

Biological Analysis Report

SW-DIST-2017-03-14-01

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

Overflow Analyses Performed By:
Advanced Environmental Laboratories - Tampa
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Tampa, Florida 33619
DOH Accreditation E84589

Event Description: **SMP RUN 15**
Request ID: **RQ-2017-03-13-20**
Customer: **SW-DIST**
Project ID: **SMP**

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Date Certified: 14-APR-2017 15:46



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: Gilley Creek

Collection Date/Time: 03/13/2017 10:00

Field ID: G2SW0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879956	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.90	I	ug/L	P322160	
		Phaeophytin-a	0.43	I	ug/L	P322160	
		Chlorophyll/Phaeophytin Ratio	1.5			P322160	
		Chlorophyll-a, Uncorrected	1.2	I	ug/L	P322160	

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: Gap Creek

Collection Date/Time: 03/13/2017 11:00

Field ID: G2SW0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879957	SM 10200 H (mod.)	Chlorophyll-a, Corrected	9.0		ug/L	P322160	
		Phaeophytin-a	2.2		ug/L	P322160	
		Chlorophyll/Phaeophytin Ratio	1.6			P322160	
		Chlorophyll-a, Uncorrected	11		ug/L	P322160	

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: Wares Creek Fresh

Collection Date/Time: 03/13/2017 11:30

Field ID: G2SW0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879958	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.92	I	ug/L	P322160	
		Phaeophytin-a	1.3		ug/L	P322160	
		Chlorophyll/Phaeophytin Ratio	1.3			P322160	
		Chlorophyll-a, Uncorrected	1.8		ug/L	P322160	

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: Rice Creek

Collection Date/Time: 03/13/2017 15:15

Field ID: G2SW0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879959	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.2	I	ug/L	P322160	
		Phaeophytin-a	1.2	I	ug/L	P322160	
		Chlorophyll/Phaeophytin Ratio	1.4			P322160	
		Chlorophyll-a, Uncorrected	2.0		ug/L	P322160	

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: Gilley Creek

Collection Date/Time: 03/13/2017 10:00

Field ID: G2SW0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879960	SOP-PCR-1.0	HF183-qPCR**	290	I	GEU/100 mL	P322745	RPD

Field ID: G2SW0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879960	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1879974	EPA 1603	Escherichia coli-Membrane Filter**	1560	B	cfu/100 mL		

Ref. Method and Comment:
 SOP-PCR-1.0: Duplicate was analyzed and result is 240 l.

Sample Location: Gap Creek

Collection Date/Time: 03/13/2017 11:00

Field ID: G2SW0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879961	SOP-PCR-1.0	HF183-qPCR**	16	T	GEU/100 mL	P322745	RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1879975	EPA 1603	Escherichia coli-Membrane Filter**	960	B	cfu/100 mL		

Sample Location: Wares Creek Fresh

Collection Date/Time: 03/13/2017 11:30

Field ID: G2SW0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879962	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1879976	EPA 1603	Escherichia coli-Membrane Filter**	40	B	cfu/100 mL		

Sample Location: Little Manatee R

Collection Date/Time: 03/13/2017 13:22

Field ID: G2SW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879963	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1879977	EPA 1603	Escherichia coli-Membrane Filter**	70	B	cfu/100 mL		

Sample Location: Rice Creek

Collection Date/Time: 03/13/2017 15:15

Field ID: G2SW0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879964	SOP-PCR-1.0	HF183-qPCR**	24	T	GEU/100 mL	P322745	RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1879978	EPA 1603	Escherichia coli-Membrane Filter**	1280	B	cfu/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P322160

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: P322745

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P322745

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: P322160

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	92.7		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P322745

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	87.4	52.9	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P322745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879855	HF183-qPCR	87.3		P	50 - 175
1879937	HF183-qPCR	65.2		P	50 - 175
1879938	HF183-qPCR	61.5		P	50 - 175
1879960	HF183-qPCR	98.3	68.5	P/P	50 - 175
1879961	HF183-qPCR	71.2		P	50 - 175
1879964	HF183-qPCR	61.5		P	50 - 175
1880220	HF183-qPCR	94.5		P	50 - 175
1880222	HF183-qPCR	83.2		P	50 - 175
1880223	HF183-qPCR	72.1		P	50 - 175
1880579	HF183-qPCR	74.6		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P322160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879841	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1879841	Chlorophyll-a, Corrected	15.5	Sample	P	0 - 25
1879841	Chlorophyll-a, Uncorrected	14.0	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P322745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879960	HF183-qPCR	35.8	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: 1879960
Field Sample ID: G2SW0024

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	75.9	P	50 - 300

Lab Sample ID: 1879961
Field Sample ID: G2SW0030

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	69.7	P	50 - 300

Lab Sample ID: 1879964
Field Sample ID: G2SW0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	52.6	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	92.7						15.5	
	Chlorophyll-a, Uncorrected							14.0	
SOP-PCR-1.0	HF183-qPCR	52.9	87.4	87.3	65.2	61.5			35.8
				98.3					

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	1879974, 1879975, 1879976, 1879977, 1879978
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1879956, 1879957, 1879958, 1879959
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1879960, 1879961, 1879964
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1879960, 1879961, 1879962, 1879963, 1879964

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	03/13/2017			03/13/2017 16:34	AEL - Tampa	1879974, 1879975, 1879976, 1879977, 1879978
SM 10200 H (mod.)	03/14/2017	03/14/2017 14:05	Carina A. Tull	03/22/2017	Jennifer Mihalic	1879956, 1879957, 1879958, 1879959
SOP-PCR-1.0	03/14/2017	03/14/2017 13:00	Daisys Matthews	04/07/2017	Sarah Menz	1879960, 1879961, 1879964
SOP-PCR-4.0	03/14/2017	03/14/2017 13:00	Puja Jasrotia	04/04/2017	Daisys Matthews	1879960, 1879961, 1879962, 1879963, 1879964