

Biological Analysis Report

NE-DIST-2017-06-08-03

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

Overflow Analyses Performed By:
Flowers Chemical Laboratories Inc. - North
812 S.W. Harvey Greene Drive
Madison, Florida 32341
DOH Accreditation E82405

Event Description: **Suwannee North 2**

Request ID: **RQ-2017-06-05-24**

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

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Certified by: Jennifer Walters, Environmental Manager

Date Certified: 09-AUG-2017 16:42



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: Falling Creek @ US 441

Collection Date/Time: 06/07/2017 08:50

Field ID: G1NE0279 06072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1904504	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.8		ug/L	P326699	
		Phaeophytin-a	2.8		ug/L	P326699	
		Chlorophyll/Phaeophytin Ratio	1.3			P326699	
		Chlorophyll-a, Uncorrected	3.5		ug/L	P326699	
1904508	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	2420	J	MPN/100 mL		
1904515	SOP-PCR-1.0	HF183-qPCR**	110	T	GEU/100 mL	P328846	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
 SM 9223 Quanti-Tray: All Quanti-Tray wells were positive. Result may be higher than reported

Sample Location: Deep Creek @ US 441

Collection Date/Time: 06/07/2017 09:20

Field ID: G1NE0267 06072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1904505	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.8		ug/L	P326699	
		Phaeophytin-a	0.87	I	ug/L	P326699	
		Chlorophyll/Phaeophytin Ratio	1.5			P326699	
		Chlorophyll-a, Uncorrected	2.4		ug/L	P326699	
1904509	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	770		MPN/100 mL		
1904516	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P328846	
	SOP-PCR-1.4	BacR-qPCR**	4.97E+04		TSC/100 mL	P328846	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
 SOP-PCR-1.0: No amplification of HF183 marker.

Sample Location: Little Creek @ US 441

Collection Date/Time: 06/07/2017 09:40

Field ID: G1NE0251 06072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1904507	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.3		ug/L	P326699	
		Phaeophytin-a	0.63	I	ug/L	P326699	
		Chlorophyll/Phaeophytin Ratio	1.6			P326699	
		Chlorophyll-a, Uncorrected	3.8		ug/L	P326699	

Sample Location: Little Creek @ US 441

Collection Date/Time: 06/07/2017 09:40

Field ID: G1NE0251 06072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1904511	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	579		MPN/100 mL		
1904518	SOP-PCR-1.0	HF183-qPCR**	54	T	GEU/100 mL	P326360	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Hunters Creek @ SR 135

Collection Date/Time: 06/07/2017 10:05

Field ID: G1NE0384 06072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G1NE0384 06072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1904512	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	687		MPN/100 mL		
1904519	SOP-PCR-1.0	HF183-qPCR**	44	T	GEU/100 mL	P326360	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Swift Creek @ CR 25A

Collection Date/Time: 06/07/2017 10:45

Field ID: G1NE0327 06072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1904513	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	260		MPN/100 mL		
1904520	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Camp Branch @ CR 25A

Collection Date/Time: 06/07/2017 11:05

Field ID: G1NE0269 06072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1904514	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	272		MPN/100 mL		
1904521	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Field Blank

Collection Date/Time: 06/07/2017 11:10

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1904506	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P326699	
		Phaeophytin-a	0.40	U	ug/L	P326699	
		Chlorophyll/Phaeophytin Ratio	1.2			P326699	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P326699	

Quality Assurance Report

Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P326699

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: P326360

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

Reference Method: SOP-PCR-1.0

Batch ID: P328846

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.4
Batch ID: P328846

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: P326699

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.2		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P326360

