

Biological Analysis Report

NE-DIST-2018-09-06-02

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 1**
Request ID: **RQ-2018-09-03-37**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 17-OCT-2018 10:24



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: BUTCHER PEN CR @ BLANDING BLVD

Collection Date/Time: 09/05/2018 09:40

Field ID: 20030580

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2022570	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.5	I	ug/L	P351818	
		Phaeophytin-a	0.69	I	ug/L	P351818	
		Chlorophyll-a, Uncorrected	2.0		ug/L	P351818	
2022575	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	3450		MPN/100 mL		
2022579	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P352017	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P352017	
	SOP-PCR-1.3	GFD-purified-qPCR**	2.6E+05	I	TSC/100 mL	P352136	LCS, RPD
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P352017	LCS
	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: BIG FISHWEIR CR HERSCHEL ST

Collection Date/Time: 09/05/2018 10:55

Field ID: 20030139

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2022572	SM 10200 H (mod.)	Chlorophyll-a, Corrected	11		ug/L	P351818	
		Phaeophytin-a	1.2	I	ug/L	P351818	
		Chlorophyll-a, Uncorrected	12		ug/L	P351818	
2022577	ASTM D650399	ENTEROCOCCI-ENTEROLERT	350		MPN/100 mL		
2022581	SOP-PCR-1.0	HF183-qPCR**	250	I	GEU/100 mL	P352017	
	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: NW TRIBUTARY TO OPEN CR AT HODGES

Collection Date/Time: 09/05/2018 11:45

Field ID: 20030848

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2022571	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.1		ug/L	P351818	
		Phaeophytin-a	3.1		ug/L	P351818	
		Chlorophyll-a, Uncorrected	5.0		ug/L	P351818	
2022576	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	309		MPN/100 mL		
2022580	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: OPEN CREEK AT SAN PABLO ROAD

Collection Date/Time: 09/05/2018 12:05

Field ID: 20030695

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2022573	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.2		ug/L	P351818	
		Phaeophytin-a	1.5		ug/L	P351818	
		Chlorophyll-a, Uncorrected	6.3		ug/L	P351818	

Field ID: 20030695

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2022578	ASTM D650399	ENTEROCOCCI-ENTEROLERT	350		MPN/100 mL		
2022582	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P352017	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P352017	
	SOP-PCR-1.3	GFD-purified-qPCR**	3.0E+05	I	TSC/100 mL	P352136	LCS, RPD
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P352017	LCS
	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.

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P351818

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: P352017

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

Reference Method: SOP-PCR-1.2
Batch ID: P352017

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

Reference Method: SOP-PCR-1.3
Batch ID: P352136

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

Reference Method: SOP-PCR-1.4
Batch ID: P352017

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: P351818

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	88.1		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P352017

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	99.4	142	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P352017

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	98.7	123	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P352136

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	116	42.5	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P352017

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	102	183	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P352017

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021158	HF183-qPCR	71.6		P	50 - 175
2022579	HF183-qPCR	91.2		P	50 - 175
2022581	HF183-qPCR	79.4		P	50 - 175
2022582	HF183-qPCR	78.8		P	50 - 175
2025922	HF183-qPCR	81.0		P	50 - 175
2025923	HF183-qPCR	84.3		P	50 - 175
2025924	HF183-qPCR	85.0		P	50 - 175
2026790	HF183-qPCR	81.1		P	50 - 175
2026791	HF183-qPCR	89.3		P	50 - 175
2026792	HF183-qPCR	82.8	88.6	P/P	50 - 175
2026793	HF183-qPCR	89.1		P	50 - 175
2026794	HF183-qPCR	92.8		P	50 - 175
2028632	HF183-qPCR	54.1		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P352017

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2022579	GULL2-qPCR	78.2		P	50 - 300
2022582	GULL2-qPCR	74.6		P	50 - 300
2025922	GULL2-qPCR	72.0		P	50 - 300
2025923	GULL2-qPCR	72.9		P	50 - 300
2025924	GULL2-qPCR	70.4		P	50 - 300
2026790	GULL2-qPCR	88.4		P	50 - 300

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.2

Batch ID: P352017

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026791	GULL2-qPCR	85.8		P	50 - 300
2026792	GULL2-qPCR	71.0	62.3	P/P	50 - 300
2026793	GULL2-qPCR	81.0		P	50 - 300
2026794	GULL2-qPCR	95.1		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P352136

