

Biological Analysis Report

NE-DIST-2018-07-12-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
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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: **LSJR North Salt**
Request ID: **RQ-2018-06-25-06**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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Date Certified: 21-AUG-2018 14:50



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: MONCRIEF CREEK @ LEM TURNER RD

Collection Date/Time: 07/11/2018 09:20

Field ID: 20030114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2006643	SM 10200 H (mod.)	Chlorophyll-a, Corrected	120		ug/L	P348587	
		Phaeophytin-a	8.1		ug/L	P348587	
		Chlorophyll-a, Uncorrected	130		ug/L	P348587	
2006651	ASTM D650399	ENTEROCOCCI-ENTEROLERT	320		MPN/100 mL		
2006654	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P349103	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P349103	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	UJ	TSC/100 mL	P349601	MS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P349103	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
SOP-PCR-1.2: Precision data unavailable for Analysis Batch A85710
SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.

Sample Location: RIBAUT RIVER @ MONCRIEF RD

Collection Date/Time: 07/11/2018 10:10

Field ID: 20030129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2006653	ASTM D650399	ENTEROCOCCI-ENTEROLERT	84		MPN/100 mL		

Sample Location: RIBAUT RIVER @ HARBOR VIEW BOAT RAMP

Collection Date/Time: 07/11/2018 09:50

Field ID: G2NE1161

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2006640	SM 10200 H (mod.)	Chlorophyll-a, Corrected	39		ug/L	P348587	
		Phaeophytin-a	5.8		ug/L	P348587	
		Chlorophyll-a, Uncorrected	44		ug/L	P348587	
2006648	ASTM D650399	ENTEROCOCCI-ENTEROLERT	220		MPN/100 mL		

Sample Location: RIBAUT RIVER @ US 1

Collection Date/Time: 07/11/2018 10:30

Field ID: 20030133

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2006641	SM 10200 H (mod.)	Chlorophyll-a, Corrected	30		ug/L	P348587	
		Phaeophytin-a	2.2		ug/L	P348587	
		Chlorophyll-a, Uncorrected	33		ug/L	P348587	
2006649	ASTM D650399	ENTEROCOCCI-ENTEROLERT	120		MPN/100 mL		

Sample Location: DEER CR @ TALLEYRAND AVE

Collection Date/Time: 07/11/2018 11:00

Field ID: 20030792

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2006644	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.6		ug/L	P348587	
		Phaeophytin-a	0.45	U	ug/L	P348587	
		Chlorophyll-a, Uncorrected	2.9		ug/L	P348587	
2006652	ASTM D650399	ENTEROCOCCI-ENTEROLERT	540		MPN/100 mL		

Field ID: 20030792

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2006655	SOP-PCR-1.0	HF183-qPCR**	1.44E+03		GEU/100 mL	P349103	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: DUNN CREEK @ FAYE RD

Collection Date/Time: 07/11/2018 11:40

Field ID: 20030140

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2006642	SM 10200 H (mod.)	Chlorophyll-a, Corrected	17		ug/L	P348587	
		Phaeophytin-a	5.1		ug/L	P348587	
		Chlorophyll-a, Uncorrected	21		ug/L	P348587	
2006650	ASTM D650399	ENTEROCOCCI-ENTEROLERT	180		MPN/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P348587

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: P349103

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

Reference Method: SOP-PCR-1.2

Batch ID: P349103

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

Reference Method: SOP-PCR-1.3

Batch ID: P349601

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

Reference Method: SOP-PCR-1.4

Batch ID: P349103

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

Quality Assurance Report Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P348587

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	92.3		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P349103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	102	142	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P349103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	85.6	133	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P349601

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	128	101	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P349103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	107	222	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P349103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2005377	HF183-qPCR	108		P	50 - 175
2005936	HF183-qPCR	107		P	50 - 175
2005939	HF183-qPCR	96.2		P	50 - 175
2005940	HF183-qPCR	104		P	50 - 175
2006654	HF183-qPCR	108		P	50 - 175
2006655	HF183-qPCR	97.7		P	50 - 175
2006930	HF183-qPCR	104		P	50 - 175
2006933	HF183-qPCR	102		P	50 - 175
2006934	HF183-qPCR	95.6		P	50 - 175
2007936	HF183-qPCR	97.7		P	50 - 175
2009105	HF183-qPCR	99.3		P	50 - 175
2010653	HF183-qPCR	104		P	50 - 175
2010654	HF183-qPCR	105	102	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P349103

