Biological Analysis Report

WQAP-2018-06-21-03

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: **2017 SMP Kit Template 1**
Request ID: **RQ-2018-05-14-55**
Customer: **WQAP**
Project ID: **SMP**

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Date Certified: 06-AUG-2018 11:13

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: GOODBYS CREEK AT BAYMEADOWS RD. **Collection Date/Time: 06/20/2018 08:40**

Field ID: 20030593 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2002718	SM 10200 H (mod.)	Chlorophyll-a, Corrected	18		ug/L	P347774	
		Phaeophytin-a	2.2		ug/L	P347774	
		Chlorophyll-a, Uncorrected	20		ug/L	P347774	

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: GOODBYS CREEK AT BAYMEADOWS RD. **Collection Date/Time: 06/20/2018 08:40**

Field ID: 20030593 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2002721	SOP-PCR-1.0	HF183-qPCR**	280	UJ	GEU/100 mL	P348295	LCS, MS
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P348295	
	SOP-PCR-1.3	GFD-purified-qPCR**	170	UJ	TSC/100 mL	P348222	MS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P348295	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:
SOP-PCR-1.0: Quality control failure(s) observed. See QA report for details.
SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.

Sample Location: GOODBYS CREEK AT BAYMEADOWS RD. **Collection Date/Time: 06/20/2018 08:40**

Field ID: 20030593 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2002720	ASTM D650399	ENTEROCOCCI-ENTEROLERT	4900		MPN/100 mL		

Sample Location: MCCOYS CR AT LELAND ST **Collection Date/Time: 06/20/2018 09:50**

Field ID: 20030725 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2002717	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.5	I	ug/L	P347774	
		Phaeophytin-a	0.51	I	ug/L	P347774	
		Chlorophyll-a, Uncorrected	1.9		ug/L	P347774	

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: MCCOYS CR AT LELAND ST **Collection Date/Time: 06/20/2018 09:50**

Field ID: 20030725 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2002722	SOP-PCR-1.0	HF183-qPCR**	420	I	GEU/100 mL	P348463	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: MCCOYS CR AT LELAND ST **Collection Date/Time: 06/20/2018 09:50**

Field ID: 20030725 Matrix: W-SURF-SLT

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

Field ID: 20030725 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2002719	SM 9223 B	Escherichia Coli-Quanti-Tray	420		MPN/100 mL		

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P347774

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.62	U	ug/L
Chlorophyll-a, Uncorrected	0.45	U	ug/L
Phaeophytin-a	0.45	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P348295

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

Reference Method: SOP-PCR-1.0
Batch ID: P348463

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

Reference Method: SOP-PCR-1.2
Batch ID: P348295

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

Reference Method: SOP-PCR-1.3
Batch ID: P348222

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

Reference Method: SOP-PCR-1.4
Batch ID: P348295

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: P347774

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	92.7		P	84 - 116

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P348295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	36.9	124	F/P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P348463

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	114	162	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P348295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	180	91.1	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P348222

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	113	79.8	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P348295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	96.2	139	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P348295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001769	HF183-qPCR	55.3		P	50 - 175
2002721	HF183-qPCR	44.2		F	50 - 175
2006576	HF183-qPCR	73.8		P	50 - 175
2006616	HF183-qPCR	79.3		P	50 - 175
2006617	HF183-qPCR	93.3		P	50 - 175
2006618	HF183-qPCR	84.6		P	50 - 175
2006683	HF183-qPCR	67.1		P	50 - 175
2006684	HF183-qPCR	71.2		P	50 - 175
2007508	HF183-qPCR	72.0	77.9	P/P	50 - 175
2007509	HF183-qPCR	90.4		P	50 - 175
2007531	HF183-qPCR	72.0		P	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P348463

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002722	HF183-qPCR	106		P	50 - 175
2003316	HF183-qPCR	99.1		P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P348463

