Biological Analysis Report

NE-DIST-2017-05-16-01

Florida Department of Environmental Protection
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DOH Accreditation E31780

Overflow Analyses Performed By:
ALS Environmental - Jacksonville
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DOH Accreditation E82502

Event Description: **UEC South**
Request ID: **RQ-2017-05-08-13**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Cheryl A. Swanson, Environmental Manager

Date Certified: 28-JUN-2017 13:30

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: Pellicer Creek @ Faver Dykes Boat Ramp **Collection Date/Time: 05/15/2017 10:00**

Field ID: G5NE0564 05152017 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899389	SM 10200 H (mod.)	Chlorophyll-a, Corrected	16	A	ug/L	P325706	
		Phaeophytin-a	3.0	A	ug/L	P325706	
		Chlorophyll/Phaeophytin Ratio	1.6	A		P325706	
		Chlorophyll-a, Uncorrected	18	A	ug/L	P325706	
1899393	ASTM D6503-99	ENTEROCOCCI-ENTEROLERT	15		MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	130	B	cfu/100 mL		

Sample Location: Pellicer Creek @ US 1 **Collection Date/Time: 05/15/2017 10:30**

Field ID: G5NE0034 05152017 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899394	ASTM D6503-99	ENTEROCOCCI-ENTEROLERT	260		MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	880	B	cfu/100 mL		
1899395	SOP-PCR-1.0	HF183-qPCR**	71	U	GEU/100 mL	P325771	
	SOP-PCR-1.2	GULL2-qPCR**	4.2E+03	U	TSC/100 mL	P325771	
	SOP-PCR-1.3	GFD-purified-qPCR**	150	I	TSC/100 mL	P326687	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	760	U	TSC/100 mL	P325771	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
SOP-PCR-1.0: No amplification of HF183 marker.
SOP-PCR-1.2: No amplification of GULL2 marker.
SOP-PCR-1.4: No amplification of BACR marker.

Sample Location: Cracker Branch @ CR 204 **Collection Date/Time: 05/15/2017 10:40**

Field ID: G5NE0079 05152017 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899390	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.8		ug/L	P325706	
		Phaeophytin-a	0.63	I	ug/L	P325706	
		Chlorophyll/Phaeophytin Ratio	1.5			P325706	
		Chlorophyll-a, Uncorrected	2.2		ug/L	P325706	

Sample Location: Cracker Branch 1.5 mi N of CR 204 **Collection Date/Time: 05/15/2017 11:10**

Field ID: G5NE0580 05152017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899391	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.66	I	ug/L	P325706	
		Phaeophytin-a	0.40	U	ug/L	P325706	
		Chlorophyll/Phaeophytin Ratio	1.7			P325706	
		Chlorophyll-a, Uncorrected	0.69	I	ug/L	P325706	

Sample Location: Equipment Blank **Collection Date/Time: 05/15/2017 10:50**

Field ID: BLANK 05152017 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899392	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P325706	

Field ID: BLANK 05152017 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899392	SM 10200 H (mod.)	Phaeophytin-a	0.40	U	ug/L	P325706	
		Chlorophyll/Phaeophytin Ratio	2.1			P325706	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P325706	

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P325706

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: P325771

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

Reference Method: SOP-PCR-1.2
Batch ID: P325771

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

Reference Method: SOP-PCR-1.3
Batch ID: P326687

Component	Result	Code	Units
GFD-purified-qPCR	340	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P325771

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: P325706

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	86.5		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P325771

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	85.4	69.8	P/P	50 - 175

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.2
Batch ID: P325771

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	84.7	153	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P326687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	60.4	36.9	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P325771

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	130	35.7	P/F	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P325771

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886655	HF183-qPCR	94.5		P	50 - 175
1886656	HF183-qPCR	99.6		P	50 - 175
1886705	HF183-qPCR	59.5		P	50 - 175
1895817	HF183-qPCR	79.7		P	50 - 175
1899395	HF183-qPCR	81.5		P	50 - 175
1901218	HF183-qPCR	94.3		P	50 - 175
1901482	HF183-qPCR	107		P	50 - 175
1902623	HF183-qPCR	90.7		P	50 - 175
1902624	HF183-qPCR	92.1		P	50 - 175
1902625	HF183-qPCR	98.6		P	50 - 175
1904119	HF183-qPCR	76.0	70.3	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P325771

