Biological Analysis Report

CEN-DIST-2019-09-27-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Overflow Analyses Performed By:
Advanced Environmental Laboratories, Inc.
380 North Lake Blvd, Ste 1048
Altamonte Springs, FL 32701
DOH Accreditation E53076

Event Description: **Dead Rvier / Lk Hatch Drain**
Request ID: **RQ-2019-09-30-41**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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3319 Maguire Blvd., Suite 232
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 28-OCT-2019 15:48

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Lake Hatchineha Drain downstream of drainage field **Collection Date/Time: 09/26/2019 09:53**

Field ID: G4CE0168 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2123052	EPA 1603	Escherichia coli Membrane Filter	10	U	cfu/100 mL		
2123054	SM 10200 H (mod.)	Chlorophyll-a, Corrected	27	A	ug/L	P371933	
		Phaeophytin-a	7.8	A	ug/L	P371933	
		Chlorophyll-a, Uncorrected	32	A	ug/L	P371933	
2123056	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P371374	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P371374	LCS

Ref. Method and Comment:
SOP-PCR-1.0: Precision data unavailable for Analysis Batch A95116.
SOP-PCR-1.4: Precision data unavailable for Analysis Batch A95168.

Sample Location: Dead River @ 1250m northe of Lake Hatchineha **Collection Date/Time: 09/26/2019 10:40**

Field ID: G4CE0167 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2123051	EPA 1603	Escherichia coli Membrane Filter	120	B	cfu/100 mL		
2123053	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	U	ug/L	P371933	
		Phaeophytin-a	1.8	U	ug/L	P371933	
		Chlorophyll-a, Uncorrected	1.2	U	ug/L	P371933	
2123055	SOP-PCR-1.0	HF183-qPCR**	320	I	GEU/100 mL	P371374	
	SOP-PCR-1.4	BacR-qPCR**	5.8E+03	I	TSC/100 mL	P371374	LCS

Ref. Method and Comment:
SOP-PCR-1.0: Precision data unavailable for Analysis Batch A95116.
SOP-PCR-1.4: Precision data unavailable for Analysis Batch A95168.

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P371933

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P371374

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

Reference Method: SOP-PCR-1.4
Batch ID: P371374

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P371933

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	98.0		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P371374

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	79.5	165	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P371374

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	117	276	P/F	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P371374

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122833	HF183-qPCR	117		P	50 - 175
2122834	HF183-qPCR	115		P	50 - 175
2122835	HF183-qPCR	112		P	50 - 175
2122836	HF183-qPCR	110		P	50 - 175
2122837	HF183-qPCR	107		P	50 - 175
2123055	HF183-qPCR	95.9		P	50 - 175
2123056	HF183-qPCR	85.1		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P371374

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122833	BacR-qPCR	128		P	50 - 175
2122834	BacR-qPCR	138		P	50 - 175
2122835	BacR-qPCR	142		P	50 - 175
2122836	BacR-qPCR	137		P	50 - 175
2122837	BacR-qPCR	131		P	50 - 175
2123055	BacR-qPCR	106		P	50 - 175
2123056	BacR-qPCR	117		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P371933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123054	Chlorophyll-a, Corrected	1.34	Sample	P	0 - 25
2123054	Chlorophyll-a, Uncorrected	1.43	Sample	P	0 - 25

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P371933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123054	Phaeophytin-a	1.73	Sample	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Surrogates

Lab Sample ID: 2123055
Field Sample ID: G4CE0167

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	91.2	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	96.2	P	50 - 300

Lab Sample ID: 2123056
Field Sample ID: G4CE0168

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	80.2	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	95.6	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	98.0			1.34	
	Chlorophyll-a, Uncorrected				1.43	
	Phaeophytin-a				1.73	
SOP-PCR-1.0	HF183-qPCR	165 79.5	117 115 112 110			
SOP-PCR-1.4	BacR-qPCR	276 117	128 138 142 137			

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E53076	E. coli by MF by AEL in Altamonte Springs	2123051, 2123052
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2123053, 2123054
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2123055, 2123056
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2123055, 2123056

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	09/26/2019	09/26/2019 14:45		09/27/2019 16:25	Advanced Environmental Laboratory	2123051, 2123052
SM 10200 H (mod.)	09/27/2019	09/27/2019 13:51	Yuliya Danyuk	10/04/2019 09:48	Carina A. Tull	2123053, 2123054
SOP-PCR-1.0	09/27/2019	09/27/2019 14:05	Angela Smith	10/21/2019 14:04	Lauren Campbell	2123055, 2123056
SOP-PCR-1.4	09/27/2019	09/27/2019 14:05	Angela Smith	10/22/2019 15:17	Lauren Campbell	2123055, 2123056