Biological Analysis Report

NE-DIST-2018-08-10-01

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 Boat**
Request ID: **RQ-2018-08-06-15**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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Date Certified: 14-SEP-2018 16:24

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: TROUT RIVER ABOVE 295 **Collection Date/Time: 08/09/2018 08:40**

Field ID: G2NE1138 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016230	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.1		ug/L	P351000	
		Phaeophytin-a	1.9		ug/L	P351000	
		Chlorophyll-a, Uncorrected	4.4		ug/L	P351000	
2016237	ASTM D650399	ENTEROCOCCI-ENTEROLERT	63	Q	MPN/100 mL		
2016244	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.

Sample Location: RIBAULT R LEM TURNER RD **Collection Date/Time: 08/09/2018 09:00**

Field ID: 20030126 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016240	ASTM D650399	ENTEROCOCCI-ENTEROLERT	41		MPN/100 mL		

Sample Location: RIBAULT R ~ 0.3mi ab TROUT R **Collection Date/Time: 08/09/2018 09:10**

Field ID: 20030125 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016241	ASTM D650399	ENTEROCOCCI-ENTEROLERT	41		MPN/100 mL		

Sample Location: MONCRIEF CREEK NEAR MOUTH **Collection Date/Time: 08/09/2018 09:25**

Field ID: 20030115 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016231	SM 10200 H (mod.)	Chlorophyll-a, Corrected	15		ug/L	P351000	
		Phaeophytin-a	4.7		ug/L	P351000	
		Chlorophyll-a, Uncorrected	18		ug/L	P351000	
2016238	ASTM D650399	ENTEROCOCCI-ENTEROLERT	41		MPN/100 mL		
2016245	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.

Sample Location: TROUT R @ I-95 BURT MAXWELL DOCK **Collection Date/Time: 08/09/2018 09:35**

Field ID: 20030121 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016232	SM 10200 H (mod.)	Chlorophyll-a, Corrected	13		ug/L	P351000	
		Phaeophytin-a	3.4		ug/L	P351000	
		Chlorophyll-a, Uncorrected	16		ug/L	P351000	
2016239	ASTM D650399	ENTEROCOCCI-ENTEROLERT	20		MPN/100 mL		
2016246	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.

Sample Location: ORTEGA R BR ROOSEVELT BLVD **Collection Date/Time: 08/09/2018 10:30**

Field ID: 20030077 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016233	SM 10200 H (mod.)	Chlorophyll-a, Corrected	17		ug/L	P351000	
		Phaeophytin-a	3.4		ug/L	P351000	
		Chlorophyll-a, Uncorrected	19		ug/L	P351000	
2016242	ASTM D650399	ENTEROCOCCI-ENTEROLERT	10	U	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: FISHING CRK AT PUBLIC BOAT RAMP OFF SEABOARD AVE **Collection Date/Time: 08/09/2018 10:40**

Field ID: 20030617 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016243	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	771		MPN/100 mL		
2016247	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P350505	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P350505	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	UJ	TSC/100 mL	P351074	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P350505	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 A86295
SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.
SOP-PCR-1.4: Precision data unavailable for Analysis Batch A86258

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P351000

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: P350505

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

Reference Method: SOP-PCR-1.2
Batch ID: P350505

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

Reference Method: SOP-PCR-1.3
Batch ID: P351074

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: P350505

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: P351000

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	91.2		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P350505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	88.4	83.1	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P350505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	84.0	164	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P351074

