

Biological Analysis Report

NE-DIST-2018-09-27-01

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 West 1 2018**
Request ID: **RQ-2018-09-24-09**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

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

Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 24-OCT-2018 11:17



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: MCCOY CR AT MYRTLE AVE

Collection Date/Time: 09/26/2018 09:05

Field ID: 20030693

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028721	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	292		MPN/100 mL		
2028727	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Wills Br. North Fork at Old Middleburg Rd.

Collection Date/Time: 09/26/2018 10:20

Field ID: 20030582

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028717	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.5	I	ug/L	P353041	RPD
		Phaeophytin-a	1.0	U	ug/L	P353041	
		Chlorophyll-a, Uncorrected	1.5	I	ug/L	P353041	RPD
2028719	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1140		MPN/100 mL		
2028725	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P352672	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P352672	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	UJ	TSC/100 mL	P352926	MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P352672	LCS, MS
	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-1.3: Quality control failure(s) observed. See QA report for details.

Sample Location: WILLIAMSON CREEK AT HUGH EDWARDS

Collection Date/Time: 09/26/2018 11:30

Field ID: 20030429

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028722	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	323		MPN/100 mL		
2028728	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Wills Br. at Lane Ave.

Collection Date/Time: 09/26/2018 10:45

Field ID: 20030095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028723	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1660		MPN/100 mL		
2028729	SOP-PCR-1.0	HF183-qPCR**	180	I	GEU/100 mL	P352839	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Williamson Creek at Jammes Road, Jacksonville

Collection Date/Time: 09/26/2018 11:10

Field ID: 20030618

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028718	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.67	I	ug/L	P353041	RPD
		Phaeophytin-a	0.60	U	ug/L	P353041	
		Chlorophyll-a, Uncorrected	0.73	I	ug/L	P353041	RPD
2028720	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	97		MPN/100 mL		
2028726	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Field ID: 20030618

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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: WILLIAMSON CREEK AT HUGH EDWARDS Collection Date/Time: 09/26/2018 11:33

Field ID: 20030429DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028724	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	262		MPN/100 mL		
2028730	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P353041

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: P352672

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

Reference Method: SOP-PCR-1.0
Batch ID: P352839

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

Reference Method: SOP-PCR-1.2
Batch ID: P352672

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

Reference Method: SOP-PCR-1.3
Batch ID: P352926

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

Reference Method: SOP-PCR-1.4
Batch ID: P352672

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: P353041

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	99.1		P	84 - 116

Reference Method: SOP-PCR-1.0
 Batch ID: P352672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	93.0	111	P/P	50 - 175

Reference Method: SOP-PCR-1.0
 Batch ID: P352839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	110	130	P/P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P352672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	110	74.3	P/P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P352926

