

Biological Analysis Report

NE-DIST-2018-04-19-02

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

Overflow Analyses Performed By:
ALS Environmental - Jacksonville
9143 Philips Highway, Suite 200
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DOH Accreditation E82502

Event Description: **LSJR Southside 2**
Request ID: **RQ-2018-04-16-34**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 03-JUL-2018 09:46



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: Deep Bottom at Cheatham Trail

Collection Date/Time: 04/18/2018 09:20

Field ID: 20030592

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985923	SM 10200 H (mod.)	Chlorophyll-a, Corrected	10		ug/L	P344188	
		Phaeophytin-a	2.7		ug/L	P344188	
		Chlorophyll-a, Uncorrected	12		ug/L	P344188	
1985929	SM 9223 B	Escherichia Coli-Quanti-Tray**	455		MPN/100 mL		
1985936	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P344787	LCS
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P344787	
	SOP-PCR-1.3	GFD-purified-qPCR**	28	T	TSC/100 mL	P345032	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P344787	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

SOP-PCR-1.2: No amplification of GULL2 marker. Precision data unavailable for Analysis Batch A83961.

SOP-PCR-1.4: No amplification of BACR marker. Precision data unavailable for Analysis Batch A83916.

Sample Location: Deep Bottom Creek at I-295

Collection Date/Time: 04/18/2018 08:50

Field ID: 20030596

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985924	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.6		ug/L	P344188	
		Phaeophytin-a	1.1	I	ug/L	P344188	
		Chlorophyll-a, Uncorrected	6.5		ug/L	P344188	
1985930	SM 9223 B	Escherichia Coli-Quanti-Tray**	548		MPN/100 mL		
1985937	SOP-PCR-1.0	HF183-qPCR**	38	T	GEU/100 mL	P344787	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Deep Bottom Creek at Scott Mill Rd

Collection Date/Time: 04/18/2018 09:35

Field ID: 20030595

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985925	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.0		ug/L	P344188	
		Phaeophytin-a	1.8		ug/L	P344188	
		Chlorophyll-a, Uncorrected	6.3		ug/L	P344188	
1985931	SM 9223 B	Escherichia Coli-Quanti-Tray**	2360		MPN/100 mL		
1985938	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P344787	LCS
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P344787	
	SOP-PCR-1.3	GFD-purified-qPCR**	67	T	TSC/100 mL	P345032	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P344787	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

SOP-PCR-1.2: No amplification of GULL2 marker. Precision data unavailable for Analysis Batch A83961.

SOP-PCR-1.4: No amplification of BACR marker. Precision data unavailable for Analysis Batch A83916.

Sample Location: Cormorant Branch @ Marbon Rd

Collection Date/Time: 04/18/2018 10:40

Field ID: 20030852

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: 20030852

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985932	SM 9223 B	Escherichia Coli-Quanti-Tray**	857		MPN/100 mL		
1985939	SOP-PCR-1.0	HF183-qPCR**	1.38E+03	A	GEU/100 mL	P344787	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Oldfield CR @ Loretto Rd

Collection Date/Time: 04/18/2018 10:05

Field ID: 20030563

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985926	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.2		ug/L	P344188	
		Phaeophytin-a	1.7		ug/L	P344188	
		Chlorophyll-a, Uncorrected	3.2		ug/L	P344188	
1985933	SM 9223 B	Escherichia Coli-Quanti-Tray**	495		MPN/100 mL		

Sample Location: Cormorant Branch at Julington Creek Road

Collection Date/Time: 04/18/2018 11:10

Field ID: 20030685

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985922	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.3		ug/L	P344188	
		Phaeophytin-a	0.94	I	ug/L	P344188	
		Chlorophyll-a, Uncorrected	7.1		ug/L	P344188	
1985928	SM 9223 B	Escherichia Coli-Quanti-Tray**	216		MPN/100 mL		
1985935	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Oldfield CR @ Julington Creek Road

Collection Date/Time: 04/18/2018 11:30

Field ID: 20030684

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985927	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.1	I	ug/L	P344188	
		Phaeophytin-a	0.40	U	ug/L	P344188	
		Chlorophyll-a, Uncorrected	1.4		ug/L	P344188	
1985934	SM 9223 B	Escherichia Coli-Quanti-Tray**	663		MPN/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P344188

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: P344787

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.2
Batch ID: P344787

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

Reference Method: SOP-PCR-1.3
Batch ID: P345032

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

Reference Method: SOP-PCR-1.4
Batch ID: P344787

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: P344188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	91.6		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P344787

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	45.9	85.4	F/P	50 - 175
HF183-qPCR	108	85.4	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P344787

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	92.0	86.7	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P345032

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	102	30.8	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P344787