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2022579	GFD-purified-qPCR	133		P	50 - 175
2022582	GFD-purified-qPCR	111		P	50 - 175
2025922	GFD-purified-qPCR	122		P	50 - 175
2025923	GFD-purified-qPCR	133		P	50 - 175
2025924	GFD-purified-qPCR	104	147	P/P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P352017

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021158	BacR-qPCR	82.8		P	50 - 175
2022579	BacR-qPCR	88.3		P	50 - 175
2022582	BacR-qPCR	81.2		P	50 - 175
2025922	BacR-qPCR	96.1		P	50 - 175
2025923	BacR-qPCR	74.7		P	50 - 175
2025924	BacR-qPCR	64.7		P	50 - 175
2026790	BacR-qPCR	82.6		P	50 - 175
2026791	BacR-qPCR	88.9		P	50 - 175
2026792	BacR-qPCR	92.3	90.5	P/P	50 - 175
2026793	BacR-qPCR	96.4		P	50 - 175
2026794	BacR-qPCR	104		P	50 - 175
2028632	BacR-qPCR	67.3		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0

Batch ID: P352017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026792	HF183-qPCR	6.74	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2

Batch ID: P352017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026792	GULL2-qPCR	13.1	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.3
 Batch ID: P352136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025924	GFD-purified-qPCR	34.7	Spike	F	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P352017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026792	BacR-qPCR	2.02	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: 2022579
 Field Sample ID: 20030580

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	121	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	102	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	96.9	P	50 - 300

Lab Sample ID: 2022581
 Field Sample ID: 20030139

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	101	P	50 - 300

Lab Sample ID: 2022582
 Field Sample ID: 20030695

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	108	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	95.4	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	96.2	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	88.1							
SOP-PCR-1.0	HF183-qPCR	142	99.4	81.1	89.3	82.8			6.74
				88.6					
SOP-PCR-1.2	GULL2-qPCR	123	98.7	88.4	85.8	71.0			13.1
				62.3					
SOP-PCR-1.3	GFD-purified-qPCR	42.5	116	133	111	122			34.7
				133					
SOP-PCR-1.4	BacR-qPCR	183	102	82.6	88.9	92.3			2.02
				90.5					

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
ASTM D650399 / E82502	Enterococci by Enterolert Quanti-Tray Method by ALS Environmental Laboratory in Jacksonville	2022577, 2022578
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2022570, 2022571, 2022572, 2022573
SM 9223 B Quanti-Tray / E82502	Escherichia coli by Colilert Quanti-Tray method by ALS Environmental Laboratory in Jacksonville	2022575, 2022576
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2022579, 2022581, 2022582
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2022579, 2022582
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2022579, 2022582
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2022579, 2022582
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2022579, 2022580, 2022581, 2022582

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
ASTM D650399	09/05/2018	09/05/2018 15:44		09/06/2018 17:00	ALS Environmental, Jax	2022577, 2022578
SM 10200 H (mod.)	09/06/2018	09/06/2018 13:45	Avril Wood	09/17/2018 16:10	Carina A. Tull	2022570, 2022571, 2022572, 2022573
SM 9223 B Quanti-Tray	09/05/2018	09/05/2018 16:00		09/06/2018 17:00	ALS Environmental, Jax	2022575, 2022576
SOP-PCR-1.0	09/06/2018	09/06/2018 16:30	Angela Smith	09/27/2018 13:57	Mailin Lopez	2022579, 2022581, 2022582
SOP-PCR-1.2	09/06/2018	09/06/2018 16:30	Angela Smith	09/28/2018 15:34	Mailin Lopez	2022579, 2022582
SOP-PCR-1.3	09/06/2018	09/06/2018 16:30	Mailin Lopez	10/16/2018 11:23	Sarah Menz	2022579, 2022582
SOP-PCR-1.4	09/06/2018	09/06/2018 16:30	Angela Smith	09/28/2018 09:46	Mailin Lopez	2022579, 2022582
SOP-PCR-4.0	09/06/2018	09/06/2018 16:30	Angela Smith	09/27/2018 08:11	Sarah Menz	2022579, 2022580, 2022581, 2022582