

Biological Analysis Report

SW-DIST-2019-12-27-02

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Overflow Analyses Performed By:
Benchmark Environmental, Inc.
1711 12th Street East
Palmetto, FL 34221
DOH Accreditation E84167

Event Description: **Bellows Lake Outlet**
Request ID: **RQ-2019-12-23-35**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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Temple Terrace, FL 33637-0926
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 23-JAN-2020 14:34



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Bellows Lake Outlet

Collection Date/Time: 12/26/2019 09:50

Field ID: G1SW0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2146291	SM 10200 H (mod.)	Chlorophyll-a, Corrected	180		ug/L	P376699	
		Phaeophytin-a	9.0	U	ug/L	P376699	
		Chlorophyll-a, Uncorrected	190		ug/L	P376699	
2146294	SOP-PCR-1.0	HF183-qPCR**	280	UJ	GEU/100 mL	P376413	SUR
2146295	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	538		MPN/100 mL		

Ref. Method and Comment:

SOP-PCR-1.0: Quality control failure(s) observed. See QA report for details. Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Bellows Lake Outlet

Collection Date/Time: 12/26/2019 09:55

Field ID: G1SW0060_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2146292	SM 10200 H (mod.)	Chlorophyll-a, Corrected	160		ug/L	P376699	
		Phaeophytin-a	9.0	U	ug/L	P376699	
		Chlorophyll-a, Uncorrected	170		ug/L	P376699	

Sample Location: Field_Blank

Collection Date/Time: 12/26/2019 10:00

Field ID: FB 12262019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2146293	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P376699	
		Phaeophytin-a	0.90	U	ug/L	P376699	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P376699	

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P376699

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.96	U	ug/L
Chlorophyll-a, Uncorrected	0.70	U	ug/L
Phaeophytin-a	1.0	U	ug/L

Reference Method: SOP-PCR-1.0

Batch ID: P376413

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: P376699

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	109		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P376413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	134	143	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P376413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146146	HF183-qPCR	125	121	P/P	50 - 175
2146147	HF183-qPCR	119		P	50 - 175
2146148	HF183-qPCR	116		P	50 - 175
2146149	HF183-qPCR	116		P	50 - 175
2146166	HF183-qPCR	115		P	50 - 175
2146173	HF183-qPCR	119		P	50 - 175
2146174	HF183-qPCR	116		P	50 - 175
2146294	HF183-qPCR	66.1		P	50 - 175
2146384	HF183-qPCR	105		P	50 - 175
2146385	HF183-qPCR	105		P	50 - 175
2146386	HF183-qPCR	124		P	50 - 175
2146387	HF183-qPCR	121		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P376699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146240	Chlorophyll-a, Corrected	7.74	Sample	P	0 - 25
2146240	Chlorophyll-a, Uncorrected	5.11	Sample	P	0 - 25
2146240	Phaeophytin-a	6.11	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P376413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146146	HF183-qPCR	2.87	Spike	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Quality Assurance Report Surrogates

Lab Sample ID: 2146294
 Field Sample ID: G1SW0060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	37.5	F	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	109			7.74	
	Chlorophyll-a, Uncorrected				5.11	
	Phaeophytin-a				6.11	
SOP-PCR-1.0	HF183-qPCR	143 134	125 121 119 116			2.87

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2146291, 2146292, 2146293
SM 9223 B Quanti-Tray / E84167	E. coli by Colilert/QT by BEA in Palmetto	2146295
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2146294

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	12/27/2019	12/27/2019 14:07	Jessica Fetgatter	01/07/2020 10:37	Yuliya Danyuk	2146291, 2146292, 2146293
SM 9223 B Quanti-Tray	12/26/2019	12/26/2019 14:06		12/27/2019 14:19	Benchmark EnviroAnalytical - Palmetto	2146295
SOP-PCR-1.0	12/27/2019	12/27/2019 13:00	Mailin Lopez	12/30/2019 10:04	Lauren Campbell	2146294