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895817	GULL2-qPCR	52.4		P	50 - 300
1899395	GULL2-qPCR	83.7		P	50 - 300
1901218	GULL2-qPCR	97.1		P	50 - 300
1902625	GULL2-qPCR	96.2		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P326687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895817	GFD-purified-qPCR	178		F	50 - 175
1899395	GFD-purified-qPCR	94.5		P	50 - 175
1902625	GFD-purified-qPCR	103	111	P/P	50 - 175
1905382	GFD-purified-qPCR	116		P	50 - 175
1905467	GFD-purified-qPCR	102		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P325771

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886705	BacR-qPCR	79.4		P	50 - 175
1895817	BacR-qPCR	74.6		P	50 - 175
1899395	BacR-qPCR	87.7		P	50 - 175
1901218	BacR-qPCR	86.2	102	P/P	50 - 175
1902625	BacR-qPCR	94.9		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P325706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899389	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1899389	Chlorophyll-a, Corrected	7.08	Sample	P	0 - 25
1899389	Chlorophyll-a, Uncorrected	5.13	Sample	P	0 - 25
1899389	Phaeophytin-a	12.2	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P325771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904119	HF183-qPCR	7.78	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P325771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1903781	GULL2-qPCR	10.8	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P326687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902625	GFD-purified-qPCR	6.98	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P325771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901218	BacR-qPCR	16.6	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: 1899395
Field Sample ID: G5NE0034 05152017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	99.4	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	94.4	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	99.0	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio				0.0	
	Chlorophyll-a, Corrected	86.5			7.08	
	Chlorophyll-a, Uncorrected				5.13	
	Phaeophytin-a				12.2	
SOP-PCR-1.0	HF183-qPCR	69.8 85.4	107 90.7 92.1 98.6			7.78
SOP-PCR-1.2	GULL2-qPCR	153 84.7	96.2 52.4 83.7 97.1			10.8
SOP-PCR-1.3	GFD-purified-qPCR	36.9 60.4	116 102 178 94.5			6.98
SOP-PCR-1.4	BacR-qPCR	35.7 130	94.9 74.6 87.7 79.4			16.6

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
ASTM D6503-99 / E82502	Enterococci by MPN by ALS Environmental Overflow Laboratory for NED	1899393, 1899394
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1899389, 1899390, 1899391, 1899392
SM 9222 D / E82502	Fecal coliforms by membrane filter method by ALS Environmental - FL Overflow Laboratories for NED	1899393, 1899394
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1899395
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium genetic marker with quantitative polymerase chain reaction	1899395
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter genetic marker with quantitative polymerase chain reaction	1899395
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes genetic marker with quantitative polymerase chain reaction	1899395
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1899395

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
ASTM D6503-99	05/15/2017			05/15/2017 15:07	ALS Environmental, Jax	1899393, 1899394
SM 10200 H (mod.)	05/16/2017	05/16/2017 13:15	Morgan Lane	05/23/2017	Brian Cumbie	1899389, 1899390, 1899391, 1899392
SM 9222 D	05/15/2017			05/15/2017 16:18	ALS Environmental, Jax	1899393, 1899394
SOP-PCR-1.0	05/16/2017	05/16/2017 13:54	Avril Wood	06/12/2017	Puja Jasrotia	1899395
SOP-PCR-1.2	05/16/2017	05/16/2017 13:54	Avril Wood	06/13/2017	Sarah Menz	1899395
SOP-PCR-1.3	05/16/2017	05/16/2017 13:54	Avril Wood	06/15/2017	Puja Jasrotia	1899395
SOP-PCR-1.4	05/16/2017	05/16/2017 13:54	Avril Wood	06/13/2017	Sarah Menz	1899395
SOP-PCR-4.0	05/16/2017	05/16/2017 13:54	Avril Wood	06/02/2017	Puja Jasrotia	1899395