

Biological Analysis Report

CEN-DIST-2019-11-22-01

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: **Seminole Co Run**
Request ID: **RQ-2019-11-18-60**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 20-DEC-2019 15:13



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: Howell Creek @ US of Lake Howell Ln

Collection Date/Time: 11/21/2019 09:15

Field ID: G2CE0138

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138813	EPA 1603	Escherichia coli Membrane Filter	80	B	cfu/100 mL		
2138831	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.2	I	ug/L	P375467	
		Phaeophytin-a	1.1	I	ug/L	P375467	
		Chlorophyll-a, Uncorrected	3.0		ug/L	P375467	

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: Sweetwater Creek @ US of DeLeon St

Collection Date/Time: 11/21/2019 09:50

Field ID: G2CE0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138821	EPA 1603	Escherichia coli Membrane Filter	1700	B	cfu/100 mL		

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

Collection Date/Time: 11/21/2019 09:55

Field ID: G2CE0139

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138822	EPA 1603	Escherichia coli Membrane Filter	1900	B	cfu/100 mL		

Sample Location: Salt Creek @ Packard Ave

Collection Date/Time: 11/21/2019 10:07

Field ID: G2CE0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138816	EPA 1603	Escherichia coli Membrane Filter	1200	B	cfu/100 mL		

Sample Location: Sweetwater Creek @ Kansas St

Collection Date/Time: 11/21/2019 10:19

Field ID: G2CE0203

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138819	EPA 1603	Escherichia coli Membrane Filter	1000	B	cfu/100 mL		
2138844	SOP-PCR-1.0	HF183-qPCR**	540	I	GEU/100 mL	P374681	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P374681	

Sample Location: Sweetwater Creek @ Florida Ave

Collection Date/Time: 11/21/2019 10:24

Field ID: G2CE0123

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138820	EPA 1603	Escherichia coli Membrane Filter	2200		cfu/100 mL		
2138845	SOP-PCR-1.0	HF183-qPCR**	310	I	GEU/100 mL	P374681	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P374681	

Sample Location: Bear Creek @ Northern Way

Collection Date/Time: 11/21/2019 10:38

Field ID: G2CE0182

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138817	EPA 1603	Escherichia coli Membrane Filter	800	B	cfu/100 mL		

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

Collection Date/Time: 11/21/2019 10:52

Field ID: G2CE0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138818	EPA 1603	Escherichia coli Membrane Filter	500	B	cfu/100 mL		

Sample Location: Gee Creek @ Alton Rd

Collection Date/Time: 11/21/2019 11:15

Field ID: G2CE0161

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138814	EPA 1603	Escherichia coli Membrane Filter	600	B	cfu/100 mL		
2138832	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P375467	
		Phaeophytin-a	0.90	U	ug/L	P375467	
		Chlorophyll-a, Uncorrected	1.0	I	ug/L	P375467	

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: Soldier Creek @ 150m Upstream of SR Hwy 419

Collection Date/Time: 11/21/2019 11:37

Field ID: G2CE0071

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138815	EPA 1603	Escherichia coli Membrane Filter	400	B	cfu/100 mL		
2138833	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.3	I	ug/L	P375467	
		Phaeophytin-a	0.97	I	ug/L	P375467	
		Chlorophyll-a, Uncorrected	1.9		ug/L	P375467	

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: P375467

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: P374681

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

Reference Method: SOP-PCR-1.4

Batch ID: P374681

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: P375467

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	103		P	84 - 116

Reference Method: SOP-PCR-1.0
 Batch ID: P374681

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	131	130	P/P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P374681

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	102	111	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P374681

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138844	HF183-qPCR	117		P	50 - 175
2138845	HF183-qPCR	119		P	50 - 175
2139028	HF183-qPCR	112		P	50 - 175
2139029	HF183-qPCR	120		P	50 - 175
2139030	HF183-qPCR	109		P	50 - 175
2139031	HF183-qPCR	124		P	50 - 175
2139032	HF183-qPCR	103		P	50 - 175
2139105	HF183-qPCR	118	115	P/P	50 - 175
2139250	HF183-qPCR	111		P	50 - 175
2139251	HF183-qPCR	116		P	50 - 175
2139252	HF183-qPCR	118		P	50 - 175
2139253	HF183-qPCR	120		P	50 - 175
2139408	HF183-qPCR	126		P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P374681

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138844	BacR-qPCR	84.9		P	50 - 175
2138845	BacR-qPCR	75.1		P	50 - 175
2139105	BacR-qPCR	87.5	88.6	P/P	50 - 175
2139250	BacR-qPCR	77.8		P	50 - 175
2139251	BacR-qPCR	74.6		P	50 - 175
2139252	BacR-qPCR	75.5		P	50 - 175
2139253	BacR-qPCR	78.4		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P375467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139016	Chlorophyll-a, Corrected	0.927	Sample	P	0 - 25
2139016	Chlorophyll-a, Uncorrected	1.77	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P374681

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139105	HF183-qPCR	3.31	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P374681

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139105	BacR-qPCR	1.29	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2138844
 Field Sample ID: G2CE0203

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	83.4	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	87.3	P	50 - 300

Lab Sample ID: 2138845
 Field Sample ID: G2CE0123

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	88.9	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	89.8	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	103						0.927	
	Chlorophyll-a, Uncorrected							1.77	
SOP-PCR-1.0	HF183-qPCR	130	131	119	112	120			3.31
				109					
SOP-PCR-1.4	BacR-qPCR	111	102	75.1	84.9	87.5			1.29
				88.6					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E53076	E. coli by MF by AEL in Altamonte Springs	2138813, 2138814, 2138815, 2138816, 2138817, 2138818, 2138819, 2138820, 2138821, 2138822
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2138831, 2138832, 2138833
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2138844, 2138845
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2138844, 2138845

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	11/21/2019	11/21/2019 15:55		11/22/2019 17:00	Advanced Environmental Laboratory	2138813, 2138814, 2138815, 2138816, 2138817, 2138818, 2138819, 2138820, 2138821, 2138822
SM 10200 H (mod.)	11/22/2019	11/22/2019 13:30	Jessica Fetgatter	12/09/2019 09:45	Yuliya Danyuk	2138831, 2138832, 2138833
SOP-PCR-1.0	11/22/2019	11/22/2019 11:40	Angela Smith	12/12/2019 15:37	Lauren Campbell	2138844, 2138845
SOP-PCR-1.4	11/22/2019	11/22/2019 11:40	Angela Smith	12/11/2019 14:29	Lauren Campbell	2138844, 2138845