Biological Analysis Report

CEN-DIST-2019-09-06-01

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: **Econ Trib / Roberts**
Request ID: **RQ-2019-09-02-69**
Customer: **CEN-DIST**
Project ID: **SMP**

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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 04-OCT-2019 16:15

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: Roberts Branch @ Curryville Rd. **Collection Date/Time: 09/05/2019 10:42**

Field ID: G3CE0011 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116915	EPA 1603	Escherichia coli Membrane Filter	190	B	cfu/100 mL		
2116917	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.9	U	ug/L	P370484	
		Phaeophytin-a	2.1	U	ug/L	P370484	
		Chlorophyll-a, Uncorrected	1.4	U	ug/L	P370484	
2116918	SOP-PCR-1.0	HF183-qPCR**	170	I	GEU/100 mL	P370137	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.31E+05		TSC/100 mL	P370137	

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: Econ River Trib @ 170m N of Jay Blanchard Trail **Collection Date/Time: 09/05/2019 11:30**

Field ID: G2CE0198 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116914	EPA 1603	Escherichia coli Membrane Filter	3400		cfu/100 mL		
2116916	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.9		ug/L	P370484	
		Phaeophytin-a	2.7	I	ug/L	P370484	
		Chlorophyll-a, Uncorrected	5.6		ug/L	P370484	

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: P370484

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: P370137

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

Reference Method: SOP-PCR-1.4
Batch ID: P370137

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: P370484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	85.8		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P370137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	126	274	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P370137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	106	143	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P370137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116409	HF183-qPCR	113		P	50 - 175
2116489	HF183-qPCR	120		P	50 - 175
2116490	HF183-qPCR	131	118	P/P	50 - 175
2116588	HF183-qPCR	95.9		P	50 - 175
2116702	HF183-qPCR	111		P	50 - 175
2116703	HF183-qPCR	102		P	50 - 175
2116704	HF183-qPCR	104		P	50 - 175
2116918	HF183-qPCR	93.6		P	50 - 175
2117242	HF183-qPCR	82.6		P	50 - 175
2117243	HF183-qPCR	68.4		P	50 - 175
2117278	HF183-qPCR	93.2		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P370137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116409	BacR-qPCR	97.8		P	50 - 175
2116489	BacR-qPCR	90.5		P	50 - 175
2116490	BacR-qPCR	90.8	87.0	P/P	50 - 175
2116588	BacR-qPCR	79.3		P	50 - 175
2116702	BacR-qPCR	99.1		P	50 - 175
2116703	BacR-qPCR	96.7		P	50 - 175
2116704	BacR-qPCR	80.3		P	50 - 175
2116918	BacR-qPCR	51.3		P	50 - 175
2117242	BacR-qPCR	51.7		P	50 - 175
2117278	BacR-qPCR	63.1		P	50 - 175

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.0
Batch ID: P370137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116490	HF183-qPCR	10.5	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P370137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116490	BacR-qPCR	4.35	Spike	P	0 - 25

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2116918
Field Sample ID: G3CE0011

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	55.0	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	88.4	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	85.8				
SOP-PCR-1.0	HF183-qPCR	274 126	113 120 131 118			10.5
SOP-PCR-1.4	BacR-qPCR	143 106	97.8 90.5 90.8 87.0			4.35

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E53076	E. coli by MF by AEL in Altamonte Springs	2116914, 2116915
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2116916, 2116917
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2116918
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2116918

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	09/05/2019	09/05/2019 15:22		09/06/2019 15:00	Advanced Environmental Laboratory	2116914, 2116915
SM 10200 H (mod.)	09/06/2019	09/06/2019 14:03	Yuliya Danyuk	09/10/2019 16:12	Yuliya Danyuk	2116916, 2116917
SOP-PCR-1.0	09/06/2019	09/06/2019 13:20	Angela Smith	09/24/2019 08:33	Mailin Lopez	2116918
SOP-PCR-1.4	09/06/2019	09/06/2019 13:20	Angela Smith	09/24/2019 09:07	Mailin Lopez	2116918