

Biological Analysis Report

WQAP-2017-07-11-02

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

Event Description: **Cedar&Stevenson Crk**
Request ID: **RQ-2017-07-10-22**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
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Certified by: Jennifer Walters, Environmental Manager

Date Certified: 29-AUG-2017 16:39



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: Stevenson Crk

Collection Date/Time: 07/10/2017 10:05

Field ID: G5SW0002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1912404	EPA 1603	Escherichia coli-Membrane Filter**	120	B	cfu/100 mL		

Sample Location: Cedar Creek

Collection Date/Time: 07/10/2017 12:40

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1912405	EPA 1603	Escherichia coli-Membrane Filter**	320		cfu/100 mL		

Sample Location: Cedar Creek

Collection Date/Time: 07/10/2017 12:40

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1912402	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.5		ug/L	P328533	
		Phaeophytin-a	3.1		ug/L	P328533	
		Chlorophyll/Phaeophytin Ratio	1.4			P328533	
		Chlorophyll-a, Uncorrected	6.6		ug/L	P328533	

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: Cedar Creek

Collection Date/Time: 07/10/2017 12:40

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1912403	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P328087	
	SOP-PCR-1.3	GFD-purified-qPCR**	110	U	TSC/100 mL	P328245	LCS, MS, RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

SOP-PCR-1.3: No amplification of GFD marker.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P328533

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: P328087

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.3
Batch ID: P328245

Component	Result	Code	Units
GFD-purified-qPCR	340	U	TSC/100 mL
GFD-purified-qPCR	340	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P328533

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	108		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P328087

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	115	68.8	P/P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P328245

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	14.7	103	F/P	50 - 175
GFD-purified-qPCR	20.1	123	F/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P328087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910311	HF183-qPCR	108		P	50 - 175
1911680	HF183-qPCR	130		P	50 - 175
1911681	HF183-qPCR	122	99.5	P/P	50 - 175
1911682	HF183-qPCR	85.1		P	50 - 175
1911683	HF183-qPCR	117		P	50 - 175
1911746	HF183-qPCR	83.3		P	50 - 175
1911747	HF183-qPCR	95.3		P	50 - 175
1912403	HF183-qPCR	95.7		P	50 - 175
1912566	HF183-qPCR	116		P	50 - 175
1912567	HF183-qPCR	98.1		P	50 - 175
1912906	HF183-qPCR	93.4		P	50 - 175
1912908	HF183-qPCR	88.3		P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P328245

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870630	GFD-purified-qPCR	147		P	50 - 175
1879803	GFD-purified-qPCR	146		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
 Batch ID: P328245

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879804	GFD-purified-qPCR	105		P	50 - 175
1902820	GFD-purified-qPCR	72.0		P	50 - 175
1909295	GFD-purified-qPCR	27.7		F	50 - 175
1909893	GFD-purified-qPCR	116		P	50 - 175
1912403	GFD-purified-qPCR	107		P	50 - 175
1912569	GFD-purified-qPCR	40.0		F	50 - 175
1912910	GFD-purified-qPCR	71.4		P	50 - 175
1913825	GFD-purified-qPCR	94.1		P	50 - 175
1913826	GFD-purified-qPCR	83.0		P	50 - 175
1913827	GFD-purified-qPCR	108		P	50 - 175
1913828	GFD-purified-qPCR	81.2	91.4	P/P	50 - 175
1913829	GFD-purified-qPCR	59.8		P	50 - 175
1913830	GFD-purified-qPCR	60.7		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P328533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912310	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1912310	Chlorophyll-a, Corrected	1.79	Sample	P	0 - 25
1912310	Chlorophyll-a, Uncorrected	0.619	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P328087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911681	HF183-qPCR	20.4	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P328245

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913828	GFD-purified-qPCR	11.8	Spike	P	0 - 25
1918018	GFD-purified-qPCR	55.0	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: 1912403
 Field Sample ID: G5SW0129

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
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Quality Assurance Report Surrogates

Lab Sample ID: 1912403
 Field Sample ID: G5SW0129

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	100	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio								0.0	
	Chlorophyll-a, Corrected	108							1.79	
	Chlorophyll-a, Uncorrected								0.619	
SOP-PCR-1.0	HF183-qPCR	68.8	115		108	130	122			20.4
					99.5					
SOP-PCR-1.3	GFD-purified-qPCR	14.7	123	20.1	116	107	40.0			55.0
		103			71.4					11.8

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	1912404, 1912405
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1912402
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1912403
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1912403
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1912403

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	07/10/2017			07/10/2017 17:00	AEL - Tampa	1912404, 1912405
SM 10200 H (mod.)	07/11/2017	07/11/2017 14:25	Elizabeth Lovern	07/13/2017	Kim M. Spencer	1912402
SOP-PCR-1.0	07/11/2017	07/11/2017 12:30	Puja Jasrotia	07/20/2017	Puja Jasrotia	1912403
SOP-PCR-1.3	07/11/2017	07/11/2017 12:30	Puja Jasrotia	07/21/2017	Sarah Menz	1912403
SOP-PCR-4.0	07/11/2017	07/11/2017 12:30	Avril Wood	07/28/2017	Puja Jasrotia	1912403