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

Reference Method: SOP-PCR-1.2
 Batch ID: P349103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2005377	GULL2-qPCR	89.8		P	50 - 300
2005939	GULL2-qPCR	74.2		P	50 - 300
2006654	GULL2-qPCR	82.8		P	50 - 300
2006930	GULL2-qPCR	88.4		P	50 - 300
2006933	GULL2-qPCR	99.5		P	50 - 300
2006934	GULL2-qPCR	87.5		P	50 - 300
2010653	GULL2-qPCR	126		P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P349601

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2005377	GFD-purified-qPCR	260		F	50 - 175
2005939	GFD-purified-qPCR	192		F	50 - 175
2006654	GFD-purified-qPCR	0.0		F	50 - 175
2006930	GFD-purified-qPCR	154		P	50 - 175
2006933	GFD-purified-qPCR	162		P	50 - 175
2006934	GFD-purified-qPCR	153		P	50 - 175
2010653	GFD-purified-qPCR	134		P	50 - 175
2012938	GFD-purified-qPCR	251		F	50 - 175
2012939	GFD-purified-qPCR	187		F	50 - 175
2012940	GFD-purified-qPCR	311	344	F/F	50 - 175
2012941	GFD-purified-qPCR	265		F	50 - 175
2012942	GFD-purified-qPCR	179		F	50 - 175
2012943	GFD-purified-qPCR	189		F	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P349103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2005377	BacR-qPCR	78.3		P	50 - 175
2005939	BacR-qPCR	75.3		P	50 - 175
2006654	BacR-qPCR	74.3		P	50 - 175
2006930	BacR-qPCR	93.9		P	50 - 175
2006933	BacR-qPCR	85.7		P	50 - 175
2006934	BacR-qPCR	80.0		P	50 - 175
2010653	BacR-qPCR	72.7		P	50 - 175
2010654	BacR-qPCR	74.6	70.5	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P348587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006790	Chlorophyll-a, Corrected	1.57	Sample	P	0 - 25
2006790	Chlorophyll-a, Uncorrected	2.03	Sample	P	0 - 25
2006790	Phaeophytin-a	4.72	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P349103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010654	HF183-qPCR	2.26	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P349601

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012940	GFD-purified-qPCR	10.0	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P349103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010654	BacR-qPCR	5.67	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: 2006654
 Field Sample ID: 20030114

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	104	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	127	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	128	P	50 - 300

Lab Sample ID: 2006655
 Field Sample ID: 20030792

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	103	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	92.3						1.57	
	Chlorophyll-a, Uncorrected							2.03	
	Phaeophytin-a							4.72	
SOP-PCR-1.0	HF183-qPCR	142	102	104	108	107			2.26
				96.2					
SOP-PCR-1.2	GULL2-qPCR	133	85.6	126	89.8	74.2			
				82.8					
SOP-PCR-1.3	GFD-purified-qPCR	101	128	251	187	311			10.0
				344					

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SOP-PCR-1.4	BacR-qPCR	222	107	72.7	78.3	75.3			5.67
				74.3					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
ASTM D650399 / E82502	Enterococci by Enterolert Quanti-Tray Method by ALS Environmental Laboratory in Jacksonville	2006648, 2006649, 2006650, 2006651, 2006652, 2006653
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2006640, 2006641, 2006642, 2006643, 2006644
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2006654, 2006655
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2006654
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2006654
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2006654
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2006654, 2006655

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
ASTM D650399	07/11/2018	07/11/2018 15:59		07/12/2018 18:38	ALS Environmental, Jax	2006648, 2006649, 2006650, 2006651, 2006652, 2006653
SM 10200 H (mod.)	07/12/2018	07/12/2018 14:50	Jennifer Mihalic	07/16/2018 09:25	Carina A. Tull	2006640, 2006641, 2006642, 2006643, 2006644
SOP-PCR-1.0	07/12/2018	07/12/2018 13:30	Sarah Menz	08/02/2018 09:41	Mailin Lopez	2006654, 2006655
SOP-PCR-1.2	07/12/2018	07/12/2018 13:30	Sarah Menz	08/06/2018 14:51	Mailin Lopez	2006654
SOP-PCR-1.3	07/12/2018	07/12/2018 13:30	Angela Smith	08/09/2018 08:59	Sarah Menz	2006654
SOP-PCR-1.4	07/12/2018	07/12/2018 13:30	Sarah Menz	08/02/2018 14:19	Mailin Lopez	2006654
SOP-PCR-4.0	07/12/2018	07/12/2018 13:30	Angela Smith	07/26/2018 10:05	Sarah Menz	2006654, 2006655