

Biological Analysis Report

CEN-DIST-2021-07-23-01

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

Event Description: **Rose Bay/Turnbull/Strickland**
Request ID: **RQ-2021-07-12-45**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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3319 Maguire Blvd., Suite 232
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Certified by: Puja Jasrotia, Environmental Administrator

Date Certified: 19-AUG-2021 15:02



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: Spruce Creek @ 175m US of RR Bridge

Collection Date/Time: 07/22/2021 10:57

Field ID: G5CE0135

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264716	Enterolert/QT	Enterococci-Quanti-Tray	697.0	Q	MPN/100 mL	P401724	
2264717	SOP-PCR-1.0	HF183-qPCR**	3.3E+03	U	TSC/100 mL	P401484	
	SOP-PCR-1.2	GULL2-qPCR**	3.6E+03	U	TSC/100 mL	P401484	
	SOP-PCR-1.3	GFD-qPCR**	1.1E+03	I	TSC/100 mL	P401484	
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P401484	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P401484	

Sample Location: Turnbull Bay 1.2 km S of Turnbull Bay Rd

Collection Date/Time: 07/22/2021 12:09

Field ID: G5CE0130

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264712	SM 10200 H (mod.)	Chlorophyll-a, Corrected	26		ug/L	P402047	
		Phaeophytin-a	5.5	I	ug/L	P402047	
		Chlorophyll-a, Uncorrected	30		ug/L	P402047	
2264715	Enterolert/QT	Enterococci-Quanti-Tray	323.0	Q	MPN/100 mL	P401724	

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: Rose Bay near RR Bridge

Collection Date/Time: 07/22/2021 09:50

Field ID: G5CE0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264713	Enterolert/QT	Enterococci-Quanti-Tray	52.0	AQ	MPN/100 mL	P401724	

Sample Location: Rose Bay NW of Rose Bay Park

Collection Date/Time: 07/22/2021 09:30

Field ID: G5CE0133

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264714	Enterolert/QT	Enterococci-Quanti-Tray	399.0	Q	MPN/100 mL	P401724	

Quality Assurance Report Method Blank Results

Reference Method: Enterolert/QT

Batch ID: P401724

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

Reference Method: SM 10200 H (mod.)

Batch ID: P402047

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: P401484

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

Reference Method: SOP-PCR-1.2
Batch ID: P401484

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

Reference Method: SOP-PCR-1.3
Batch ID: P401484

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

Reference Method: SOP-PCR-1.4
Batch ID: P401484

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

Reference Method: SOP-PCR-1.5
Batch ID: P401484

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: P402047

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	94.4		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P401484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	93.9	136	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P401484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	108	112	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P401484

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: P401484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	106	122	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P401484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	96.2	87.6	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P401484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	115	75.9	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P401484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264717	HF183-qPCR	86.0	82.4	P/P	50 - 175
2265874	HF183-qPCR	95.0		P	50 - 175
2265875	HF183-qPCR	100		P	50 - 175
2265996	HF183-qPCR	114		P	50 - 175
2265997	HF183-qPCR	109		P	50 - 175
2265998	HF183-qPCR	108		P	50 - 175
2265999	HF183-qPCR	101		P	50 - 175
2266000	HF183-qPCR	101		P	50 - 175
2266001	HF183-qPCR	107		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P401484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264717	GULL2-qPCR	82.4	69.3	P/P	50 - 300
2265874	GULL2-qPCR	69.0		P	50 - 300
2265875	GULL2-qPCR	73.9		P	50 - 300
2265996	GULL2-qPCR	79.7		P	50 - 300
2265997	GULL2-qPCR	71.5		P	50 - 300
2265998	GULL2-qPCR	71.4		P	50 - 300
2265999	GULL2-qPCR	61.7		P	50 - 300
2266000	GULL2-qPCR	65.2		P	50 - 300
2266001	GULL2-qPCR	72.5		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P401484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264717	GFD-qPCR	118	118	P/P	50 - 175
2265874	GFD-qPCR	123		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3

