

Biological Analysis Report

NE-DIST-2018-11-21-02

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

Overflow Analyses Performed By:
ALS Environmental - Jacksonville
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DOH Accreditation E82502

Event Description: **bmap tribs 2**
Request ID: **RQ-2018-11-12-20**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 20-DEC-2018 16:56



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: TERRAPIN CREEK AT FAYE ROAD

Collection Date/Time: 11/20/2018 09:00

Field ID: 20030653

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2043400	SM 10200 H (mod.)	Chlorophyll-a, Corrected	8.1		ug/L	P355863	
		Phaeophytin-a	6.7		ug/L	P355863	
		Chlorophyll-a, Uncorrected	12		ug/L	P355863	
2043405	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1250		MPN/100 mL		
2043410	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P355487	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P355487	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	U	TSC/100 mL	P355804	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	UJ	TSC/100 mL	P355487	LCS, MS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
 SOP-PCR-1.4: Quality control failure(s) observed. See QA report for details.

Sample Location: TROUT RIVER AT OLD KINGS RD

Collection Date/Time: 11/20/2018 09:40

Field ID: 20030753

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2043401	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.79	U	ug/L	P355863	
		Phaeophytin-a	0.86	U	ug/L	P355863	
		Chlorophyll-a, Uncorrected	0.57	U	ug/L	P355863	
2043406	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	305		MPN/100 mL		
2043411	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: MONCRIEF CR N OF 33RD ST BRID

Collection Date/Time: 11/20/2018 10:40

Field ID: 20030316

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2043402	SM 10200 H (mod.)	Chlorophyll-a, Corrected	21		ug/L	P355863	
		Phaeophytin-a	4.5		ug/L	P355863	
		Chlorophyll-a, Uncorrected	24		ug/L	P355863	
2043407	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	10		MPN/100 mL		
2043412	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: MONCRIEF CR @ 21ST ST

Collection Date/Time: 11/20/2018 10:15

Field ID: 20030897

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2043403	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.76	I	ug/L	P355863	
		Phaeophytin-a	0.60	U	ug/L	P355863	
		Chlorophyll-a, Uncorrected	1.0	I	ug/L	P355863	
2043408	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1020		MPN/100 mL		
2043413	SOP-PCR-1.0	HF183-qPCR**	280	I	GEU/100 mL	P355488	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
 SOP-PCR-1.0: Duplicate was analyzed and result is 140 U.

Sample Location: Goodbys CR Above West Branch at San Clerc

Collection Date/Time: 11/20/2018 11:30

Field ID: 20030891

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2043404	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.98	I	ug/L	P355863	
		Phaeophytin-a	0.60	U	ug/L	P355863	
		Chlorophyll-a, Uncorrected	1.1	I	ug/L	P355863	
2043409	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	2010		MPN/100 mL		
2043414	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P355487	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P355487	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	UJ	TSC/100 mL	P355804	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P355487	LCS, MS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P355863

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: P355487

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

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: P355487

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

Reference Method: SOP-PCR-1.3
Batch ID: P355804

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

Reference Method: SOP-PCR-1.4
Batch ID: P355487

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: P355863

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.7		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P355487

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	121	135	P/P	50 - 175

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: P355487

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	139	126	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P355804

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	150	21.5	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P355487

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	82.5	182	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P355487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2038761	HF183-qPCR	89.4		P	50 - 175
2038762	HF183-qPCR	104	107	P/P	50 - 175
2040322	HF183-qPCR	102		P	50 - 175
2040324	HF183-qPCR	93.8		P	50 - 175
2040451	HF183-qPCR	106		P	50 - 175
2041068	HF183-qPCR	99.9		P	50 - 175
2041138	HF183-qPCR	120		P	50 - 175
2041703	HF183-qPCR	113		P	50 - 175
2041704	HF183-qPCR	108		P	50 - 175
2041706	HF183-qPCR	105		P	50 - 175
2042736	HF183-qPCR	105		P	50 - 175
2043410	HF183-qPCR	95.0		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P355487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2043414	HF183-qPCR	105		P	50 - 175

