

Biological Analysis Report

NE-DIST-2017-10-26-02

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 2**
Request ID: **RQ-2017-10-23-13**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

For additional information please contact
Cheryl Swanson - Administrator
J. Marshall Faircloth - Aquatic Toxicology
Jacqueline Savage - Bench Biology
Jacqueline Savage - Microbiology
Puja Jasrotia, Ph.D. - Molecular Biology
Jennifer Walters - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Jacqueline Savage, Environmental Specialist III

Date Certified: 15-FEB-2018 13:27

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 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: CAMP BRANCH @ CR 25A

Collection Date/Time: 10/25/2017 09:50

Field ID: G1NE0269 10252017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1940218	SM 9223 B	Escherichia Coli-Quanti-Tray**	201	J	MPN/100 mL		
1940223	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:
SM 9223 B: Incubation period exceeded method limits by less than 1 hour

Sample Location: SWIFT CREEK @ CR 25A

Collection Date/Time: 10/25/2017 10:10

Field ID: G1NE032710252017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1940219	SM 9223 B	Escherichia Coli-Quanti-Tray**	148	J	MPN/100 mL		
1940224	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:
SM 9223 B: Incubation period exceeded method limits by less than 1 hour

Sample Location: HUNTERS CREEK @ SR 135

Collection Date/Time: 10/25/2017 11:00

Field ID: G1NE0384 10252017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1940217	SM 9223 B	Escherichia Coli-Quanti-Tray**	233	J	MPN/100 mL		
1940222	SOP-PCR-1.0	HF183-qPCR**	26	T	GEU/100 mL	P334071	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:
SM 9223 B: Incubation period exceeded method limits by less than 1 hour

Sample Location: LITTLE CREEK @ US 441

Collection Date/Time: 10/25/2017 11:25

Field ID: G1NE0251 10252017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1940212	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P334654	
		Phaeophytin-a	0.40	U	ug/L	P334654	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P334654	
1940215	SM 9223 B	Escherichia Coli-Quanti-Tray**	10	JU	MPN/100 mL		
1940220	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P334071	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:
SM 9223 B: Incubation period exceeded method limits by less than 1 hour
SOP-PCR-1.0: No amplification of HF183 marker.

Sample Location: DEEP CREEK @ US 441

Collection Date/Time: 10/25/2017 11:40

Field ID: G1NE026710232017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1940214	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P334654	
		Phaeophytin-a	0.40	U	ug/L	P334654	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P334654	
1940225	SOP-PCR-1.4	BacR-qPCR**	200	T	TSC/100 mL	P334071	LCS, MS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1943843	SM 9223 B	Escherichia Coli-Quanti-Tray**	63	J	MPN/100 mL		

Field ID: G1NE026710232017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:
SM 9223 B: Incubation period exceeded method limits by less than 1 hour

Sample Location: FALLING CREEK @ US 441

Collection Date/Time: 10/25/2017 12:05

Field ID: G1NE0279 10252017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1940213	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.61	U	ug/L	P334654	
		Phaeophytin-a	0.44	U	ug/L	P334654	
		Chlorophyll-a, Uncorrected	0.44	U	ug/L	P334654	
1940216	SM 9223 B	Escherichia Coli-Quanti-Tray**	98	J	MPN/100 mL		
1940221	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P334071	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:
SM 9223 B: Incubation period exceeded method limits by less than 1 hour
SOP-PCR-1.0: No amplification of HF183 marker.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P334654

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: P334071

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

Reference Method: SOP-PCR-1.4

Batch ID: P334071

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: P334654

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	107		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P334071

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	65.4	112	P/P	50 - 175
HF183-qPCR	57.6	89.3	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P334071

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	74.0	4.91	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P334071

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932535	HF183-qPCR	105		P	50 - 175
1932815	HF183-qPCR	91.0		P	50 - 175
1932959	HF183-qPCR	88.0		P	50 - 175
1933345	HF183-qPCR	62.2		P	50 - 175
1933697	HF183-qPCR	97.2		P	50 - 175
1939984	HF183-qPCR	79.8	70.7	P/P	50 - 175
1939985	HF183-qPCR	81.7		P	50 - 175
1940220	HF183-qPCR	87.2		P	50 - 175
1940221	HF183-qPCR	98.7		P	50 - 175
1940222	HF183-qPCR	75.5		P	50 - 175
1940825	HF183-qPCR	99.2		P	50 - 175
1940826	HF183-qPCR	64.4		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P334071

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932535	BacR-qPCR	47.0		F	50 - 175
1939984	BacR-qPCR	53.0	47.4	P/F	50 - 175
1939985	BacR-qPCR	53.0		P	50 - 175
1940025	BacR-qPCR	54.1		P	50 - 175
1940225	BacR-qPCR	71.4		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P334654

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940667	Chlorophyll-a, Corrected	4.05	Sample	P	0 - 25
1940667	Chlorophyll-a, Uncorrected	4.59	Sample	P	0 - 25
1940667	Phaeophytin-a	7.91	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P334071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939984	HF183-qPCR	12.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P334071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939984	BacR-qPCR	11.1	Spike	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

Lab Sample ID: 1940220
 Field Sample ID: G1NE0251 10252017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	85.6	P	50 - 300

Lab Sample ID: 1940221
 Field Sample ID: G1NE0279 10252017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	93.0	P	50 - 300

Lab Sample ID: 1940222
 Field Sample ID: G1NE0384 10252017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	84.8	P	50 - 300

Lab Sample ID: 1940225
 Field Sample ID: G1NE026710232017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	101	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	107							4.05	
	Chlorophyll-a, Uncorrected								4.59	
	Phaeophytin-a								7.91	
SOP-PCR-1.0	HF183-qPCR	65.4	89.3	57.6	91.0	79.8	70.7			12.1
		112			81.7					

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
SOP-PCR-1.4	BacR-qPCR	4.91	74.0	47.0	54.1	71.4		11.1
				53.0				

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1940212, 1940213, 1940214
SM 9223 B / E82502	Escherichia coli by Colilert Quanti-Tray method by ALS Environmental Overflow Laboratory for Northeast District	1940215, 1940216, 1940217, 1940218, 1940219, 1943843
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1940220, 1940221, 1940222
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1940225
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1940220, 1940221, 1940222, 1940223, 1940224, 1940225

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	10/26/2017	10/26/2017 12:44	Cathy Sherrer	11/02/2017	Kim M. Spencer	1940212, 1940213, 1940214
SM 9223 B	10/25/2017	10/25/2017 17:03		10/26/2017 16:55	ALS Environmental, Jax	1940215, 1940216, 1940217, 1940218, 1940219, 1943843
SOP-PCR-1.0	10/26/2017	10/26/2017 13:30	Sarah Menz	10/31/2017	Sarah Menz	1940220, 1940221, 1940222
SOP-PCR-1.4	10/26/2017	10/26/2017 13:30	Sarah Menz	11/01/2017	Sarah Menz	1940225
SOP-PCR-4.0	10/26/2017	10/26/2017 13:30	Sarah Menz	11/21/2017	Puja Jasrotia	1940220, 1940221, 1940222, 1940223, 1940224, 1940225