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	92.2	98.4	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P344787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981726	HF183-qPCR	71.7		P	50 - 175
1981727	HF183-qPCR	79.6		P	50 - 175
1985574	HF183-qPCR	83.1		P	50 - 175
1985612	HF183-qPCR	73.0		P	50 - 175
1985665	HF183-qPCR	69.8		P	50 - 175
1985666	HF183-qPCR	83.3		P	50 - 175
1985936	HF183-qPCR	70.8		P	50 - 175
1985937	HF183-qPCR	78.1		P	50 - 175
1985938	HF183-qPCR	71.2		P	50 - 175
1985939	HF183-qPCR	74.0	71.7	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P344787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981726	GULL2-qPCR	107		P	50 - 300
1985936	GULL2-qPCR	72.3		P	50 - 300
1985938	GULL2-qPCR	91.1		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P345032

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983992	GFD-purified-qPCR	51.1		P	50 - 175
1985936	GFD-purified-qPCR	95.2		P	50 - 175
1985938	GFD-purified-qPCR	107		P	50 - 175
1985974	GFD-purified-qPCR	142		P	50 - 175
1986052	GFD-purified-qPCR	97.3		P	50 - 175
1986379	GFD-purified-qPCR	125		P	50 - 175
1991711	GFD-purified-qPCR	89.1		P	50 - 175
1991712	GFD-purified-qPCR	147	160	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P344787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981726	BacR-qPCR	65.0		P	50 - 175
1985666	BacR-qPCR	62.1		P	50 - 175
1985936	BacR-qPCR	65.9		P	50 - 175
1985938	BacR-qPCR	90.9		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P344188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985489	Chlorophyll-a, Corrected	8.92	Sample	P	0 - 25
1985489	Chlorophyll-a, Uncorrected	10.4	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P344188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985489	Phaeophytin-a	19.2	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P344787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985939	HF183-qPCR	3.22	Spike	P	0 - 25
1985939	HF183-qPCR	3.22	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P345032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991712	GFD-purified-qPCR	8.56	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: 1985936
Field Sample ID: 20030592

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	91.4	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	92.0	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	95.4	P	50 - 300

Lab Sample ID: 1985937
Field Sample ID: 20030596

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	98.8	P	50 - 300

Lab Sample ID: 1985938
Field Sample ID: 20030595

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	96.3	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	88.0	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	83.2	P	50 - 300

Lab Sample ID: 1985939
Field Sample ID: 20030852

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	91.7	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision		MS
									SMP		
SM 10200 H (mod.)	Chlorophyll-a, Corrected	91.6							8.92		
	Chlorophyll-a, Uncorrected								10.4		
	Phaeophytin-a								19.2		
SOP-PCR-1.0	HF183-qPCR	45.9	85.4	108	73.0	71.7	79.6				3.22 3.22
		85.4			83.1						
SOP-PCR-1.2	GULL2-qPCR	86.7	92.0		107	72.3	91.1				
SOP-PCR-1.3	GFD-purified-qPCR	30.8	102		89.1	147	160				8.56
					95.2						
SOP-PCR-1.4	BacR-qPCR	98.4	92.2		65.0	62.1	65.9				
					90.9						

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1985922, 1985923, 1985924, 1985925, 1985926, 1985927
SM 9223 B / E82502	Escherichia coli by Colilert Quanti-Tray method by ALS Environmental Overflow Laboratory for Northeast District	1985928, 1985929, 1985930, 1985931, 1985932, 1985933, 1985934
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1985936, 1985937, 1985938, 1985939
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1985936, 1985938
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1985936, 1985938
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1985936, 1985938
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1985935, 1985936, 1985937, 1985938, 1985939

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	04/19/2018	04/19/2018 14:15	Jennifer Mihalic	04/25/2018 14:30	Carina A. Tull	1985922, 1985923, 1985924, 1985925, 1985926, 1985927
SM 9223 B	04/18/2018	04/18/2018 14:28		04/19/2018 15:10	ALS Environmental, Jax	1985928, 1985929, 1985930, 1985931, 1985932, 1985933, 1985934
SOP-PCR-1.0	04/19/2018	04/19/2018 14:20	Sarah Menz	05/10/2018 09:32	Mailin Lopez	1985936, 1985937, 1985938, 1985939
SOP-PCR-1.2	04/19/2018	04/19/2018 14:20	Sarah Menz	05/16/2018 15:33	Sarah Menz	1985936, 1985938
SOP-PCR-1.3	04/19/2018	04/19/2018 14:20	Angela Smith	05/17/2018 14:48	Sarah Menz	1985936, 1985938
SOP-PCR-1.4	04/19/2018	04/19/2018 14:20	Sarah Menz	05/15/2018 14:34	Sarah Menz	1985936, 1985938
SOP-PCR-4.0	04/19/2018	04/19/2018 14:20	Angela Smith	05/07/2018 15:05	Puja Jasrotia	1985935, 1985936, 1985937, 1985938, 1985939