

Biological Analysis Report

CEN-DIST-2019-08-09-02

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: **Soldier / Salt / Black Ham / Gee / Sweetwater / Howell / Bear**
Request ID: **RQ-2019-04-01-45**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 23-SEP-2019 11:23



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 @ Florida Ave

Collection Date/Time: 08/08/2019 11:42

Field ID: G2CE0123

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2110496	EPA 1603	Escherichia coli Membrane Filter	80000	Z	cfu/100mL		
2110501	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P368729	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	UJ	TSC/100 mL	P368729	MS, RPD

Ref. Method and Comment:
 SOP-PCR-1.4: Quality control failure(s) observed. See QA report for details.

Sample Location: Sweetwater Creek @ US of DeLeon St.

Collection Date/Time: 08/08/2019 12:00

Field ID: G2CE0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2110497	EPA 1603	Escherichia coli Membrane Filter	80000	Z	cfu/100mL		

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

Collection Date/Time: 08/08/2019 11:55

Field ID: G2CE0139

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2110498	EPA 1603	Escherichia coli Membrane Filter	80000	Z	cfu/100mL		

Sample Location: Gee Creek @ Alton Rd

Collection Date/Time: 08/08/2019 13:22

Field ID: G2CE0161

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2110490	EPA 1603	Escherichia coli Membrane Filter	80000	Z	cfu/100mL		
2110499	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.5	I	ug/L	P369283	
		Phaeophytin-a	1.9	I	ug/L	P369283	
		Chlorophyll-a, Uncorrected	3.5	A	ug/L	P369283	

Ref. Method and Comment:
 SM 10200 H (mod.): Laboratory duplicate result is 2.2 I for Chlorophyll-a Corrected and 1.7 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: 08/08/2019 10:29

Field ID: G2CE0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2110492	EPA 1603	Escherichia coli Membrane Filter	80000	Z	cfu/100mL		

Sample Location: Bear Creek @ Northern Way

Collection Date/Time: 08/08/2019 10:47

Field ID: G2CE0182

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2110493	EPA 1603	Escherichia coli Membrane Filter	80000	Z	cfu/100mL		

Sample Location: Salt Creek @ Packard Ave

Collection Date/Time: 08/08/2019 11:20

Field ID: G2CE0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G2CE0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2110494	EPA 1603	Escherichia coli Membrane Filter	80000	Z	cfu/100mL		

Sample Location: Sweetwater Creek @ Kansas St

Collection Date/Time: 08/08/2019 11:36

Field ID: G2CE0203

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2110495	EPA 1603	Escherichia coli Membrane Filter	80000	Z	cfu/100mL		
2110555	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P368729	
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P368729	MS, RPD

Sample Location: Howell Creek @ US of Lake Howell Ln

Collection Date/Time: 08/08/2019 09:51

Field ID: G2CE0138

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2110491	EPA 1603	Escherichia coli Membrane Filter	700	BJ	cfu/100mL		
2110500	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.0		ug/L	P369283	
		Phaeophytin-a	1.0	I	ug/L	P369283	
		Chlorophyll-a, Uncorrected	3.7		ug/L	P369283	

Ref. Method and Comment:

EPA 1603: Incubation period exceeded method limits by less than 1 hour.

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: P369283

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.96	U	ug/L
Chlorophyll-a, Uncorrected	0.70	U	ug/L
Phaeophytin-a	1.0	U	ug/L

Reference Method: SOP-PCR-1.0

Batch ID: P368729

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

Reference Method: SOP-PCR-1.4

Batch ID: P368729

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: P369283

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	90.9		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P368729

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	111	87.9	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P368729

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	89.9	75.9	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P368729

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110501	HF183-qPCR	89.4	96.7	P/P	50 - 175
2110555	HF183-qPCR	84.5		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P368729

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110501	BacR-qPCR	48.8	70.7	F/P	50 - 175
2110555	BacR-qPCR	52.1		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P369283

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110499	Chlorophyll-a, Uncorrected	11.1	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P368729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110501	HF183-qPCR	7.86	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.4
Batch ID: P368729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110501	BacR-qPCR	36.6	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: 2110501
Field Sample ID: G2CE0123

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	154	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	87.4	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	78.4	P	50 - 300

Lab Sample ID: 2110555
Field Sample ID: G2CE0203

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	132	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	65.0	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	90.9					
	Chlorophyll-a, Uncorrected				11.1		
SOP-PCR-1.0	HF183-qPCR	87.9	111	89.4	96.7	84.5	7.86
SOP-PCR-1.4	BacR-qPCR	75.9	89.9	48.8	70.7	52.1	36.6

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E53076	E. coli by MF by AEL in Altamonte Springs	2110490, 2110491, 2110492, 2110493, 2110494, 2110495, 2110496, 2110497, 2110498
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2110499, 2110500
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2110501, 2110555
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2110501, 2110555

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	08/08/2019	08/08/2019 17:50		08/09/2019 16:40	Advanced Environmental Laboratory	2110491
	08/08/2019	08/08/2019 18:26		08/09/2019 16:40	Advanced Environmental Laboratory	2110492
	08/08/2019	08/08/2019 18:36		08/09/2019 16:40	Advanced Environmental Laboratory	2110490, 2110493, 2110494, 2110495, 2110496, 2110497, 2110498
SM 10200 H (mod.)	08/09/2019	08/09/2019 13:30	Peterson Janvier	08/16/2019 08:32	Yuliya Danyuk	2110499, 2110500
SOP-PCR-1.0	08/09/2019	08/09/2019 15:00	Mailin Lopez	09/04/2019 10:20	Mailin Lopez	2110501, 2110555
SOP-PCR-1.4	08/09/2019	08/09/2019 15:00	Mailin Lopez	09/12/2019 12:51	Mailin Lopez	2110501, 2110555