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	121	49.7	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P350505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	137	201	P/F	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P350505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2013668	HF183-qPCR	68.5		P	50 - 175
2013669	HF183-qPCR	75.1		P	50 - 175
2016247	HF183-qPCR	73.9		P	50 - 175
2016299	HF183-qPCR	67.0		P	50 - 175
2016300	HF183-qPCR	63.3		P	50 - 175
2017880	HF183-qPCR	70.6		P	50 - 175
2018595	HF183-qPCR	73.5		P	50 - 175
2018596	HF183-qPCR	64.6	66.8	P/P	50 - 175
2018597	HF183-qPCR	64.7		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P350505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018598	HF183-qPCR	68.2		P	50 - 175
2019031	HF183-qPCR	81.1		P	50 - 175
2019032	HF183-qPCR	78.3		P	50 - 175
2020117	HF183-qPCR	84.0		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P350505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2013669	GULL2-qPCR	74.3		P	50 - 300
2016247	GULL2-qPCR	68.7		P	50 - 300
2018597	GULL2-qPCR	52.0		P	50 - 300
2018598	GULL2-qPCR	51.9		P	50 - 300
2020117	GULL2-qPCR	83.5		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P351074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2013669	GFD-purified-qPCR	157		P	50 - 175
2015786	GFD-purified-qPCR	172		P	50 - 175
2016247	GFD-purified-qPCR	50.0		F	50 - 175
2016293	GFD-purified-qPCR	138		P	50 - 175
2017669	GFD-purified-qPCR	177		F	50 - 175
2017670	GFD-purified-qPCR	130		P	50 - 175
2017671	GFD-purified-qPCR	143		P	50 - 175
2018597	GFD-purified-qPCR	172		P	50 - 175
2018598	GFD-purified-qPCR	133		P	50 - 175
2019428	GFD-purified-qPCR	153		P	50 - 175
2023260	GFD-purified-qPCR	153		P	50 - 175
2023261	GFD-purified-qPCR	172	150	P/P	50 - 175
2023262	GFD-purified-qPCR	95.4		P	50 - 175
2023263	GFD-purified-qPCR	44.8		F	50 - 175
2023264	GFD-purified-qPCR	66.9		P	50 - 175
2023265	GFD-purified-qPCR	106		P	50 - 175
2023266	GFD-purified-qPCR	131		P	50 - 175
2023267	GFD-purified-qPCR	160		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P350505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2013668	BacR-qPCR	87.8		P	50 - 175
2013669	BacR-qPCR	92.3		P	50 - 175
2016247	BacR-qPCR	84.9		P	50 - 175
2016299	BacR-qPCR	73.6		P	50 - 175
2016300	BacR-qPCR	86.9		P	50 - 175
2017880	BacR-qPCR	79.6		P	50 - 175
2018597	BacR-qPCR	88.6		P	50 - 175
2018598	BacR-qPCR	91.9		P	50 - 175
2020117	BacR-qPCR	112		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SOP-PCR-1.0
Batch ID: P350505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018596	HF183-qPCR	3.44	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P351074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2023261	GFD-purified-qPCR	13.4	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: 2016247
Field Sample ID: 20030617

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	116	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	105	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	99.4	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	91.2				
SOP-PCR-1.0	HF183-qPCR	83.1 88.4	73.5 64.6 66.8 64.7			3.44
SOP-PCR-1.2	GULL2-qPCR	164 84.0	52.0 51.9 74.3 68.7			
SOP-PCR-1.3	GFD-purified-qPCR	49.7 121	172 177 157 50.0			13.4
SOP-PCR-1.4	BacR-qPCR	201 137	88.6 91.9 87.8 92.3			

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
ASTM D650399 / E82502	Enterococci by Enterolert Quanti-Tray Method by ALS Environmental Laboratory in Jacksonville	2016237, 2016238, 2016239, 2016240, 2016241, 2016242
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2016230, 2016231, 2016232, 2016233
SM 9223 B Quanti-Tray / E82502	Escherichia coli by Colilert Quanti-Tray method by ALS Environmental Laboratory in Jacksonville	2016243
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2016247
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2016247

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2016247
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2016247
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2016244, 2016245, 2016246, 2016247

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
ASTM D650399	08/09/2018	08/09/2018 16:42		08/10/2018 17:21	ALS Environmental, Jax	2016237, 2016238, 2016239, 2016240, 2016241, 2016242
SM 10200 H (mod.)	08/10/2018	08/10/2018 13:30	Edwin Gonzalez-Soto	08/23/2018 08:50	Carina A. Tull	2016230, 2016231, 2016232, 2016233
SM 9223 B Quanti-Tray	08/09/2018	08/09/2018 16:15		08/10/2018 17:21	ALS Environmental, Jax	2016243
SOP-PCR-1.0	08/10/2018	08/10/2018 12:25	Angela Smith	08/29/2018 11:31	Mailin Lopez	2016247
SOP-PCR-1.2	08/10/2018	08/10/2018 12:25	Angela Smith	09/05/2018 08:41	Mailin Lopez	2016247
SOP-PCR-1.3	08/10/2018	08/10/2018 12:25	Sarah Menz	09/13/2018 15:38	Sarah Menz	2016247
SOP-PCR-1.4	08/10/2018	08/10/2018 12:25	Angela Smith	08/31/2018 14:49	Mailin Lopez	2016247
SOP-PCR-4.0	08/10/2018	08/10/2018 12:25	Angela Smith	08/22/2018 09:44	Sarah Menz	2016244, 2016245, 2016246, 2016247