Biological Analysis Report

WQAP-2017-06-06-09

Florida Department of Environmental Protection
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DOH Accreditation E31780

Overflow Analyses Performed By:
Advanced Environmental Laboratories - Tampa
9610 Princess Palm Avenue
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DOH Accreditation E84589

Event Description: **RUNS 13 & 14**
Request ID: **RQ-2017-06-05-35**
Customer: **WQAP**
Project ID: **SMP**

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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: English Creek **Collection Date/Time: 06/05/2017 09:40**

Field ID: G2SW0006 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1903866	EPA 1603	Escherichia coli-Membrane Filter**	2400		cfu/100 mL		

Sample Location: Mill Creek **Collection Date/Time: 06/05/2017 10:25**

Field ID: G2SW0022 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1903867	EPA 1603	Escherichia coli-Membrane Filter**	260		cfu/100 mL		

Sample Location: Mill Creek **Collection Date/Time: 06/05/2017 10:25**

Field ID: G2SW0022 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1903863	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Baker Creek **Collection Date/Time: 06/05/2017 10:55**

Field ID: G2SW0012 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1903868	EPA 1603	Escherichia coli-Membrane Filter**	500		cfu/100 mL		

Sample Location: Delany Creek 1 **Collection Date/Time: 06/05/2017 11:35**

Field ID: G2SW0046 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1903869	EPA 1603	Escherichia coli-Membrane Filter**	800		cfu/100 mL		

Sample Location: Delany Creek 1 **Collection Date/Time: 06/05/2017 11:35**

Field ID: G1SW0046 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1903862	SM 10200 H (mod.)	Chlorophyll-a, Corrected	220		ug/L	P326638	
		Phaeophytin-a	31		ug/L	P326638	
		Chlorophyll/Phaeophytin Ratio	1.6			P326638	
		Chlorophyll-a, Uncorrected	240		ug/L	P326638	

Sample Location: Delany Creek 1 **Collection Date/Time: 06/05/2017 11:35**

Field ID: G1SW0046 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1903864	SOP-PCR-1.0	HF183-qPCR**	78	T	GEU/100 mL	P329145	RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Delany Creek 2 **Collection Date/Time: 06/05/2017 11:50**

Field ID: G1SW0066 Matrix: W-SURF-FRH

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

Field ID: G1SW0066 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1903865	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Delany Creek 2 **Collection Date/Time: 06/05/2017 11:50**

Field ID: G2SW0066 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1903870	EPA 1603	Escherichia coli-Membrane Filter**	360		cfu/100 mL		

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P326638

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: P329145

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P326638

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

Reference Method: SOP-PCR-1.0
Batch ID: P329145

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	66.7	87.2	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P329145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1903864	HF183-qPCR	62.8		P	50 - 175
1912563	HF183-qPCR	65.7		P	50 - 175
1912564	HF183-qPCR	70.3		P	50 - 175
1912569	HF183-qPCR	56.9		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P326638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904177	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1904177	Chlorophyll-a, Corrected	1.68	Sample	P	0 - 25
1904177	Chlorophyll-a, Uncorrected	0.797	Sample	P	0 - 25
1904177	Phaeophytin-a	5.68	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P329145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907188	HF183-qPCR	39.4	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: 1903864
Field Sample ID: G1SW0046

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	57.0	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio				0.0	
	Chlorophyll-a, Corrected	103			1.68	
	Chlorophyll-a, Uncorrected				0.797	
	Phaeophytin-a				5.68	
SOP-PCR-1.0	HF183-qPCR	87.2 66.7	62.8 56.9 65.7 70.3			39.4

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	1903866, 1903867, 1903868, 1903869, 1903870
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1903862
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1903864
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1903863, 1903864, 1903865

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	06/05/2017			06/05/2017 16:30	AEL - Tampa	1903866, 1903867, 1903868, 1903869, 1903870
SM 10200 H (mod.)	06/06/2017	06/06/2017 15:15	Brian Cumbie	06/12/2017	Kim M. Spencer	1903862
SOP-PCR-1.0	06/06/2017	06/06/2017 16:05	Puja Jasrotia	08/02/2017	Puja Jasrotia	1903864
SOP-PCR-4.0	06/06/2017	06/06/2017 16:05	Avril Wood	07/06/2017	Puja Jasrotia	1903863
	06/06/2017	06/06/2017 16:05	Avril Wood	07/26/2017	Puja Jasrotia	1903864, 1903865