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	97.6	84.0	P/P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P328846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	116	94.6	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P328846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	68.4	38.9	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P326360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886657	HF183-qPCR	122		P	50 - 175
1904189	HF183-qPCR	110		P	50 - 175
1904191	HF183-qPCR	96.5	113	P/P	50 - 175
1904428	HF183-qPCR	116		P	50 - 175
1904434	HF183-qPCR	112		P	50 - 175
1904435	HF183-qPCR	89.9		P	50 - 175
1904518	HF183-qPCR	93.2		P	50 - 175
1904519	HF183-qPCR	123		P	50 - 175
1904999	HF183-qPCR	102		P	50 - 175
1905000	HF183-qPCR	97.8		P	50 - 175
1905378	HF183-qPCR	87.5		P	50 - 175
1905467	HF183-qPCR	95.6		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P328846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904148	HF183-qPCR	101		P	50 - 175
1904149	HF183-qPCR	102		P	50 - 175
1904150	HF183-qPCR	103		P	50 - 175
1904515	HF183-qPCR	70.9		P	50 - 175
1904516	HF183-qPCR	98.5		P	50 - 175
1905343	HF183-qPCR	100		P	50 - 175
1905506	HF183-qPCR	71.8		P	50 - 175
1907480	HF183-qPCR	86.3		P	50 - 175
1907482	HF183-qPCR	108		P	50 - 175
1908240	HF183-qPCR	121		P	50 - 175
1908241	HF183-qPCR	73.8		P	50 - 175
1908242	HF183-qPCR	103	87.3	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P328846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904516	BacR-qPCR	58.1		P	50 - 175
1905343	BacR-qPCR	60.7		P	50 - 175
1905506	BacR-qPCR	55.0		P	50 - 175
1907480	BacR-qPCR	51.6		P	50 - 175
1908240	BacR-qPCR	59.4		P	50 - 175
1908241	BacR-qPCR	54.6		P	50 - 175
1908242	BacR-qPCR	64.2	58.6	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P326699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904816	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1904816	Chlorophyll-a, Corrected	3.09	Sample	P	0 - 25
1904816	Chlorophyll-a, Uncorrected	0.593	Sample	P	0 - 25
1904816	Phaeophytin-a	3.08	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P326360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904191	HF183-qPCR	15.8	Spike	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P328846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908242	HF183-qPCR	16.1	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.4
Batch ID: P328846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908242	BacR-qPCR	9.19	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: 1904515
Field Sample ID: G1NE0279 06072017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	81.4	P	50 - 300

Lab Sample ID: 1904516
Field Sample ID: G1NE0267 06072017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	122	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	115	P	50 - 300

Lab Sample ID: 1904518
Field Sample ID: G1NE0251 06072017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	117	P	50 - 300

Lab Sample ID: 1904519
Field Sample ID: G1NE0384 06072017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	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/Phaeophytin Ratio							0.0	
	Chlorophyll-a, Corrected	97.2						3.09	
	Chlorophyll-a, Uncorrected							0.593	
	Phaeophytin-a							3.08	
SOP-PCR-1.0	HF183-qPCR	84.0	97.6	110	96.5	113			15.8
				112					
	HF183-qPCR	94.6	116	101	102	103			16.1
				70.9					
SOP-PCR-1.4	BacR-qPCR	38.9	68.4	58.1	60.7	55.0			9.19
				51.6					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1904504, 1904505, 1904506, 1904507
SM 9223 Quanti-Tray / E82405	Escherichia coli by Colilert 18 Quanti-Tray method by FlowersOverflow Laboratory for Northeast District	1904508, 1904509, 1904511, 1904512, 1904513, 1904514
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1904515, 1904516, 1904518, 1904519
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1904516
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1904515, 1904516, 1904518, 1904519, 1904520, 1904521

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	06/08/2017	06/08/2017 12:12	Cathy Sherrer	06/13/2017	Kim M. Spencer	1904504, 1904505, 1904506, 1904507
SM 9223 Quanti-Tray	06/07/2017			06/07/2017 14:20	Flower-MAD	1904508, 1904509, 1904511, 1904512, 1904513, 1904514
SOP-PCR-1.0	06/08/2017	06/08/2017 14:07	Puja Jasrotia	07/26/2017	Puja Jasrotia	1904515, 1904516
	06/08/2017	06/08/2017 14:39	Avril Wood	06/16/2017	Puja Jasrotia	1904518, 1904519
SOP-PCR-1.4	06/08/2017	06/08/2017 14:07	Puja Jasrotia	07/28/2017	Sarah Menz	1904516
SOP-PCR-4.0	06/08/2017	06/08/2017 14:07	Avril Wood	07/20/2017	Puja Jasrotia	1904515, 1904516, 1904520, 1904521
	06/08/2017	06/08/2017 14:39	Avril Wood	07/20/2017	Puja Jasrotia	1904518, 1904519