

Biological Analysis Report

SW-DIST-2018-11-14-01

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 - Tampa
9610 Princess Palm Avenue
Tampa, Florida 33619
DOH Accreditation E84589

Event Description: **English, Turkey, Poley, Mustang**
Request ID: **RQ-2018-11-12-05**
Customer: **SW-DIST**
Project ID: **SMP**

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Date Certified: 27-DEC-2018 15:41



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 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: Mustang Ranch Creek @ Hopewell

Collection Date/Time: 11/13/2018 10:50

Field ID: G2SW0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041018	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	I	ug/L	P355422	
		Phaeophytin-a	1.0	I	ug/L	P355422	
		Chlorophyll-a, Uncorrected	2.2	A	ug/L	P355422	

Ref. Method and Comment:

SM 10200 H (mod.): Laboratory duplicate result is 1.5 I for Chlorophyll-a Corrected and 0.99 I for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: Mustang Ranch Creek @ Hopewell

Collection Date/Time: 11/13/2018 10:50

Field ID: G2SW0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041028	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P355488	
	SOP-PCR-1.4	BacR-qPCR**	7.17E+05		TSC/100 mL	P355488	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
2041037	EPA 1603	Escherichia coli-Membrane Filter**	700	B	cfu/100 mL		

Ref. Method and Comment:

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A88426

Sample Location: Mustang Rch @ CR 39

Collection Date/Time: 11/13/2018 11:10

Field ID: G2SW0050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041029	SOP-PCR-1.0	HF183-qPCR**	330	I	GEU/100 mL	P355488	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
2041038	EPA 1603	Escherichia coli-Membrane Filter**	1800	B	cfu/100 mL		

Sample Location: Poley Creek @ SR 60

Collection Date/Time: 11/13/2018 13:30

Field ID: G2SW0049

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041030	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2041039	EPA 1603	Escherichia coli-Membrane Filter**	132		cfu/100 mL		

Sample Location: Poley @ Shepard Rd

Collection Date/Time: 11/13/2018 13:50

Field ID: G2SW0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041031	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2041040	EPA 1603	Escherichia coli-Membrane Filter**	280		cfu/100 mL		

Sample Location: Turkey Creek @ Sydney Rd.

Collection Date/Time: 11/13/2018 09:40

Field ID: G2SW0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041032	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2041041	EPA 1603	Escherichia coli-Membrane Filter**	239		cfu/100 mL		

Sample Location: Turkey Creek @ SR 60

Collection Date/Time: 11/13/2018 10:10

Field ID: G2SW0051

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041033	SOP-PCR-1.0	HF183-qPCR**	940		GEU/100 mL	P355488	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
2041042	EPA 1603	Escherichia coli-Membrane Filter**	500		cfu/100 mL		

Sample Location: English Creek above SR 60

Collection Date/Time: 11/13/2018 12:45

Field ID: G2SW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041034	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2041043	EPA 1603	Escherichia coli-Membrane Filter**	36	B	cfu/100 mL		

Sample Location: English Creek @ Old Mulberry Rd

Collection Date/Time: 11/13/2018 13:10

Field ID: G2SW0048

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041035	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2041044	EPA 1603	Escherichia coli-Membrane Filter**	96		cfu/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P355422

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.60	U	ug/L

Reference Method: SOP-PCR-1.0
 Batch ID: P355488

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

Reference Method: SOP-PCR-1.4
 Batch ID: P355488

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: P355422

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	99.9		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P355488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	119	175	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P355488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	134	112	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P355488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041028	HF183-qPCR	105		P	50 - 175
2041029	HF183-qPCR	84.0		P	50 - 175
2041033	HF183-qPCR	112		P	50 - 175
2043413	HF183-qPCR	107	119	P/P	50 - 175
2043526	HF183-qPCR	95.2		P	50 - 175
2043527	HF183-qPCR	94.9		P	50 - 175
2044593	HF183-qPCR	115		P	50 - 175
2044594	HF183-qPCR	117		P	50 - 175
2044595	HF183-qPCR	119		P	50 - 175
2044596	HF183-qPCR	123		P	50 - 175
2047259	HF183-qPCR	109		P	50 - 175
2047687	HF183-qPCR	115		P	50 - 175
2047688	HF183-qPCR	119		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P355488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041028	BacR-qPCR	67.2		P	50 - 175
2044594	BacR-qPCR	78.3		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P355422

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041018	Chlorophyll-a, Uncorrected	3.22	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P355488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P355488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2043413	HF183-qPCR	10.2	Spike	P	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: 2041028
Field Sample ID: G2SW0026

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	106	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	120	P	50 - 300

Lab Sample ID: 2041029
Field Sample ID: G2SW0050

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	79.0	P	50 - 300

Lab Sample ID: 2041033
Field Sample ID: G2SW0051

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	103	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	99.9							
	Chlorophyll-a, Uncorrected							3.22	
SOP-PCR-1.0	HF183-qPCR	175	119	95.2	94.9	109			10.2
				105					
SOP-PCR-1.4	BacR-qPCR	112	134	67.2	78.3				

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E84589	Escherichia coli by membrane filter	Advanced Environmental Laboratory in Tampa
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2041037, 2041038, 2041039, 2041040, 2041041, 2041042, 2041043, 2041044
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2041028, 2041029, 2041033
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2041028

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2041028, 2041029, 2041030, 2041031, 2041032, 2041033, 2041034, 2041035

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	11/13/2018	11/13/2018 16:50		11/14/2018 15:30	AEL - Tampa	2041037, 2041038, 2041039, 2041040, 2041041, 2041042, 2041043, 2041044
SM 10200 H (mod.)	11/14/2018	11/14/2018 15:50	Edwin Gonzalez-Soto	11/29/2018 10:45	Peterson Janvier	2041018
SOP-PCR-1.0	11/14/2018	11/14/2018 14:05	Sarah Menz	12/12/2018 11:46	Mailin Lopez	2041028, 2041029, 2041033
SOP-PCR-1.4	11/14/2018	11/14/2018 14:05	Sarah Menz	12/19/2018 09:06	Mailin Lopez	2041028
SOP-PCR-4.0	11/14/2018	11/14/2018 14:05	Angela Smith	12/10/2018 15:40	Sarah Menz	2041028, 2041029, 2041030, 2041031, 2041032, 2041033, 2041034, 2041035