

Biological Analysis Report

NE-DIST-2018-12-14-01

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

Overflow Analyses Performed By:
ALS Environmental - Jacksonville
9143 Philips Highway, Suite 200
Jacksonville, FL 32256
DOH Accreditation E82502

Event Description: **SCI Reference-Blues**
Request ID: **RQ-2018-11-12-16**
Customer: **NE-DIST**
Project ID: **SMP**

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8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 15-FEB-2019 19:08



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Pigeon Creek at US1

Collection Date/Time: 12/13/2018 10:40

Field ID: 19010099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2048936	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P356745	
		Phaeophytin-a	0.60	U	ug/L	P356745	
		Chlorophyll-a, Uncorrected	0.40	I	ug/L	P356745	
2048938	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	122		MPN/100 mL		
2048939	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P355929	
	SOP-PCR-1.3	GFD-purified-qPCR**	1.36E+03	J	TSC/100 mL	P356164	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	7.5E+03	I	TSC/100 mL	P355929	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below 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-1.3: Duplicate was analyzed and result is 320 I. Quality control failure(s) observed. See QA report for details.

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A88427

Sample Location: Pigeon Creek at US1

Collection Date/Time: 12/13/2018 10:40

Field ID: 19010099

Matrix: BIOLOGICAL

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2048937	SOP-IZ06	Stream Condition Index (SCI)**	95	A	Points	P358026	
		Macroinvert-FW-Qual-DipnetX20-#Taxa-Rep2**	41		# Taxa	P358026	

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P356745

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.76	U	ug/L
Chlorophyll-a, Uncorrected	0.55	U	ug/L
Phaeophytin-a	0.82	U	ug/L

Reference Method: SOP-PCR-1.0

Batch ID: P355929

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

Reference Method: SOP-PCR-1.3

Batch ID: P356164

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

Reference Method: SOP-PCR-1.4

Batch ID: P355929

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: P356745

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	103		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P355929

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	124	122	P/P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P356164

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	160	40.2	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P355929

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	116	142	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P355929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2042239	HF183-qPCR	97.2		P	50 - 175
2043901	HF183-qPCR	91.1		P	50 - 175
2043903	HF183-qPCR	87.3		P	50 - 175
2045166	HF183-qPCR	95.3		P	50 - 175
2045167	HF183-qPCR	86.1		P	50 - 175
2045168	HF183-qPCR	85.9		P	50 - 175
2045170	HF183-qPCR	89.8		P	50 - 175
2046824	HF183-qPCR	86.1		P	50 - 175
2047689	HF183-qPCR	97.9		P	50 - 175
2047690	HF183-qPCR	87.6	91.3	P/P	50 - 175
2048939	HF183-qPCR	69.5		P	50 - 175

Reference Method: SOP-PCR-1.3
Batch ID: P356164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2043901	GFD-purified-qPCR	297		F	50 - 175
2043903	GFD-purified-qPCR	333		F	50 - 175
2044594	GFD-purified-qPCR	315		F	50 - 175
2045167	GFD-purified-qPCR	201		F	50 - 175
2045168	GFD-purified-qPCR	333		F	50 - 175
2045170	GFD-purified-qPCR	371		F	50 - 175
2047687	GFD-purified-qPCR	271		F	50 - 175
2048939	GFD-purified-qPCR	322	313	F/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P355929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2043901	BacR-qPCR	73.1		P	50 - 175
2043903	BacR-qPCR	74.9		P	50 - 175
2045166	BacR-qPCR	68.6		P	50 - 175
2045167	BacR-qPCR	75.1		P	50 - 175
2045168	BacR-qPCR	71.8		P	50 - 175
2045170	BacR-qPCR	76.2		P	50 - 175
2048939	BacR-qPCR	62.2		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P356745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049418	Chlorophyll-a, Corrected	4.42	Sample	P	0 - 25
2049418	Chlorophyll-a, Uncorrected	3.04	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P355929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047690	HF183-qPCR	4.17	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P356164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048939	GFD-purified-qPCR	2.81	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: 2048939
Field Sample ID: 19010099

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	83.1	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	123	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	103						4.42	
	Chlorophyll-a, Uncorrected							3.04	
SOP-PCR-1.0	HF183-qPCR	122	124	87.6	91.3	97.9			4.17
				69.5					
SOP-PCR-1.3	GFD-purified-qPCR	40.2	160	322	313	297			2.81
				333					
SOP-PCR-1.4	BacR-qPCR	142	116	62.2	73.1	74.9			
				68.6					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2048936
SM 9223 B Quanti-Tray / E82502	Escherichia coli by Colilert Quanti-Tray method by ALS Environmental Laboratory in Jacksonville	2048938
SOP-IZ06 / E31780	No. Taxa of FW macroinverts, qual samp, 20 dipnets.	2048937
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2048939
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2048939
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2048939
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2048939

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	12/14/2018	12/14/2018 12:55	Jennifer Mihalic	01/02/2019 11:25	Peterson Janvier	2048936
SM 9223 B Quanti-Tray	12/13/2018	12/13/2018 14:56		12/14/2018 16:23	ALS Environmental, Jax	2048938
SOP-IZ06	12/14/2018	01/29/2019 14:34	Cathy Sherrer	02/11/2019 11:18	Lisa Homann	2048937
	12/14/2018	01/29/2019 14:34	Cathy Sherrer	02/12/2019 11:18	Lisa Homann	2048937
SOP-PCR-1.0	12/14/2018	12/14/2018 12:45	Angela Smith	12/18/2018 14:17	Mailin Lopez	2048939
SOP-PCR-1.3	12/14/2018	12/14/2018 12:45	Angela Smith	01/04/2019 12:28	Sarah Menz	2048939
SOP-PCR-1.4	12/14/2018	12/14/2018 12:45	Angela Smith	12/19/2018 09:06	Mailin Lopez	2048939
SOP-PCR-4.0	12/14/2018	12/14/2018 12:45	Angela Smith	12/21/2018 09:09	Sarah Menz	2048939