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003317	HF183-qPCR	102		P	50 - 175
2003976	HF183-qPCR	90.7		P	50 - 175
2004528	HF183-qPCR	65.9		P	50 - 175
2009401	HF183-qPCR	85.5	91.7	P/P	50 - 175
2009520	HF183-qPCR	109		P	50 - 175
2009521	HF183-qPCR	106		P	50 - 175
2009522	HF183-qPCR	100		P	50 - 175
2009523	HF183-qPCR	154		P	50 - 175
2009524	HF183-qPCR	107		P	50 - 175
2009525	HF183-qPCR	110		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P348295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001769	GULL2-qPCR	81.4		P	50 - 300
2002721	GULL2-qPCR	70.3		P	50 - 300
2006576	GULL2-qPCR	76.4		P	50 - 300
2006616	GULL2-qPCR	82.5		P	50 - 300
2006617	GULL2-qPCR	88.5		P	50 - 300
2006618	GULL2-qPCR	91.3		P	50 - 300
2006685	GULL2-qPCR	84.5		P	50 - 300
2006686	GULL2-qPCR	144		P	50 - 300
2007508	GULL2-qPCR	83.8	79.7	P/P	50 - 300
2007509	GULL2-qPCR	81.9		P	50 - 300
2007531	GULL2-qPCR	75.2		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P348222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001769	GFD-purified-qPCR	143		P	50 - 175
2001856	GFD-purified-qPCR	125		P	50 - 175
2002721	GFD-purified-qPCR	0.0		F	50 - 175
2002843	GFD-purified-qPCR	128		P	50 - 175
2009401	GFD-purified-qPCR	163	146	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P348295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001769	BacR-qPCR	79.0		P	50 - 175
2002721	BacR-qPCR	83.1		P	50 - 175
2006576	BacR-qPCR	100		P	50 - 175
2006616	BacR-qPCR	86.5		P	50 - 175
2006617	BacR-qPCR	145		P	50 - 175
2006618	BacR-qPCR	92.2		P	50 - 175
2007508	BacR-qPCR	83.9	97.4	P/P	50 - 175
2007509	BacR-qPCR	82.9		P	50 - 175
2007531	BacR-qPCR	88.4		P	50 - 175

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P347774

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002691	Chlorophyll-a, Corrected	1.11	Sample	P	0 - 25
2002691	Chlorophyll-a, Uncorrected	0.184	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P348295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007508	HF183-qPCR	7.87	Spike	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P348463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009401	HF183-qPCR	7.04	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P348295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007508	GULL2-qPCR	5.10	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P348222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009401	GFD-purified-qPCR	11.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P348295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007508	BacR-qPCR	14.9	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: 2002721
Field Sample ID: 20030593

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	148	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	109	P	50 - 300

Quality Assurance Report
Surrogates

Lab Sample ID: 2002721
Field Sample ID: 20030593

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	115	P	50 - 300

Lab Sample ID: 2002722
Field Sample ID: 20030725

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	111	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	92.7			1.11	
	Chlorophyll-a, Uncorrected				0.184	
SOP-PCR-1.0	HF183-qPCR	124 36.9	79.3 93.3 84.6 67.1			7.87
	HF183-qPCR	162 114	106 90.7 99.1 102			7.04
SOP-PCR-1.2	GULL2-qPCR	91.1 180	82.5 88.5 91.3 84.5			5.10
SOP-PCR-1.3	GFD-purified-qPCR	79.8 113	125 128 143 0.0			11.1
SOP-PCR-1.4	BacR-qPCR	139 96.2	86.5 145 92.2 100			14.9

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
ASTM D650399 / E82502	Enterococci by MPN by ALS Environmental Laboratory	2002720
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2002717, 2002718
SM 9223 B / E82502	Escherichia coli by Colilert Quanti-Tray method by ALS Environmental Laboratory	2002719
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2002721, 2002722
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2002721
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2002721
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2002721
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2002721, 2002722

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
ASTM D650399	06/20/2018	06/20/2018 15:15		06/21/2018 15:44	ALS Environmental, Jax	2002720
SM 10200 H (mod.)	06/21/2018	06/21/2018 13:45	Edwin Gonzalez-Soto	06/28/2018 16:00	Carina A. Tull	2002717, 2002718
SM 9223 B	06/20/2018	06/20/2018 15:28		06/21/2018 15:44	ALS Environmental, Jax	2002719
SOP-PCR-1.0	06/21/2018	06/21/2018 16:25	Angela Smith	07/18/2018 10:32	Mailin Lopez	2002721
	06/21/2018	06/21/2018 16:25	Puja Jasrotia	07/23/2018 11:49	Mailin Lopez	2002722
SOP-PCR-1.2	06/21/2018	06/21/2018 16:25	Angela Smith	07/19/2018 14:48	Mailin Lopez	2002721
SOP-PCR-1.3	06/21/2018	06/21/2018 16:25	Sarah Menz	07/23/2018 09:23	Sarah Menz	2002721
SOP-PCR-1.4	06/21/2018	06/21/2018 16:25	Angela Smith	07/19/2018 08:46	Mailin Lopez	2002721
SOP-PCR-4.0	06/21/2018	06/21/2018 16:25	Angela Smith	07/16/2018 10:36	Puja Jasrotia	2002721, 2002722