Biological Analysis Report

SO-DIST-2019-08-16-02

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

Overflow Analyses Performed By:
Benchmark EnviroAnalytical, Inc. - North Port
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North Port, FL 34289
DOH Accreditation E85086

Event Description: **2019 SMP : Runoff to Peace River**
Request ID: **RQ-2019-08-12-20**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 24-SEP-2019 16:25

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: Runoff to Peace River Site 3 **Collection Date/Time: 08/15/2019 09:35**

Field ID: G3SD0132 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112409	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.4	U	ug/L	P369812	
		Phaeophytin-a	1.5	U	ug/L	P369812	
		Chlorophyll-a, Uncorrected	1.0	U	ug/L	P369812	
2112411	SOP-PCR-1.0	HF183-purified-qPCR**	42	IJ	GEU/100 mL	P370173	LCS, SUR
	SOP-PCR-1.4	BacR-purified-qPCR**	7.5E+03		TSC/100 mL	P370173	LCS
2112412	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	350		MPN/100 mL		

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.
SOP-PCR-1.0: Quality control failure(s) observed. See QA report for details. Precision data unavailable for Analysis batch A94296.
SOP-PCR-1.4: Precision data unavailable for Analysis Batch A94325

Sample Location: Runoff to Peace River Site 3 **Collection Date/Time: 08/15/2019 09:40**

Field ID: G3SD0132_DUP Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112410	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	U	ug/L	P369812	
		Phaeophytin-a	1.8	U	ug/L	P369812	
		Chlorophyll-a, Uncorrected	1.2	U	ug/L	P369812	

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.

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P369812

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: P370173

Component	Result	Code	Units
HF183-purified-qPCR	47	U	GEU/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P370173

Component	Result	Code	Units
BacR-purified-qPCR	510	U	TSC/100 mL

Quality Assurance Report
Laboratory Control Sample Accuracy

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P369812

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	85.6		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P370173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-purified-qPCR	148	20.0	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P370173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-purified-qPCR	98.4	19.0	P/F	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P370173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112411	HF183-purified-qPCR	137		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P370173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110995	BacR-purified-qPCR	83.7		P	50 - 175
2110997	BacR-purified-qPCR	85.3		P	50 - 175
2112411	BacR-purified-qPCR	88.8		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P369812

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112172	Chlorophyll-a, Uncorrected	3.73	Sample	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: 2112411
Field Sample ID: G3SD0132

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	12.6	F	30 - 300
SOP-PCR-1.4	SKETA-qPCR	40.3	P	30 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	85.6				
	Chlorophyll-a, Uncorrected				3.73	
SOP-PCR-1.0	HF183-purified-qPCR	20.0 148	137			
SOP-PCR-1.4	BacR-purified-qPCR	19.0 98.4	88.8 85.3 83.7			

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2112409, 2112410
SM 9223 Quanti-Tray / E85086	E. coli by Colilert/QT by BEA South in North Port	2112412
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2112411
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2112411

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	08/16/2019	08/16/2019 14:26	Jennifer Mihalic	08/26/2019 15:11	Yuliya Danyuk	2112409, 2112410
SM 9223 Quanti-Tray	08/15/2019	08/15/2019 13:07		08/16/2019 13:31	Benchmark EnviroAnalytical in North Port	2112412
SOP-PCR-1.0	08/16/2019	08/16/2019 13:20	Angela Smith	09/17/2019 15:14	Mailin Lopez	2112411
SOP-PCR-1.4	08/16/2019	08/16/2019 13:20	Angela Smith	09/18/2019 08:33	Mailin Lopez	2112411