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
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: P355487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2038762	GULL2-qPCR	134	144	P/P	50 - 300
2040324	GULL2-qPCR	128		P	50 - 300
2040451	GULL2-qPCR	118		P	50 - 300
2041703	GULL2-qPCR	136		P	50 - 300
2041706	GULL2-qPCR	123		P	50 - 300
2042736	GULL2-qPCR	120		P	50 - 300
2043410	GULL2-qPCR	101		P	50 - 300
2043414	GULL2-qPCR	118		P	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P355804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2038762	GFD-purified-qPCR	170	205	P/F	50 - 175
2039236	GFD-purified-qPCR	190		F	50 - 175
2040451	GFD-purified-qPCR	169		P	50 - 175
2041703	GFD-purified-qPCR	189		F	50 - 175
2041706	GFD-purified-qPCR	202		F	50 - 175
2042736	GFD-purified-qPCR	163		P	50 - 175
2043410	GFD-purified-qPCR	142		P	50 - 175
2043414	GFD-purified-qPCR	176		F	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P355487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2038762	BacR-qPCR	66.0	66.4	P/P	50 - 175
2040324	BacR-qPCR	52.8		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P355487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2040451	BacR-qPCR	54.0		P	50 - 175
2041068	BacR-qPCR	52.1		P	50 - 175
2041703	BacR-qPCR	60.5		P	50 - 175
2041706	BacR-qPCR	52.9		P	50 - 175
2042736	BacR-qPCR	56.1		P	50 - 175
2043410	BacR-qPCR	48.7		F	50 - 175
2043414	BacR-qPCR	54.3		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P355863

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2043327	Chlorophyll-a, Corrected	0.422	Sample	P	0 - 25
2043327	Chlorophyll-a, Uncorrected	0.835	Sample	P	0 - 25
2043327	Phaeophytin-a	3.01	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P355487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2038762	HF183-qPCR	2.28	Spike	P	0 - 25

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-1.2
Batch ID: P355487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2038762	GULL2-qPCR	7.45	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P355804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2038762	GFD-purified-qPCR	18.8	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.4
 Batch ID: P355487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2038762	BacR-qPCR	0.687	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: 2043410
 Field Sample ID: 20030653

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	88.7	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	126	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	103	P	50 - 300

Lab Sample ID: 2043413
 Field Sample ID: 20030897

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

Lab Sample ID: 2043414
 Field Sample ID: 20030891

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	92.5	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	143	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	120	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	97.7						0.422	
	Chlorophyll-a, Uncorrected							0.835	
	Phaeophytin-a							3.01	
SOP-PCR-1.0	HF183-qPCR	135	121	89.4	104	107			2.28
				102					
	HF183-qPCR	175	119	95.2	94.9	109			10.2
				105					
SOP-PCR-1.2	GULL2-qPCR	126	139	134	144	128			7.45
				118					
SOP-PCR-1.3	GFD-purified-qPCR	21.5	150	170	205	190			18.8
				169					
SOP-PCR-1.4	BacR-qPCR	182	82.5	66.0	66.4	52.8			0.687
				54.0					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2043400, 2043401, 2043402, 2043403, 2043404
SM 9223 B Quanti-Tray / E82502	Escherichia coli by Colilert Quanti-Tray method by ALS Environmental Laboratory in Jacksonville	2043405, 2043406, 2043407, 2043408, 2043409
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2043410, 2043413, 2043414
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2043410, 2043414
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2043410, 2043414
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2043410, 2043414
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2043410, 2043411, 2043412, 2043413, 2043414

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	11/21/2018	11/21/2018 13:45	Avril Wood	12/05/2018 16:35	Peterson Janvier	2043400, 2043401, 2043402, 2043403, 2043404
SM 9223 B Quanti-Tray	11/20/2018	11/20/2018 13:15		11/21/2018 14:20	ALS Environmental, Jax	2043405, 2043406, 2043407, 2043408, 2043409
SOP-PCR-1.0	11/21/2018	11/21/2018 11:30	Sarah Menz	12/06/2018 09:05	Mailin Lopez	2043410, 2043414
	11/21/2018	11/21/2018 11:30	Sarah Menz	12/12/2018 11:46	Mailin Lopez	2043413
SOP-PCR-1.2	11/21/2018	11/21/2018 11:30	Sarah Menz	12/07/2018 09:10	Mailin Lopez	2043410, 2043414
SOP-PCR-1.3	11/21/2018	11/21/2018 11:30	Mailin Lopez	12/11/2018 10:27	Sarah Menz	2043410, 2043414
SOP-PCR-1.4	11/21/2018	11/21/2018 11:30	Sarah Menz	12/06/2018 14:02	Mailin Lopez	2043410, 2043414
SOP-PCR-4.0	11/21/2018	11/21/2018 11:30	Angela Smith	12/03/2018 15:06	Sarah Menz	2043410, 2043411, 2043412, 2043413, 2043414