

Biological Analysis Report

NE-DIST-2019-10-30-01

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

Overflow Analyses Performed By:
ALS Environmental - Jacksonville
9143 Philips Highway, Suite 200
Jacksonville, FL 32256
DOH Accreditation E82502

Event Description: **Suwannee North**
Request ID: **RQ-2019-10-28-09**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

For additional information please contact
Cheryl Swanson - Administrator
Jacqueline Savage - Microbiology
Diane Power - Bench Biology
Andrew Tintle - Aquatic Toxicology
Puja Jasrotia, Ph.D. - Molecular Biology
Amelia Rankin - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Jacqueline Savage, Environmental Administrator

Date Certified: 05-DEC-2019 13:18

A handwritten signature in black ink that reads "Jackie Savage". The signature is written in a cursive, flowing style.

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: Peacock Lake Center

Collection Date/Time: 10/29/2019 10:10

Field ID: 21020097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2132370	SM 10200 H (mod.)	Chlorophyll-a, Corrected	12		ug/L	P374088	
		Phaeophytin-a	1.2	I	ug/L	P374088	
		Chlorophyll-a, Uncorrected	13		ug/L	P374088	

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: Little Creek at US 441

Collection Date/Time: 10/29/2019 11:30

Field ID: 21010033

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2132368	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	U	ug/L	P374088	
		Phaeophytin-a	1.8	U	ug/L	P374088	
		Chlorophyll-a, Uncorrected	1.2	U	ug/L	P374088	
2132371	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1200		MPN/100 mL		
2132373	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P373335	
	SOP-PCR-1.4	BacR-qPCR**	1.12E+04		TSC/100 mL	P373335	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P373335	

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: Precision data unavailable for Analysis Batch A95897.

Sample Location: Little Creek at US 441

Collection Date/Time: 10/29/2019 11:35

Field ID: 21010033DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2132369	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P374088	
		Phaeophytin-a	0.90	U	ug/L	P374088	
		Chlorophyll-a, Uncorrected	0.60	U	ug/L	P374088	
2132372	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1200		MPN/100 mL		
2132374	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P373335	
	SOP-PCR-1.4	BacR-qPCR**	6.6E+03	I	TSC/100 mL	P373335	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P373335	

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: Precision data unavailable for Analysis Batch A95897.

Quality Assurance Report

Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P374088

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P373335

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

Reference Method: SOP-PCR-1.4
Batch ID: P373335

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

Reference Method: SOP-PCR-1.5
Batch ID: P373335

Component	Result	Code	Units
DG3-qPCR	2.6E+03	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P374088

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	108		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P373335

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	120	152	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P373335

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	125	165	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P373335

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	139	168	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P373335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132228	HF183-qPCR	116		P	50 - 175
2132373	HF183-qPCR	105		P	50 - 175
2132374	HF183-qPCR	103		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P373335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132571	HF183-qPCR	102		P	50 - 175
2132572	HF183-qPCR	99.1		P	50 - 175
2132669	HF183-qPCR	95.4		P	50 - 175
2132700	HF183-qPCR	90.3		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P373335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132373	BacR-qPCR	98.1		P	50 - 175
2132374	BacR-qPCR	126		P	50 - 175
2132573	BacR-qPCR	63.3		P	50 - 175
2132669	BacR-qPCR	61.1		P	50 - 175
2132700	BacR-qPCR	88.1		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P373335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132373	DG3-qPCR	124		P	50 - 175
2132374	DG3-qPCR	122		P	50 - 175
2132423	DG3-qPCR	115		P	50 - 175
2132424	DG3-qPCR	102		P	50 - 175
2132425	DG3-qPCR	123	124	P/P	50 - 175
2132525	DG3-qPCR	119		P	50 - 175
2132526	DG3-qPCR	114		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P374088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132099	Chlorophyll-a, Corrected	9.13	Sample	P	0 - 25
2132099	Chlorophyll-a, Uncorrected	9.57	Sample	P	0 - 25

Reference Method: SOP-PCR-1.4

Batch ID: P373335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2131992	BacR-qPCR	7.83	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5

Batch ID: P373335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132425	DG3-qPCR	1.16	Spike	P	0 - 25

Quality Assurance Report Precision

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

Quality Assurance Report Surrogates

Lab Sample ID: 2132373
Field Sample ID: 21010033

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	101	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	96.2	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	126	P	50 - 300

Lab Sample ID: 2132374
Field Sample ID: 21010033DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	98.7	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	97.3	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	126	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	108						9.13	
	Chlorophyll-a, Uncorrected							9.57	
SOP-PCR-1.0	HF183-qPCR	152	120	116	105	103			
				102					
SOP-PCR-1.4	BacR-qPCR	165	125	98.1	126	63.3			7.83
				61.1					
SOP-PCR-1.5	DG3-qPCR	168	139	124	122	115			1.16
				102					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2132368, 2132369, 2132370
SM 9223 B Quanti-Tray / E82502	E. coli by Colilert/QT by ALS in Jacksonville	2132371, 2132372
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2132373, 2132374
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2132373, 2132374
SOP-PCR-1.5 / E31780	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2132373, 2132374

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	10/30/2019	10/31/2019 09:21	Yuliya Danyuk	11/05/2019 10:25	Yuliya Danyuk	2132368, 2132369, 2132370
SM 9223 B Quanti-Tray	10/29/2019	10/29/2019 14:16		10/30/2019 16:46	ALS Environmental, Jax	2132371, 2132372
SOP-PCR-1.0	10/30/2019	10/30/2019 11:40	Sarah Menz	11/21/2019 15:22	Lauren Campbell	2132373, 2132374
SOP-PCR-1.4	10/30/2019	10/30/2019 11:40	Sarah Menz	11/20/2019 10:14	Lauren Campbell	2132373, 2132374
SOP-PCR-1.5	10/30/2019	10/30/2019 11:40	Sarah Menz	11/25/2019 11:47	Lauren Campbell	2132373, 2132374