

Biological Analysis Report

SE-DIST-2021-07-13-02

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **SMP - Stuart Deploy 1 #1**
Request ID: **RQ-2021-07-12-54**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
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Certified by: Puja Jasrotia, Environmental Administrator

Date Certified: 06-AUG-2021 13:13

A handwritten signature in black ink, appearing to be 'Puja Jasrotia', with a horizontal line underneath it.

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, Microbiology and Molecular.

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Roebuck Creek @ Locks

Collection Date/Time: 07/12/2021 11:00

Field ID: G2SE0029

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2261525	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.9	I	ug/L	P401512	
		Phaeophytin-a	4.8	I	ug/L	P401512	
		Chlorophyll-a, Uncorrected	7.9		ug/L	P401512	
2261527	Enterolert/QT	Enterococci-Quanti-Tray	298.0	Q	MPN/100 mL	P401282	
2261529	SOP-PCR-1.0	HF183-qPCR**	1.2E+03	I	TSC/100 mL	P400813	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P400813	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P400813	

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: South Fork SLR @ Hosford Park

Collection Date/Time: 07/12/2021 11:40

Field ID: G2SE0043

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2261526	SM 10200 H (mod.)	Chlorophyll-a, Corrected	31		ug/L	P401512	
		Phaeophytin-a	13		ug/L	P401512	
		Chlorophyll-a, Uncorrected	40		ug/L	P401512	
2261528	Enterolert/QT	Enterococci-Quanti-Tray	109.0	Q	MPN/100 mL	P401282	
2261530	SOP-PCR-1.0	HF183-qPCR**	1.1E+03	U	TSC/100 mL	P400813	LCS
	SOP-PCR-1.2	GULL2-qPCR**	2.4E+03	U	TSC/100 mL	P400813	
	SOP-PCR-1.3	GFD-qPCR**	480	U	TSC/100 mL	P400813	
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P400813	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P400813	

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-1.2: Precision data unavailable for Gull2-qPCR component.

SOP-PCR-1.3: Precision data unavailable for GFD-qPCR component.

Quality Assurance Report Method Blank Results

Reference Method: Enterolert/QT

Batch ID: P401282

Component	Result	Code	Units
Enterococci-Quanti-Tray	1.0	U	MPN/100 mL

Reference Method: SM 10200 H (mod.)

Batch ID: P401512

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P400813

Component	Result	Code	Units
HF183-qPCR	3.3E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.2
Batch ID: P400813

Component	Result	Code	Units
GULL2-qPCR	3.6E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.3
Batch ID: P400813

Component	Result	Code	Units
GFD-qPCR	720	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P400813

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.5
Batch ID: P400813

Component	Result	Code	Units
DG3-qPCR	2.6E+03	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P401512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	106		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P400813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	79.3	282	P/F	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P400813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	101	162	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P400813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P400813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	71.8	169	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P400813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	73.2	72.2	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P400813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	105	84.5	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P400813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261283	HF183-qPCR	83.4		P	50 - 175
2261284	HF183-qPCR	83.7		P	50 - 175
2261529	HF183-qPCR	94.9		P	50 - 175
2261530	HF183-qPCR	75.8		P	50 - 175
2261607	HF183-qPCR	76.3	82.2	P/P	50 - 175
2261797	HF183-qPCR	84.7		P	50 - 175
2261798	HF183-qPCR	79.7		P	50 - 175
2261799	HF183-qPCR	87.1		P	50 - 175
2262190	HF183-qPCR	98.2		P	50 - 175
2262191	HF183-qPCR	84.5		P	50 - 175
2262192	HF183-qPCR	76.7		P	50 - 175
2262193	HF183-qPCR	71.3		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P400813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261530	GULL2-qPCR	59.0		P	50 - 300
2261797	GULL2-qPCR	70.9		P	50 - 300
2261798	GULL2-qPCR	58.1		P	50 - 300
2261799	GULL2-qPCR	70.1		P	50 - 300
2262190	GULL2-qPCR	61.0		P	50 - 300
2262191	GULL2-qPCR	64.1		P	50 - 300
2262192	GULL2-qPCR	58.5		P	50 - 300
2262193	GULL2-qPCR	59.1		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P400813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
 Batch ID: P400813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261530	GFD-qPCR	81.9		P	50 - 175
2261797	GFD-qPCR	91.7		P	50 - 175
2261798	GFD-qPCR	99.8		P	50 - 175
2261799	GFD-qPCR	101		P	50 - 175
2262190	GFD-qPCR	88.8		P	50 - 175
2262191	GFD-qPCR	83.1		P	50 - 175
2262192	GFD-qPCR	88.4		P	50 - 175
2262193	GFD-qPCR	80.0		P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P400813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261283	BacR-qPCR	75.3		P	50 - 175
2261284	BacR-qPCR	68.2		P	50 - 175
2261529	BacR-qPCR	65.8		P	50 - 175
2261530	BacR-qPCR	63.4		P	50 - 175
2261607	BacR-qPCR	53.0	57.6	P/P	50 - 175
2261797	BacR-qPCR	73.4		P	50 - 175
2261798	BacR-qPCR	65.4		P	50 - 175
2261799	BacR-qPCR	70.9		P	50 - 175
2262190	BacR-qPCR	67.1		P	50 - 175
2262191	BacR-qPCR	70.0		P	50 - 175
2262192	BacR-qPCR	65.4		P	50 - 175
2262193	BacR-qPCR	73.8		P	50 - 175

