

Biological Analysis Report

SO-DIST-2019-12-10-01

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

Overflow Analyses Performed By:
Sanders Laboratories
10090 Bavaria Road
Ft. Myers, FL 33913
DOH Accreditation E85457

Event Description: **SMP : Pollywog Creek**
Request ID: **RQ-2019-11-25-28**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 05-FEB-2020 14:15



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: AlgalBio, Chlorophyll/Grain Size/BOD, InvertZool, 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: PollywogCreek@SR78

Collection Date/Time: 12/09/2019 11:35

Field ID: G3SD0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2141656	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.1	I	ug/L	P376121	
		Phaeophytin-a	0.90	U	ug/L	P376121	
		Chlorophyll-a, Uncorrected	1.5	I	ug/L	P376121	
2141658	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P375512	
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P375512	
2141660	Colilert-18	Escherichia Coli-Quanti-Tray	816.4		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.

Sample Location: PollywogCreek@SR78

Collection Date/Time: 12/09/2019 11:35

Field ID: G3SD0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2141652	SOP-AB05	Dominant sample taxon**	Xanthophyceae				
2141657	SOP-IZ06	Stream Condition Index (SCI)**	42		Points	P377422	
		Macroinvert-FW-Qual-DipnetX20-#Taxa-Rep2**	27		# Taxa	P377422	

Ref. Method and Comment:

SOP-AB05: The dominant taxon was Vaucheria sp.

Sample Location: PollywogCreek@SR78

Collection Date/Time: 12/09/2019 13:15

Field ID: FB_12092019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2141659	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P375512	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P375512	

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P376121

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Reference Method: SOP-PCR-1.0

Batch ID: P375512

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

Reference Method: SOP-PCR-1.4

Batch ID: P375512

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P376121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	95.3		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P375512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	130	84.0	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P375512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	102	94.5	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P375512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141658	HF183-qPCR	94.3		P	50 - 175
2141659	HF183-qPCR	109		P	50 - 175
2141805	HF183-qPCR	98.6	98.9	P/P	50 - 175
2141806	HF183-qPCR	94.6		P	50 - 175
2141807	HF183-qPCR	102		P	50 - 175
2141808	HF183-qPCR	89.3		P	50 - 175
2141809	HF183-qPCR	95.6		P	50 - 175
2141810	HF183-qPCR	91.5		P	50 - 175
2141811	HF183-qPCR	97.5		P	50 - 175
2141812	HF183-qPCR	90.1		P	50 - 175
2141813	HF183-qPCR	84.4		P	50 - 175
2141814	HF183-qPCR	114		P	50 - 175
2141815	HF183-qPCR	72.8		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P375512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141658	BacR-qPCR	85.5		P	50 - 175
2141659	BacR-qPCR	87.6		P	50 - 175
2141805	BacR-qPCR	86.1	84.9	P/P	50 - 175
2141806	BacR-qPCR	74.6		P	50 - 175
2141807	BacR-qPCR	70.2		P	50 - 175
2141808	BacR-qPCR	64.1		P	50 - 175
2141809	BacR-qPCR	70.1		P	50 - 175
2141810	BacR-qPCR	64.7		P	50 - 175
2141811	BacR-qPCR	71.2		P	50 - 175
2141812	BacR-qPCR	61.9		P	50 - 175
2141813	BacR-qPCR	67.4		P	50 - 175
2141814	BacR-qPCR	84.5		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
 Batch ID: P375512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141815	BacR-qPCR	65.0		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P376121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141643	Chlorophyll-a, Corrected	9.18	Sample	P	0 - 25
2141643	Chlorophyll-a, Uncorrected	8.09	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P375512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141805	HF183-qPCR	0.299	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P375512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141805	BacR-qPCR	1.44	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2141658
 Field Sample ID: G3SD0098

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	85.4	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	92.6	P	50 - 300

Lab Sample ID: 2141659
 Field Sample ID: FB_12092019

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	105	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	97.6	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision	MS
								SMP	
SM 10200 H (mod.)	Chlorophyll-a, Corrected	95.3						9.18	
	Chlorophyll-a, Uncorrected							8.09	
SOP-PCR-1.0	HF183-qPCR	84.0	130	94.3	109	98.6			0.299
SOP-PCR-1.4	BacR-qPCR	94.5	102	98.9					
				85.5	87.6	86.1			1.44
				84.9					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Colilert-18 / E85457	E. coli by Colilert-18/QT by Sanders in Fort Myers	2141660
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2141656
SOP-AB05 / E31780	Qualitative assessment of algal taxa present without counts	2141652
SOP-IZ06 / E31780	No. Taxa of FW macroinverts, qual samp, 20 dipnets.	2141657
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2141658, 2141659
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2141658, 2141659

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Colilert-18	12/09/2019	12/09/2019 15:07		12/10/2019 09:40	Sanders-Fort Myers	2141660
SM 10200 H (mod.)	12/10/2019	12/10/2019 14:15	Jessica Fetgatter	12/17/2019 13:18	Yuliya Danyuk	2141656
SOP-AB05	12/10/2019			12/10/2019 11:53	Rachael Dragon	2141652
SOP-IZ06	12/10/2019	01/15/2020 09:47	Cathy Sherrer	01/30/2020 08:24	Lisa Homann	2141657
SOP-PCR-1.0	12/10/2019	12/10/2019 15:35	Sarah Menz	01/03/2020 11:21	Lauren Campbell	2141658, 2141659
SOP-PCR-1.4	12/10/2019	12/10/2019 15:35	Sarah Menz	01/03/2020 14:10	Lauren Campbell	2141658, 2141659