

Biological Analysis Report

WQAP-2017-10-18-03

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

Event Description: **RUN 13/14**
Request ID: **RQ-2017-09-11-26**
Customer: **WQAP**
Project ID: **SMP**

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Certified by: Jennifer Walters, Environmental Manager

Date Certified: 29-DEC-2017 14:10



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: TROUT CREEK GROUP B.C.E

Collection Date/Time: 10/17/2017 09:10

Field ID: G2SW0021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937797	EPA 1603	Escherichia coli-Membrane Filter**	80	BQ	cfu/100 mL		

Sample Location: TROUT CREEK GROUP B.C.E

Collection Date/Time: 10/17/2017 09:10

Field ID: G2SW0021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937795	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: NEW RIVER

Collection Date/Time: 10/17/2017 09:50

Field ID: G2SW0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937791	SM 10200 H (mod.)	Chlorophyll-a, Corrected	41		ug/L	P334030	
		Phaeophytin-a	3.5		ug/L	P334030	
		Chlorophyll-a, Uncorrected	45		ug/L	P334030	

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: NEW RIVER

Collection Date/Time: 10/17/2017 09:50

Field ID: G2SW0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937798	EPA 1603	Escherichia coli-Membrane Filter**	2400	Q	cfu/100 mL		

Sample Location: BLACKWATER CRK

Collection Date/Time: 10/17/2017 12:35

Field ID: G2SW0019

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937799	EPA 1603	Escherichia coli-Membrane Filter**	200		cfu/100 mL		

Sample Location: FLINT CREEK

Collection Date/Time: 10/17/2017 13:05

Field ID: G2SW0004

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937800	EPA 1603	Escherichia coli-Membrane Filter**	2400		cfu/100 mL		

Sample Location: BAKER CREEK

Collection Date/Time: 10/17/2017 13:30

Field ID: G2SW0012

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937801	EPA 1603	Escherichia coli-Membrane Filter**	1600	B	cfu/100 mL		

Sample Location: SPARTMAN

Collection Date/Time: 10/17/2017 13:45

Field ID: G2SW0013

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G2SW0013

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937802	EPA 1603	Escherichia coli-Membrane Filter**	400		cfu/100 mL		

Sample Location: MUSTANG RANCH CRK

Collection Date/Time: 10/17/2017 14:11

Field ID: G2SW0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937803	EPA 1603	Escherichia coli-Membrane Filter**	240		cfu/100 mL		

Sample Location: TURKEY CREEK

Collection Date/Time: 10/17/2017 14:35

Field ID: G2SW0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937804	EPA 1603	Escherichia coli-Membrane Filter**	1600	B	cfu/100 mL		

Sample Location: DELANY CREEK-1

Collection Date/Time: 10/17/2017 15:20

Field ID: G1SW0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937805	EPA 1603	Escherichia coli-Membrane Filter**	8000	B	cfu/100 mL		

Sample Location: DELANY CREEK-1

Collection Date/Time: 10/17/2017 15:20

Field ID: G1SW0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937793	SOP-PCR-1.0	HF183-qPCR**	59	T	GEU/100 mL	P333611	RPD
	SOP-PCR-1.2	GULL2-purified-qPCR**	810	TJ	TSC/100 mL	P333940	LCS, SUR
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
 SOP-PCR-1.0: Precision data unavailable.
 SOP-PCR-1.2: Quality control failure(s) observed. See QA report for details.

Sample Location: DELANY CREEK-2

Collection Date/Time: 10/17/2017 15:35

Field ID: G1SW0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937792	SM 10200 H (mod.)	Chlorophyll-a, Corrected	12		ug/L	P334030	
		Phaeophytin-a	1.9	I	ug/L	P334030	
		Chlorophyll-a, Uncorrected	14		ug/L	P334030	

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: DELANY CREEK-2

Collection Date/Time: 10/17/2017 15:35

Field ID: G1SW0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937806	EPA 1603	Escherichia coli-Membrane Filter**	8000	B	cfu/100 mL		

Sample Location: DELANY CREEK-2

Collection Date/Time: 10/17/2017 15:35

Field ID: G1SW0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937794	SOP-PCR-1.0	HF183-qPCR**	160	I	GEU/100 mL	P333611	RPD
	SOP-PCR-1.2	GULL2-purified-qPCR**	1.4E+03	UJ	TSC/100 mL	P333940	LCS, SUR
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
SOP-PCR-1.2: No amplification of PURG2 marker. Quality control failure(s) observed. See QA report for details.