Batch ID: P401484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265875	GFD-qPCR	116		P	50 - 175
2265996	GFD-qPCR	107		P	50 - 175
2265997	GFD-qPCR	95.1		P	50 - 175
2265998	GFD-qPCR	101		P	50 - 175
2265999	GFD-qPCR	97.2		P	50 - 175
2266000	GFD-qPCR	99.9		P	50 - 175
2266001	GFD-qPCR	97.6		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P401484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264717	BacR-qPCR	77.0	86.0	P/P	50 - 175
2265874	BacR-qPCR	77.9		P	50 - 175
2265875	BacR-qPCR	79.6		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P401484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264717	DG3-qPCR	101	96.4	P/P	50 - 175
2265874	DG3-qPCR	100		P	50 - 175
2265875	DG3-qPCR	94.8		P	50 - 175
2265996	DG3-qPCR	98.7		P	50 - 175
2265997	DG3-qPCR	98.4		P	50 - 175
2265998	DG3-qPCR	94.0		P	50 - 175
2265999	DG3-qPCR	93.3		P	50 - 175
2266000	DG3-qPCR	98.6		P	50 - 175
2266001	DG3-qPCR	92.2		P	50 - 175

Quality Assurance Report Precision

Reference Method: Enterolert/QT

Batch ID: P401724

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264713	Enterococci-Quanti-Tray	42.3	Sample	P	0 - 80

Reference Method: SM 10200 H (mod.)

Batch ID: P402047

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264851	Chlorophyll-a, Corrected	9.62	Sample	P	0 - 25
2264851	Chlorophyll-a, Uncorrected	9.80	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P401484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264717	HF183-qPCR	4.29	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P401484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264717	GULL2-qPCR	17.2	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P401484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264717	GFD-qPCR	0.337	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P401484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264717	BacR-qPCR	11.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P401484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264717	DG3-qPCR	4.83	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2264717
Field Sample ID: G5CE0135

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	98.8	P	50 - 300
SOP-PCR-1.0	SKETA-qPCR	111	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	116	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	121	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	110	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	118	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	118	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	120	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	96.9	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	108	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision	MS
								SMP	
Enterolert/QT SM 10200 H (mod.)	Enterococci-Quanti-Tray							42.3	
	Chlorophyll-a, Corrected	94.4						9.62	
	Chlorophyll-a, Uncorrected							9.80	
SOP-PCR-1.0	HF183-qPCR	136	93.9	86.0	82.4	95.0			4.29
SOP-PCR-1.2	GULL2-qPCR	112	108	82.4	69.3	69.0			17.2
SOP-PCR-1.3	GFD-qPCR	122	106	118	118	123			0.337
SOP-PCR-1.4	BacR-qPCR	87.6	96.2	77.0	86.0	77.9			11.1
SOP-PCR-1.5	DG3-qPCR	75.9	115	101	96.4	100			4.83
				94.8					

Reference Method Descriptions

Method	Description	Associated Samples
Enterolert/QT	Enterococci by Enterolert Quanti-Tray method - non-chlorinated water systems	2264713, 2264714, 2264715, 2264716
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2264712
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2264717
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2264717
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2264717
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2264717
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2264717

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	07/23/2021	07/23/2021 13:45	Jessica Fetgatter	07/24/2021 14:03	Jessica Fetgatter	2264713, 2264714, 2264715, 2264716
SM 10200 H (mod.)	07/23/2021	07/23/2021 16:25	Carina A. Tull	08/03/2021 16:24	Jessica Fetgatter	2264712
SOP-PCR-1.0	07/23/2021	07/23/2021 14:15	Amy M Gordon	08/02/2021 15:08	Mailin Lopez	2264717
SOP-PCR-1.2	07/23/2021	07/23/2021 14:15	Amy M Gordon	08/03/2021 14:08	Mailin Lopez	2264717
SOP-PCR-1.3	07/23/2021	07/23/2021 14:15	Amy M Gordon	08/04/2021 09:15	Mailin Lopez	2264717
SOP-PCR-1.4	07/23/2021	07/23/2021 14:15	Amy M Gordon	08/03/2021 10:45	Mailin Lopez	2264717
SOP-PCR-1.5	07/23/2021	07/23/2021 14:15	Amy M Gordon	08/03/2021 15:06	Mailin Lopez	2264717