

Biological Analysis Report

NE-DIST-2017-02-03-01

Florida Department of Environmental Protection
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DOH Accreditation E82502

Event Description: **UEC South**
Request ID: **RQ-2017-01-30-12**
Customer: **NE-DIST**
Project ID: **SMP**

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Revision certified by: Jacqueline Savage, Environmental Specialist III Date Certified: 19-JUL-2017 10:48



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: CRACKER BRANCH @ CR 204

Collection Date/Time: 02/02/2017 09:20

Field ID: G5NE0079 02012016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1869360	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.3	I	ug/L	P319617	
		Phaeophytin-a	0.40	U	ug/L	P319617	
		Chlorophyll/Phaeophytin Ratio	1.6			P319617	
		Chlorophyll-a, Uncorrected	1.5		ug/L	P319617	

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: PELLICER CREEK @ US 1

Collection Date/Time: 02/02/2017 10:30

Field ID: G5NE0034 02012017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1869363	ASTM D6503-99	ENTEROCOCCI-ENTEROLERT	61		MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	600		cfu/100 mL		

Sample Location: PELLICER CREEK @ FAVER DYKES BOAT RAMP

Collection Date/Time: 02/02/2017 11:00

Field ID: G5NE0564 02012016

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1869361	SM 10200 H (mod.)	Chlorophyll-a, Corrected	11		ug/L	P319617	
		Phaeophytin-a	1.7		ug/L	P319617	
		Chlorophyll/Phaeophytin Ratio	1.6			P319617	
		Chlorophyll-a, Uncorrected	12		ug/L	P319617	
1869362	ASTM D6503-99	ENTEROCOCCI-ENTEROLERT	12		MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	120		cfu/100 mL		
1869369	SOP-PCR-1.0	HF183-qPCR**	71	U	GEU/100 mL	P328261	
	SOP-PCR-1.2	GULL2-qPCR**	430	T	TSC/100 mL	P328261	LCS
	SOP-PCR-1.4	BacR-qPCR**	760	U	TSC/100 mL	P328261	LCS, MS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

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: No amplification of HF183 marker.

SOP-PCR-1.4: No amplification of BACR marker.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P319617

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
 Batch ID: P328261

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

Reference Method: SOP-PCR-1.2
 Batch ID: P328261

Component	Result	Code	Units
GULL2-qPCR	1.7E+04	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
 Batch ID: P328261

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: P319617

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	88.9		P	84 - 116

Reference Method: SOP-PCR-1.0
 Batch ID: P328261

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	81.4	72.2	P/P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P328261

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	97.2	36.8	P/F	50 - 300

Reference Method: SOP-PCR-1.4
 Batch ID: P328261

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	60.7	28.4	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P328261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869369	HF183-qPCR	92.3		P	50 - 175
1870630	HF183-qPCR	95.8		P	50 - 175
1871869	HF183-qPCR	84.2		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P328261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873936	HF183-qPCR	78.8		P	50 - 175
1879803	HF183-qPCR	68.1		P	50 - 175
1879804	HF183-qPCR	77.5		P	50 - 175
1879805	HF183-qPCR	86.0		P	50 - 175
1884490	HF183-qPCR	75.4		P	50 - 175
1888094	HF183-qPCR	81.2		P	50 - 175
1902819	HF183-qPCR	86.9	76.2	P/P	50 - 175
1902820	HF183-qPCR	70.1		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P328261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869369	GULL2-qPCR	87.0		P	50 - 300
1870630	GULL2-qPCR	83.3		P	50 - 300
1879803	GULL2-qPCR	76.4		P	50 - 300
1879804	GULL2-qPCR	74.5	83.2	P/P	50 - 300
1902820	GULL2-qPCR	103		P	50 - 300

Reference Method: SOP-PCR-1.4
Batch ID: P328261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869369	BacR-qPCR	66.7		P	50 - 175
1870630	BacR-qPCR	63.9		P	50 - 175
1879803	BacR-qPCR	61.5		P	50 - 175
1879804	BacR-qPCR	77.2		P	50 - 175
1884490	BacR-qPCR	69.9		P	50 - 175
1888094	BacR-qPCR	58.6		P	50 - 175
1902819	BacR-qPCR	67.9	75.6	P/P	50 - 175
1902820	BacR-qPCR	46.7		F	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P328261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902819	HF183-qPCR	13.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P328261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879804	GULL2-qPCR	11.1	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.4
Batch ID: P328261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902819	BacR-qPCR	10.8	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: 1869369
Field Sample ID: G5NE0564 02012016

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	120	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	119	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	118	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	88.9							
SOP-PCR-1.0	HF183-qPCR	72.2	81.4	75.4	81.2	86.9			13.1
				76.2					
SOP-PCR-1.2	GULL2-qPCR	36.8	97.2	103	87.0	83.3			11.1
				76.4					
SOP-PCR-1.4	BacR-qPCR	28.4	60.7	69.9	58.6	67.9			10.8
				75.6					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
ASTM D6503-99 / E82502	Enterococci by MPN by ALS Environmental Overflow Laboratory for NED	1869362, 1869363
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1869360, 1869361
SM 9222 D / E82502	Fecal coliforms by membrane filter method by ALS Environmental - FL Overflow Laboratories for NED	1869362, 1869363
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1869369
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1869369
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1869369
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1869369

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
ASTM D6503-99	02/02/2017			02/02/2017 14:27	ALS Environmental, Jax	1869362, 1869363
SM 10200 H (mod.)	02/03/2017	02/03/2017 13:40	Carina A. Tull	02/08/2017	Brian Cumbie	1869360, 1869361
SM 9222 D	02/02/2017			02/02/2017 14:43	ALS Environmental, Jax	1869362, 1869363
SOP-PCR-1.0	02/03/2017	02/03/2017 13:30	Puja Jasrotia	07/12/2017	Puja Jasrotia	1869369
SOP-PCR-1.2	02/03/2017	02/03/2017 13:30	Puja Jasrotia	07/13/2017	Sarah Menz	1869369
SOP-PCR-1.4	02/03/2017	02/03/2017 13:30	Puja Jasrotia	07/13/2017	Sarah Menz	1869369
SOP-PCR-4.0	02/03/2017	02/03/2017 13:30	Puja Jasrotia	02/14/2017	Daisys Matthews	1869369