

Biological Analysis Report

CEN-DIST-2019-10-18-01

Florida Department of Environmental Protection
Central Laboratory
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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: **Site**
Request ID: **RQ-2019-10-14-46**
Customer: **CEN-DIST**
Project ID: **SMP**

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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 15-NOV-2019 15:29



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: Sweetwater Creek @ US of DeLeon St

Collection Date/Time: 10/17/2019 11:12

Field ID: G2CE0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2129585	EPA 1603	Escherichia coli Membrane Filter	600		cfu/100 mL		
2129592	SOP-PCR-1.0	HF183-qPCR**	810		GEU/100 mL	P372664	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P372664	LCS

Ref. Method and Comment:
 SOP-PCR-1.0: Precision data unavailable for Analysis Batch A95544.
 SOP-PCR-1.4: Precision data unavailable for Analysis Batch A95590.

Sample Location: Sweetwater Creek @ 35m US of Cress Run

Collection Date/Time: 10/17/2019 11:25

Field ID: G2CE0139

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2129586	EPA 1603	Escherichia coli Membrane Filter	390		cfu/100 mL		
2129593	SOP-PCR-1.0	HF183-qPCR**	180	I	GEU/100 mL	P372664	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P372664	LCS

Ref. Method and Comment:
 SOP-PCR-1.0: Precision data unavailable for Analysis Batch A95544.
 SOP-PCR-1.4: Precision data unavailable for Analysis Batch A95590.

Sample Location: Sweetwater Creek @ Florida Ave

Collection Date/Time: 10/17/2019 11:42

Field ID: G2CE0123

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2129587	EPA 1603	Escherichia coli Membrane Filter	490		cfu/100 mL		

Sample Location: Sweetwater Creek @ Kansas St

Collection Date/Time: 10/17/2019 11:46

Field ID: G2CE0203

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2129588	EPA 1603	Escherichia coli Membrane Filter	510		cfu/100 mL		

Sample Location: Howell Creek @ US of Lake Howell Ln

Collection Date/Time: 10/17/2019 09:15

Field ID: G2CE0138

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2129579	EPA 1603	Escherichia coli Membrane Filter	40	B	cfu/100 mL		
2129589	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.6	A	ug/L	P373411	
		Phaeophytin-a	1.9	I	ug/L	P373411	
		Chlorophyll-a, Uncorrected	5.9	A	ug/L	P373411	

Ref. Method and Comment:
 SM 10200 H (mod.): Laboratory duplicate result is 1.8 I for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: Bear Crk just north of Winter Springs Blvd in Bear Crk Park

Collection Date/Time: 10/17/2019 09:55

Field ID: G2CE0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2129582	EPA 1603	Escherichia coli Membrane Filter	130	B	cfu/100 mL		

Sample Location: Bear Creek @ Northern Way

Collection Date/Time: 10/17/2019 10:09

Field ID: G2CE0182

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2129583	EPA 1603	Escherichia coli Membrane Filter	260		cfu/100 mL		

Sample Location: Gee Creek @ Alton Road

Collection Date/Time: 10/17/2019 10:35

Field ID: G2CE0161

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2129580	EPA 1603	Escherichia coli Membrane Filter	410		cfu/100 mL		
2129590	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.99	I	ug/L	P373411	
		Phaeophytin-a	0.90	U	ug/L	P373411	
		Chlorophyll-a, Uncorrected	1.5	I	ug/L	P373411	

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: Salt Creek @ Packard Ave

Collection Date/Time: 10/17/2019 12:00

Field ID: G2CE0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2129584	EPA 1603	Escherichia coli Membrane Filter	280		cfu/100 mL		

Sample Location: Soldier Creek @ 150m Upstream of SR Hwy 419

Collection Date/Time: 10/17/2019 12:30

Field ID: G2CE0071

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2129581	EPA 1603	Escherichia coli Membrane Filter	140	B	cfu/100 mL		
2129591	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.4	U	ug/L	P373411	
		Phaeophytin-a	1.5	U	ug/L	P373411	
		Chlorophyll-a, Uncorrected	1.4	I	ug/L	P373411	

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.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P373411

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: P372664

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.4
Batch ID: P372664

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: P373411

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	107		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P372664

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	95.7	182	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P372664

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	66.5	323	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P372664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2129393	HF183-qPCR	142		P	50 - 175
2129394	HF183-qPCR	121		P	50 - 175
2129592	HF183-qPCR	133		P	50 - 175
2129593	HF183-qPCR	121		P	50 - 175
2129747	HF183-qPCR	123		P	50 - 175
2130153	HF183-qPCR	123		P	50 - 175
2130154	HF183-qPCR	153		P	50 - 175
2130155	HF183-qPCR	125		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P372664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2129393	BacR-qPCR	97.0		P	50 - 175
2129394	BacR-qPCR	83.1		P	50 - 175
2129592	BacR-qPCR	69.2		P	50 - 175
2129593	BacR-qPCR	63.8		P	50 - 175
2130153	BacR-qPCR	66.9		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P373411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2129589	Chlorophyll-a, Corrected	14.4	Sample	P	0 - 25
2129589	Chlorophyll-a, Uncorrected	12.5	Sample	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2129592
 Field Sample ID: G2CE0119

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	96.0	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	117	P	50 - 300

Lab Sample ID: 2129593
 Field Sample ID: G2CE0139

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	93.9	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	106	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	107							14.4	
	Chlorophyll-a, Uncorrected								12.5	
SOP-PCR-1.0	HF183-qPCR	182	95.7		142	121	133			
					121					
SOP-PCR-1.4	BacR-qPCR	323	66.5		97.0	83.1	69.2			
					63.8					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E53076	E. coli by MF by AEL in Altamonte Springs	2129579, 2129580, 2129581, 2129582, 2129583, 2129584, 2129585, 2129586, 2129587, 2129588
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2129589, 2129590, 2129591
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2129592, 2129593
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2129592, 2129593

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	10/17/2019	10/17/2019 14:47		10/18/2019 14:38	Advanced Environmental Laboratory	2129579, 2129580, 2129581, 2129582, 2129583, 2129584, 2129585, 2129586, 2129587, 2129588
SM 10200 H (mod.)	10/18/2019	10/18/2019 14:41	Yuliya Danyuk	10/29/2019 16:18	Carina A. Tull	2129589, 2129590, 2129591
SOP-PCR-1.0	10/18/2019	10/18/2019 14:00	Angela Smith	11/06/2019 15:24	Lauren Campbell	2129592, 2129593
SOP-PCR-1.4	10/18/2019	10/18/2019 14:00	Angela Smith	11/07/2019 15:52	Lauren Campbell	2129592, 2129593