

Biological Analysis Report

NE-DIST-2018-11-29-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
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-2018-11-26-14**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

For additional information please contact
Cheryl Swanson - Administrator
Jacqueline Savage - Microbiology
Diane Power - Bench Biology
Andrew Tintle - Aquatic Toxicology
Puja Jasrotia, Ph.D. - Molecular Biology
Amelia Rankin - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Jacqueline Savage, Environmental Administrator

Date Certified: 09-JAN-2019 10:12

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: MONCREIF CR LEM TURNER RD
 BR,NORWOOD AVE.**

Collection Date/Time: 11/28/2018 11:45

Field ID: 20030114

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044571	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.4		ug/L	P355955	
		Phaeophytin-a	1.8	I	ug/L	P355955	
		Chlorophyll-a, Uncorrected	6.7		ug/L	P355955	
2044583	ASTM D650399	ENTEROCOCCI-ENTEROLERT	210		MPN/100 mL		
2044593	SOP-PCR-1.0	HF183-qPCR**	240	I	GEU/100 mL	P355488	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above 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.

Sample Location: RIBAUT R MONCREIF RD BR

Collection Date/Time: 11/28/2018 11:15

Field ID: 20030129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044586	ASTM D650399	ENTEROCOCCI-ENTEROLERT	250		MPN/100 mL		

Sample Location: RIBAUT RIVER AT US-1

Collection Date/Time: 11/28/2018 10:55

Field ID: 20030133

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044587	ASTM D650399	ENTEROCOCCI-ENTEROLERT	320		MPN/100 mL		

Sample Location: DEER CR @ TALLEYRAND AVE

Collection Date/Time: 11/28/2018 12:10

Field ID: 20030792

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044588	ASTM D650399	ENTEROCOCCI-ENTEROLERT	460		MPN/100 mL		
2044595	SOP-PCR-1.0	HF183-qPCR**	2.10E+04		GEU/100 mL	P355488	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: DUNNS CR AT FAYE RD

Collection Date/Time: 11/28/2018 10:25

Field ID: 20030140

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044573	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.7		ug/L	P355955	
		Phaeophytin-a	0.82	I	ug/L	P355955	
		Chlorophyll-a, Uncorrected	3.3		ug/L	P355955	
2044585	ASTM D650399	ENTEROCOCCI-ENTEROLERT	20		MPN/100 mL		

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: OPEN CREEK AT SAN PABLO ROAD

Collection Date/Time: 11/28/2018 09:50

Field ID: 20030695

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
-----------	-------------	-----------	--------	------	-------	----------	----------

Field ID: 20030695

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044572	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.9		ug/L	P355955	
		Phaeophytin-a	1.3	I	ug/L	P355955	
		Chlorophyll-a, Uncorrected	3.8		ug/L	P355955	
2044584	ASTM D650399	ENTEROCOCCI-ENTEROLERT	180		MPN/100 mL		
2044594	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P355488	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P355488	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	UJ	TSC/100 mL	P356164	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P355488	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above 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-1.2: Precision data unavailable for Analysis Batch A88438

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

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A88426

Sample Location: DEER CR @ TALLEYRAND AVE

Collection Date/Time: 11/28/2018 12:15

Field ID: 20030792dup

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044589	ASTM D650399	ENTEROCOCCI-ENTEROLERT	430		MPN/100 mL		
2044596	SOP-PCR-1.0	HF183-qPCR**	1.90E+04		GEU/100 mL	P355488	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P355955

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.60	U	ug/L

Reference Method: SOP-PCR-1.0

Batch ID: P355488

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

Reference Method: SOP-PCR-1.2

Batch ID: P355488

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

Reference Method: SOP-PCR-1.3

Batch ID: P356164

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.4
Batch ID: P355488

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: P355955

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	101		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P355488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	119	175	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P355488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	194	129	P/P	50 - 300
GULL2-qPCR	124	126	P/P	50 - 300

