Biological Analysis Report

NE-DIST-2018-04-06-01

Florida Department of Environmental Protection
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DOH Accreditation E31780

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

Event Description: **SCI Reference**
Request ID: **RQ-2018-02-12-39**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Jacqueline Savage, Environmental Manager

Date Certified: 03-JUL-2018 15:14

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, InvertZool, 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: Little Orange Cr. at Hwy 21 **Collection Date/Time: 04/05/2018 10:00**

Field ID: 20020004 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981848	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.1	U	ug/L	P343484	
		Phaeophytin-a	0.80	U	ug/L	P343484	
		Chlorophyll-a, Uncorrected	0.80	U	ug/L	P343484	
1981850	SM 9223 B	Escherichia Coli-Quanti-Tray**	110		MPN/100 mL		
1981851	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P342672	
	SOP-PCR-1.3	GFD-purified-qPCR**	17	T	TSC/100 mL	P342626	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	2.0E+03	U	TSC/100 mL	P342672	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

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

Sample Location: Little Orange Cr. at Hwy 21 **Collection Date/Time: 04/05/2018 10:00**

Field ID: 20020004 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981849	SOP-IZ06	Stream Condition Index (SCI)**	99	A	Points		
		Macroinvert-FW-Qual-DipnetX20-#Taxa -Rep2**	36		# Taxa		

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P343484

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: P342672

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

Reference Method: SOP-PCR-1.3
Batch ID: P342626

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

Reference Method: SOP-PCR-1.4
Batch ID: P342672

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P343484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	87.2		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P342672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	95.6	70.8	P/P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P342626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	130	14.3	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P342672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	65.1	79.0	P/P	50 - 175
BacR-qPCR	69.9	99.2	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P342672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1971367	HF183-qPCR	83.9		P	50 - 175
1973484	HF183-qPCR	89.7	92.8	P/P	50 - 175
1974754	HF183-qPCR	92.3		P	50 - 175
1974755	HF183-qPCR	91.0		P	50 - 175
1975217	HF183-qPCR	78.0		P	50 - 175
1981244	HF183-qPCR	115		P	50 - 175
1981705	HF183-qPCR	78.8		P	50 - 175
1981706	HF183-qPCR	83.1		P	50 - 175
1981851	HF183-qPCR	78.1		P	50 - 175
1982097	HF183-qPCR	90.7		P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P342626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1973138	GFD-purified-qPCR	124		P	50 - 175
1973139	GFD-purified-qPCR	181		F	50 - 175
1973140	GFD-purified-qPCR	181		F	50 - 175
1973481	GFD-purified-qPCR	136		P	50 - 175
1973482	GFD-purified-qPCR	98.7		P	50 - 175
1974759	GFD-purified-qPCR	66.7		P	50 - 175
1980249	GFD-purified-qPCR	215	183	F/F	50 - 175
1981851	GFD-purified-qPCR	174		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P342626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983204	GFD-purified-qPCR	243		F	50 - 175
1983223	GFD-purified-qPCR	149		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P342672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1973484	BacR-qPCR	92.4	95.8	P/P	50 - 175
1974755	BacR-qPCR	80.1		P	50 - 175
1975217	BacR-qPCR	87.4		P	50 - 175
1981244	BacR-qPCR	61.5		P	50 - 175
1981851	BacR-qPCR	63.3		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P343484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981903	Chlorophyll-a, Corrected	2.07	Sample	P	0 - 25
1981903	Chlorophyll-a, Uncorrected	2.16	Sample	P	0 - 25
1981903	Phaeophytin-a	2.52	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P342672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973484	HF183-qPCR	3.37	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P342626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980249	GFD-purified-qPCR	15.7	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P342672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973484	BacR-qPCR	3.62	Spike	P	0 - 25
1981252	BacR-qPCR	16.9	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: 1981851
Field Sample ID: 20020004

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	108	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	103	P	50 - 300

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	87.2			2.07	
	Chlorophyll-a, Uncorrected				2.16	
	Phaeophytin-a				2.52	
SOP-PCR-1.0	HF183-qPCR	70.8 95.6	89.7 92.8 92.3 91.0			3.37
SOP-PCR-1.3	GFD-purified-qPCR	14.3 130	215 183 174 124			15.7
SOP-PCR-1.4	BacR-qPCR	65.1 99.2 69.9 79.0	61.5 92.4 95.8 80.1			16.9 3.62

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1981848
SM 9223 B / E82502	Escherichia coli by Colilert Quanti-Tray method by ALS Environmental Overflow Laboratory for Northeast District	1981850
SOP-IZ06 / E31780	No. Taxa of FW macroinverts, qual samp, 20 dipnets.	1981849
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1981851
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1981851
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1981851
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1981851

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	04/06/2018	04/06/2018 14:40	Carina A. Tull	04/16/2018 10:15	Amelia G. Rankin	1981848
SM 9223 B	04/05/2018	04/05/2018 16:51		04/06/2018 17:18	ALS Environmental, Jax	1981850
SOP-IZ06	04/06/2018	05/21/2018 09:16	Mariam Hanna	06/19/2018 11:58	Todd R. Risk	1981849
SOP-PCR-1.0	04/06/2018	04/06/2018 14:00	Puja Jasrotia	04/09/2018 15:43	Mailin Lopez	1981851
SOP-PCR-1.3	04/06/2018	04/06/2018 14:00	Angela Smith	04/13/2018 12:53	Sarah Menz	1981851
SOP-PCR-1.4	04/06/2018	04/06/2018 14:00	Puja Jasrotia	04/18/2018 11:33	Sarah Menz	1981851
SOP-PCR-4.0	04/06/2018	04/06/2018 14:00	Angela Smith	05/07/2018 13:35	Puja Jasrotia	1981851