD-purified-qPCR	82.1	32.3	P/F	50 - 175
1881139	GFD-purified-qPCR	32.0		F	50 - 175
1881140	GFD-purified-qPCR	45.4		F	50 - 175
1881227	GFD-purified-qPCR	29.8		F	50 - 175
1881228	GFD-purified-qPCR	28.5		F	50 - 175
1881229	GFD-purified-qPCR	47.6		F	50 - 175
1881230	GFD-purified-qPCR	53.9		P	50 - 175
1884037	GFD-purified-qPCR	110		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0

Batch ID: P321954

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882177	HF183-qPCR	26.4	Spike	F	0 - 25

Reference Method: SOP-PCR-1.2

Batch ID: P321954

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881138	GULL2-qPCR	24.5	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3

Batch ID: P321737

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881138	GFD-purified-qPCR	87.0	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

Quality Assurance Report Surrogates

Lab Sample ID: 1879036
Field Sample ID: G2CE0061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	100	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	96.2	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SOP-PCR-1.0	HF183-qPCR	84.5	96.1	104	95.4	92.9			26.4
SOP-PCR-1.2	GULL2-qPCR	409	85.4	56.1					24.5
SOP-PCR-1.3	GFD-purified-qPCR	32.1	54.5	47.5	8.76	82.1			87.0
				32.3					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 9223 Quanti-Tray / E83018	Escherichia coli by Colilert 18 Quanti-Tray method by FlowersOverflow Laboratory for Central District	1879034, 1879035
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1879036
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium genetic marker with quantitative polymerase chain reaction	1879036
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter genetic marker with quantitative polymerase chain reaction	1879036
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1879036, 1879037

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 9223 Quanti-Tray	03/08/2017			03/08/2017 16:29	Flowers - Altamonte Springs	1879034, 1879035
SOP-PCR-1.0	03/09/2017	03/09/2017 13:45	Avril Wood	03/24/2017	Puja Jasrotia	1879036
SOP-PCR-1.2	03/09/2017	03/09/2017 13:45	Avril Wood	04/03/2017	Sarah Menz	1879036
SOP-PCR-1.3	03/09/2017	03/09/2017 13:45	Sarah Menz	04/13/2017	Sarah Menz	1879036
SOP-PCR-4.0	03/09/2017	03/09/2017 13:45	Avril Wood	03/24/2017	Puja Jasrotia	1879036, 1879037