

Biological Analysis Report

NE-DIST-2017-11-07-01

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

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

Event Description: **LSJR SOUTH 1**
Request ID: **RQ-2017-11-06-31**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Jacqueline Savage, Environmental Manager

Date Certified: 23-APR-2018 08:52

A handwritten signature in black ink that reads "Jackie Savage". The signature is written in a cursive, flowing style.

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: Julington Creek @ US1

Collection Date/Time: 11/06/2017 09:10

Field ID: G2NE0604 11062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943228	SOP-PCR-1.0	HF183-purified-qPCR**	24	UJ	GEU/100 mL	P336491	LCS, SUR
	SOP-PCR-1.2	GULL2-purified-qPCR**	1.4E+03	UJ	TSC/100 mL	P336491	LCS, SUR
	SOP-PCR-1.3	GFD-purified-qPCR**	24	TJ	TSC/100 mL	P336491	LCS, MS, RPD
	SOP-PCR-1.4	BacR-purified-qPCR**	250	UJ	TSC/100 mL	P336491	LCS, SUR
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1952071	SM 9223 B	Escherichia Coli-Quanti-Tray**	480		MPN/100 mL		

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of PURHF marker. Quality control failure(s) observed. See QA report for details.

SOP-PCR-1.2: No amplification of PURG2 marker. Quality control failure(s) observed. See QA report for details. Precision data unavailable for Analysis Batch A81256.

SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.

SOP-PCR-1.4: No amplification of PURBR marker. Precision data unavailable for Analysis Batch A81074. Quality control failure(s) observed. See QA report for details.

Sample Location: Big Davis Creek @ US 1

Collection Date/Time: 11/06/2017 09:35

Field ID: G2NE0613 11062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943229	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1952072	SM 9223 B	Escherichia Coli-Quanti-Tray**	158		MPN/100 mL		

Sample Location: Mill Creek @ SR 16

Collection Date/Time: 11/06/2017 10:35

Field ID: G2NE0481 11062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943227	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.65	I	ug/L	P335248	
		Phaeophytin-a	0.50	I	ug/L	P335248	
		Chlorophyll-a, Uncorrected	0.98	I	ug/L	P335248	

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: Mill Creek @ SR 16

Collection Date/Time: 11/06/2017 10:35

Field ID: G2NE0481 11062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943230	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: G2NE0481 11062017

Collection Date/Time: 11/06/2017 10:35

Field ID: G2NE0481 11062017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1952070	SM 9223 B	Escherichia Coli-Quanti-Tray**	41		MPN/100 mL		

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P335248

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: P336491

Component	Result	Code	Units
HF183-purified-qPCR	47	U	GEU/100 mL
HF183-purified-qPCR	47	U	GEU/100 mL

Reference Method: SOP-PCR-1.2
 Batch ID: P336491

Component	Result	Code	Units
GULL2-purified-qPCR	2.8E+03	U	TSC/100 mL
GULL2-purified-qPCR	2.8E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.3
 Batch ID: P336491

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

Reference Method: SOP-PCR-1.4
 Batch ID: P336491

Component	Result	Code	Units
BacR-purified-qPCR	510	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
 Batch ID: P335248

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	107		P	84 - 116

Reference Method: SOP-PCR-1.0
 Batch ID: P336491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-purified-qPCR	10.1	115	F/P	50 - 175
HF183-purified-qPCR	7.35	115	F/P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P336491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.2
Batch ID: P336491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-purified-qPCR	4.23	72.0	F/P	50 - 300
GULL2-purified-qPCR	2.92	72.0	F/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P336491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	5.70	125	F/P	50 - 175
GFD-purified-qPCR	12.2	152	F/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P336491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-purified-qPCR	99.5	3.94	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P336491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943228	HF183-purified-qPCR	82.3		P	50 - 175
1944325	HF183-purified-qPCR	76.8	70.5	P/P	50 - 175
1944815	HF183-purified-qPCR	84.5		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P336491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943228	GULL2-purified-qPCR	58.4		P	50 - 300
1948510	GULL2-purified-qPCR	61.7		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P336491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943228	GFD-purified-qPCR	193		F	50 - 175
1946445	GFD-purified-qPCR	69.0		P	50 - 175
1946635	GFD-purified-qPCR	176		F	50 - 175
1950434	GFD-purified-qPCR	140		P	50 - 175
1951442	GFD-purified-qPCR	57.7		P	50 - 175
1951443	GFD-purified-qPCR	148	130	P/P	50 - 175
1953137	GFD-purified-qPCR	156		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P336491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943228	BacR-purified-qPCR	98.0		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P336491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944325	HF183-purified-qPCR	8.57	Spike	P	0 - 25
1944325	HF183-purified-qPCR	8.57	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P336491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951443	GFD-purified-qPCR	12.7	Spike	P	0 - 25
1955375	GFD-purified-qPCR	74.0	Spike	F	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: 1943228
Field Sample ID: G2NE0604 11062017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	2.40	F	30 - 300
SOP-PCR-1.2	SKETA-qPCR	3.76	F	30 - 300
SOP-PCR-1.4	SKETA-qPCR	3.48	F	30 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	107								
SOP-PCR-1.0	HF183-purified-qPCR	10.1	115	7.35	84.5	82.3	76.8			8.57 8.57
		115			70.5					
SOP-PCR-1.2	GULL2-purified-qPCR	4.23	72.0	2.92	61.7	58.4				
		72.0								
SOP-PCR-1.3	GFD-purified-qPCR	5.70	152	12.2	140	148	130			12.7 74.0
		125			69.0					
SOP-PCR-1.4	BacR-purified-qPCR	3.94	99.5		98.0					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1943227
SM 9223 B / E82502	Escherichia coli by Colilert Quanti-Tray method by ALS Environmental Overflow Laboratory for Northeast District	1952070, 1952071, 1952072
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1943228
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1943228

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1943228
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1943228
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1943228, 1943229, 1943230

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	11/07/2017	11/07/2017 13:23	Cathy Sherrer	11/14/2017 08:15	Kim M. Spencer	1943227
SM 9223 B	11/06/2017	11/06/2017 14:19		11/07/2017 15:23	ALS Environmental, Jax	1952070, 1952071, 1952072
SOP-PCR-1.0	11/07/2017	11/07/2017 13:30	Avril Wood	12/14/2017 10:03	Sarah Menz	1943228
SOP-PCR-1.2	11/07/2017	11/07/2017 13:30	Avril Wood	01/03/2018 12:39	Sarah Menz	1943228
SOP-PCR-1.3	11/07/2017	11/07/2017 13:30	Avril Wood	01/05/2018 10:57	Sarah Menz	1943228
SOP-PCR-1.4	11/07/2017	11/07/2017 13:30	Avril Wood	12/21/2017 10:59	Sarah Menz	1943228
SOP-PCR-4.0	11/07/2017	11/07/2017 13:30	Avril Wood	12/04/2017 13:19	Puja Jasrotia	1943228, 1943229, 1943230