

Biological Analysis Report

CEN-DIST-2019-11-20-01

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: **Lk Hatch Drain / Lk Cypress**
Request ID: **RQ-2019-11-11-52**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 18-DEC-2019 16:40



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: 11/19/2019 10:34

Field ID: G4CE0168

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2137379	EPA 1603	Escherichia coli Membrane Filter	20	B	cfu/100 mL		
2137382	SM 10200 H (mod.)	Chlorophyll-a, Corrected	23		ug/L	P375325	
		Phaeophytin-a	5.4	I	ug/L	P375325	
		Chlorophyll-a, Uncorrected	27		ug/L	P375325	
2137385	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P374488	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P374488	LCS

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: Lake Cypress @ Center

Collection Date/Time: 11/19/2019 10:59

Field ID: G4CE0166

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2137383	SM 10200 H (mod.)	Chlorophyll-a, Corrected	57		ug/L	P375325	
		Phaeophytin-a	3.8	I	ug/L	P375325	
		Chlorophyll-a, Uncorrected	62		ug/L	P375325	

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: Lake Hatchineha Drain downstream of drainage field

Collection Date/Time: 11/19/2019 10:41

Field ID: G4CE0168_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2137380	EPA 1603	Escherichia coli Membrane Filter	10	B	cfu/100 mL		

Sample Location: FB_11192019

Collection Date/Time: 11/19/2019 11:24

Field ID: FB_11192019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2137381	EPA 1603	Escherichia coli Membrane Filter	10	U	cfu/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P375325

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: P374488

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P374488

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

Reference Method: SOP-PCR-1.4
Batch ID: P374488

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: P375325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	108		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P374488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	113	105	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P374488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	129	248	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P374488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137227	HF183-qPCR	101		P	50 - 175
2137228	HF183-qPCR	97.8		P	50 - 175
2137229	HF183-qPCR	99.1		P	50 - 175
2137246	HF183-qPCR	86.9		P	50 - 175
2137247	HF183-qPCR	123	117	P/P	50 - 175
2137385	HF183-qPCR	98.5		P	50 - 175
2137436	HF183-qPCR	108		P	50 - 175
2137437	HF183-qPCR	91.3		P	50 - 175
2137438	HF183-qPCR	104		P	50 - 175
2137585	HF183-qPCR	103		P	50 - 175
2137586	HF183-qPCR	107		P	50 - 175
2137728	HF183-qPCR	115		P	50 - 175
2137729	HF183-qPCR	108		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P374488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137227	BacR-qPCR	91.5		P	50 - 175
2137228	BacR-qPCR	99.3		P	50 - 175
2137229	BacR-qPCR	79.4		P	50 - 175
2137246	BacR-qPCR	82.6		P	50 - 175
2137247	BacR-qPCR	96.7	104	P/P	50 - 175
2137385	BacR-qPCR	78.9		P	50 - 175
2137436	BacR-qPCR	101		P	50 - 175
2137437	BacR-qPCR	111		P	50 - 175
2137438	BacR-qPCR	91.4		P	50 - 175
2137585	BacR-qPCR	103		P	50 - 175
2137586	BacR-qPCR	117		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P374488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137247	HF183-qPCR	5.29	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P374488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137247	BacR-qPCR	7.48	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2137385
Field Sample ID: G4CE0168

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	87.4	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	75.9	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	108						
SOP-PCR-1.0	HF183-qPCR	105	113	101	97.8	99.1		5.29
				86.9				

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision	
							LCS	SMP
SOP-PCR-1.4	BacR-qPCR	248	129	91.5	99.3	79.4		
				82.6				7.48

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 1603 / E53076	E. coli by MF by AEL in Altamonte Springs	2137379, 2137380, 2137381
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2137382, 2137383
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2137385
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2137385

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	11/19/2019	11/19/2019 14:45		11/20/2019 15:09	Advanced Environmental Laboratory	2137379, 2137380, 2137381
SM 10200 H (mod.)	11/20/2019	11/20/2019 13:00	Peterson Janvier	12/04/2019 10:14	Yuliya Danyuk	2137382, 2137383
SOP-PCR-1.0	11/20/2019	11/20/2019 13:30	Angela Smith	12/09/2019 14:37	Lauren Campbell	2137385
SOP-PCR-1.4	11/20/2019	11/20/2019 13:30	Angela Smith	12/10/2019 10:42	Lauren Campbell	2137385