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	116	62.6	P/P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P352672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	90.6	215	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P352672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2020386	HF183-qPCR	65.7		P	50 - 175
2021428	HF183-qPCR	83.8	75.7	P/P	50 - 175
2021429	HF183-qPCR	82.9		P	50 - 175
2021682	HF183-qPCR	76.5		P	50 - 175
2021684	HF183-qPCR	63.8		P	50 - 175
2021685	HF183-qPCR	63.3		P	50 - 175
2025198	HF183-qPCR	96.2		P	50 - 175
2027905	HF183-qPCR	75.8		P	50 - 175
2028725	HF183-qPCR	91.8		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P352839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028729	HF183-qPCR	100	96.0	P	50 - 175
2029548	HF183-qPCR	103		P	50 - 175
2032519	HF183-qPCR	95.7		P	50 - 175
2032845	HF183-qPCR	99.4		P	50 - 175
2032846	HF183-qPCR	102		P/P	50 - 175
2032847	HF183-qPCR	79.5		P	50 - 175
2032848	HF183-qPCR	84.4		P	50 - 175
2032849	HF183-qPCR	104		P	50 - 175
2033938	HF183-qPCR	99.7	96.0	P	50 - 175
2033939	HF183-qPCR	108		P	50 - 175
2034669	HF183-qPCR	103		P	50 - 175
2034670	HF183-qPCR	95.3		P	50 - 175
2034671	HF183-qPCR	100		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P352672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021428	GULL2-qPCR	107	84.6	P/P	50 - 300
2021429	GULL2-qPCR	93.8		P	50 - 300
2025198	GULL2-qPCR	85.2		P	50 - 300
2028725	GULL2-qPCR	99.8		P	50 - 300
2030718	GULL2-qPCR	109		P	50 - 300
2030719	GULL2-qPCR	92.8		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P352926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021221	GFD-purified-qPCR	94.3	62.9	P	50 - 175
2021428	GFD-purified-qPCR	76.4		P/P	50 - 175
2021429	GFD-purified-qPCR	71.7		P	50 - 175
2025116	GFD-purified-qPCR	53.0		P	50 - 175
2025192	GFD-purified-qPCR	98.8		P	50 - 175
2025198	GFD-purified-qPCR	88.3		P	50 - 175
2025925	GFD-purified-qPCR	98.1		P	50 - 175
2026344	GFD-purified-qPCR	92.3		P	50 - 175
2028725	GFD-purified-qPCR	191	62.9	F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P352672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021428	BacR-qPCR	91.9	92.0	P/P	50 - 175
2021429	BacR-qPCR	88.1		P	50 - 175
2021682	BacR-qPCR	61.8		P	50 - 175
2021684	BacR-qPCR	46.9		F	50 - 175
2021685	BacR-qPCR	65.8		P	50 - 175
2025198	BacR-qPCR	100		P	50 - 175
2028725	BacR-qPCR	87.5		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P353041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028573	Chlorophyll-a, Corrected	38.9	Sample	F	0 - 25
2028573	Chlorophyll-a, Uncorrected	39.8	Sample	F	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P352672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021428	HF183-qPCR	10.2	Spike	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P352839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2032846	HF183-qPCR	6.35	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P352672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021428	GULL2-qPCR	23.2	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P352926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021428	GFD-purified-qPCR	19.2	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P352672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021428	BacR-qPCR	0.131	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: 2028725
Field Sample ID: 20030582

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	105	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	103	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 2028725
Field Sample ID: 20030582

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	102	P	50 - 300

Lab Sample ID: 2028729
Field Sample ID: 20030095

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	92.0	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	99.1						38.9	
	Chlorophyll-a, Uncorrected							39.8	
SOP-PCR-1.0	HF183-qPCR	111	93.0	96.2	75.8	65.7			10.2
				83.8					
	HF183-qPCR	130	110	99.4	102	96.0			6.35
				79.5					
SOP-PCR-1.2	GULL2-qPCR	74.3	110	85.2	109	92.8			23.2
				107					
SOP-PCR-1.3	GFD-purified-qPCR	62.6	116	94.3	53.0	98.8			19.2
				98.1					
SOP-PCR-1.4	BacR-qPCR	215	90.6	100	91.9	92.0			0.131
				88.1					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2028717, 2028718
SM 9223 B Quanti-Tray / E82502	Escherichia coli by Colilert Quanti-Tray method by ALS Environmental Laboratory in Jacksonville	2028719, 2028720, 2028721, 2028722, 2028723, 2028724
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2028725, 2028729
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2028725
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2028725
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2028725
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2028725, 2028726, 2028727, 2028728, 2028729, 2028730

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	09/27/2018	09/27/2018 13:55	Peterson Janvier	10/08/2018 13:00	Peterson Janvier	2028717, 2028718
SM 9223 B Quanti-Tray	09/26/2018	09/26/2018 13:13		09/27/2018 15:10	ALS Environmental, Jax	2028719, 2028720, 2028721, 2028722, 2028723, 2028724
SOP-PCR-1.0	09/27/2018	09/27/2018 16:30	Sarah Menz	10/08/2018 13:26	Mailin Lopez	2028725
	09/27/2018	09/27/2018 16:30	Sarah Menz	10/22/2018 11:48	Mailin Lopez	2028729
SOP-PCR-1.2	09/27/2018	09/27/2018 16:30	Sarah Menz	10/15/2018 10:23	Mailin Lopez	2028725
SOP-PCR-1.3	09/27/2018	09/27/2018 16:30	Sarah Menz	10/16/2018 11:23	Sarah Menz	2028725
SOP-PCR-1.4	09/27/2018	09/27/2018 16:30	Sarah Menz	10/08/2018 16:17	Sarah Menz	2028725
SOP-PCR-4.0	09/27/2018	09/27/2018 16:30	Angela Smith	10/05/2018 13:59	Sarah Menz	2028725, 2028726, 2028727, 2028728, 2028729, 2028730