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P334030

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

Reference Method: SOP-PCR-1.0
Batch ID: P333611

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

Reference Method: SOP-PCR-1.2
Batch ID: P333940

Component	Result	Code	Units
GULL2-purified-qPCR	2.8E+03	U	TSC/100 mL

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P334030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	105		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P333611

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	105	126	P/P	50 - 175
HF183-qPCR	83.5	103	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P333940

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-purified-qPCR	91.9	12.5	P/F	50 - 300

Quality Assurance Report
Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P333611

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937793	HF183-qPCR	86.8		P	50 - 175
1937794	HF183-qPCR	56.1		P	50 - 175
1938722	HF183-qPCR	90.5	121	P/P	50 - 175
1938723	HF183-qPCR	65.8		P	50 - 175
1938724	HF183-qPCR	70.5		P	50 - 175
1938725	HF183-qPCR	92.9		P	50 - 175
1938726	HF183-qPCR	80.6		P	50 - 175
1938727	HF183-qPCR	79.0		P	50 - 175
1938728	HF183-qPCR	77.6		P	50 - 175
1938729	HF183-qPCR	82.7		P	50 - 175
1938730	HF183-qPCR	80.1		P	50 - 175
1938731	HF183-qPCR	78.4		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P333940

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932386	GULL2-purified-qPCR	50.9		P	50 - 300
1937793	GULL2-purified-qPCR	111		P	50 - 300
1937794	GULL2-purified-qPCR	77.6		P	50 - 300

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P334030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937504	Chlorophyll-a, Uncorrected	7.24	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P333611

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938722	HF183-qPCR	28.6	Spike	F	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P333940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938722	GULL2-purified-qPCR	3.15	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

Quality Assurance Report Surrogates

Lab Sample ID: 1937793
Field Sample ID: G1SW0046

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	80.1	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	5.00	F	30 - 300

Lab Sample ID: 1937794
Field Sample ID: G1SW0066

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	53.3	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	4.05	F	30 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	105								
	Chlorophyll-a, Uncorrected								7.24	
SOP-PCR-1.0	HF183-qPCR	105	103	83.5	56.1	90.5	121			28.6
		126			65.8					
SOP-PCR-1.2	GULL2-purified-qPCR	12.5	91.9		50.9	111	77.6			3.15

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E84589	Escherichia coli by membrane filter method using modified mTEC by Advanced Environmental Tampa Lab for SWD	1937797, 1937798, 1937799, 1937800, 1937801, 1937802, 1937803, 1937804, 1937805, 1937806
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1937791, 1937792
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1937793, 1937794
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1937793, 1937794
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1937793, 1937794, 1937795

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	10/17/2017	10/17/2017 17:50		10/18/2017 18:14	AEL - Tampa	1937797, 1937798
	10/17/2017	10/17/2017 18:14		10/18/2017 18:14	AEL - Tampa	1937799, 1937800, 1937801, 1937802, 1937803, 1937804, 1937805, 1937806
SM 10200 H (mod.)	10/18/2017	10/18/2017 13:02	Cathy Sherrer	10/25/2017	Kim M. Spencer	1937791, 1937792
SOP-PCR-1.0	10/18/2017	10/18/2017 13:30	Sarah Menz	10/23/2017	Sarah Menz	1937794
	10/18/2017	10/18/2017 13:30	Sarah Menz	10/30/2017	Sarah Menz	1937793
SOP-PCR-1.2	10/18/2017	10/18/2017 13:30	Avril Wood	11/02/2017	Sarah Menz	1937793, 1937794
SOP-PCR-4.0	10/18/2017	10/18/2017 13:30	Avril Wood	11/14/2017	Puja Jasrotia	1937793, 1937794, 1937795