Reference Method: SOP-PCR-1.5
 Batch ID: P400813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261283	DG3-qPCR	92.2		P	50 - 175
2261284	DG3-qPCR	89.2		P	50 - 175
2261529	DG3-qPCR	62.5		P	50 - 175
2261530	DG3-qPCR	57.1		P	50 - 175
2261607	DG3-qPCR	73.7	70.5	P/P	50 - 175
2261797	DG3-qPCR	82.2		P	50 - 175
2261798	DG3-qPCR	81.3		P	50 - 175
2261799	DG3-qPCR	79.5		P	50 - 175
2262190	DG3-qPCR	80.6		P	50 - 175
2262191	DG3-qPCR	76.2		P	50 - 175
2262192	DG3-qPCR	78.0		P	50 - 175
2262193	DG3-qPCR	83.8		P	50 - 175

Quality Assurance Report Precision

Reference Method: Enterolert/QT
 Batch ID: P401282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: Enterolert/QT
Batch ID: P401282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261356	Enterococci-Quanti-Tray	26.5	Sample	P	0 - 80

Reference Method: SM 10200 H (mod.)
Batch ID: P401512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261440	Chlorophyll-a, Uncorrected	5.14	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P400813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261607	HF183-qPCR	7.35	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P400813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261607	BacR-qPCR	8.43	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P400813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261607	DG3-qPCR	4.47	Spike	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 2261529
Field Sample ID: G2SE0029

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	109	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	111	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	65.6	P	50 - 300

Lab Sample ID: 2261530
Field Sample ID: G2SE0043

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	98.7	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	117	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 2261530
Field Sample ID: G2SE0043

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.3	SKETA-qPCR	118	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	94.0	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	65.3	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
Enterolert/QT SM 10200 H (mod.)	Enterococci-Quanti-Tray							26.5	
	Chlorophyll-a, Corrected	106							
	Chlorophyll-a, Uncorrected							5.14	
SOP-PCR-1.0	HF183-qPCR	282	79.3	87.1	83.4	83.7			7.35
				94.9					
SOP-PCR-1.2	GULL2-qPCR	162	101	59.0	70.9	58.1			
				61.0					
SOP-PCR-1.3	GFD-qPCR	169	71.8	81.9	91.7	99.8			
				88.8					
SOP-PCR-1.4	BacR-qPCR	72.2	73.2	70.9	75.3	68.2			8.43
				65.8					
SOP-PCR-1.5	DG3-qPCR	84.5	105	79.5	92.2	89.2			4.47
				62.5					

Reference Method Descriptions

Method	Description	Associated Samples
Enterolert/QT	Enterococci by Enterolert Quanti-Tray method - non-chlorinated water systems	2261527, 2261528
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2261525, 2261526
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2261529, 2261530
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2261530
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2261530
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2261529, 2261530
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2261529, 2261530

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	07/13/2021	07/13/2021 13:33	Carina A. Tull	07/14/2021 13:58	Jessica Fetgatter	2261527, 2261528
SM 10200 H (mod.)	07/13/2021	07/13/2021 14:20	Carina A. Tull	07/23/2021 09:48	Jessica Fetgatter	2261525, 2261526
SOP-PCR-1.0	07/13/2021	07/13/2021 15:48	Amy M Gordon	07/19/2021 10:49	DeAsia Armster	2261529, 2261530
SOP-PCR-1.2	07/13/2021	07/13/2021 15:48	Amy M Gordon	07/27/2021 08:36	Mailin Lopez	2261530
SOP-PCR-1.3	07/13/2021	07/13/2021 15:48	Amy M Gordon	07/27/2021 15:24	Mailin Lopez	2261530
SOP-PCR-1.4	07/13/2021	07/13/2021 15:48	Amy M Gordon	07/21/2021 13:09	DeAsia Armster	2261529, 2261530
SOP-PCR-1.5	07/13/2021	07/13/2021 15:48	Amy M Gordon	07/21/2021 14:46	DeAsia Armster	2261529, 2261530