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: P355488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	124	134	P/P	50 - 175
BacR-qPCR	112	92.6	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P355488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041028	HF183-qPCR	105		P	50 - 175
2041029	HF183-qPCR	84.0		P	50 - 175
2041033	HF183-qPCR	112		P	50 - 175
2043413	HF183-qPCR	107	119	P/P	50 - 175
2043526	HF183-qPCR	95.2		P	50 - 175
2043527	HF183-qPCR	94.9		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P355488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044593	HF183-qPCR	115		P	50 - 175
2044594	HF183-qPCR	117		P	50 - 175
2044595	HF183-qPCR	119		P	50 - 175
2044596	HF183-qPCR	123		P	50 - 175
2047259	HF183-qPCR	109		P	50 - 175
2047687	HF183-qPCR	115		P	50 - 175
2047688	HF183-qPCR	119		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P355488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044594	GULL2-qPCR	119		P	50 - 300
2047687	GULL2-qPCR	112		P	50 - 300

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

Reference Method: SOP-PCR-1.4

Batch ID: P355488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041028	BacR-qPCR	67.2		P	50 - 175
2044594	BacR-qPCR	78.3		P	50 - 175
2047687	BacR-qPCR	80.3		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P355955

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044639	Chlorophyll-a, Corrected	7.66	Sample	P	0 - 25
2044639	Chlorophyll-a, Uncorrected	4.30	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
 Batch ID: P355488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2043413	HF183-qPCR	10.2	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: 2044593
 Field Sample ID: 20030114

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

Lab Sample ID: 2044594
 Field Sample ID: 20030695

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	107	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	109	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	121	P	50 - 300

Lab Sample ID: 2044595
 Field Sample ID: 20030792

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	112	P	50 - 300

Lab Sample ID: 2044596
 Field Sample ID: 20030792dup

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	117	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
					LCS			
SM 10200 H (mod.)	Chlorophyll-a, Corrected	101					7.66	
	Chlorophyll-a, Uncorrected						4.30	
SOP-PCR-1.0	HF183-qPCR	175	119	95.2	94.9	109		10.2
				105				

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SOP-PCR-1.2	GULL2-qPCR	194	126	124	119	112				
SOP-PCR-1.3	GFD-purified-qPCR	40.2	160		322	313	297			2.81
SOP-PCR-1.4	BacR-qPCR	124	92.6	112	80.3	67.2	78.3			
		129				333				
		134								

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
ASTM D650399 / E82502	Enterococci by Enterolert Quanti-Tray Method by ALS Environmental Laboratory in Jacksonville	2044583, 2044584, 2044585, 2044586, 2044587, 2044588, 2044589
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2044571, 2044572, 2044573
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2044593, 2044594, 2044595, 2044596
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2044594
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2044594
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2044594
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2044593, 2044594, 2044595, 2044596

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
ASTM D650399	11/28/2018	11/28/2018 13:34		11/29/2018 14:07	ALS Environmental, Jax	2044583, 2044584, 2044585, 2044586, 2044587, 2044588, 2044589
SM 10200 H (mod.)	11/29/2018	11/29/2018 14:25	Edwin Gonzalez-Soto	12/10/2018 16:25	Peterson Janvier	2044571, 2044572, 2044573
SOP-PCR-1.0	11/29/2018	11/29/2018 15:00	Sarah Menz	12/12/2018 11:46	Mailin Lopez	2044593, 2044594, 2044595, 2044596
SOP-PCR-1.2	11/29/2018	11/29/2018 15:00	Sarah Menz	12/19/2018 13:39	Mailin Lopez	2044594
SOP-PCR-1.3	11/29/2018	11/29/2018 15:00	Angela Smith	01/04/2019 12:28	Sarah Menz	2044594
SOP-PCR-1.4	11/29/2018	11/29/2018 15:00	Sarah Menz	12/19/2018 09:06	Mailin Lopez	2044594
SOP-PCR-4.0	11/29/2018	11/29/2018 15:00	Angela Smith	12/10/2018 15:40	Sarah Menz	2044593, 2044594, 2044595, 2044596