

Biological Analysis Report

SE-DIST-2019-02-07-01

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

Overflow Analyses Performed By:
Pace Analytical Services
3610 Park Central N.
Pompano Beach FL 33064
DOH Accreditation E86240

Event Description: **SMP- Miami Perimeter**
Request ID: **RQ-2019-02-04-66**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Matthew Sewell

For additional information please contact
Cheryl Swanson - Administrator
Jacqueline Savage - Microbiology
Diane Power - Bench Biology
Andrew Tintle - Aquatic Toxicology
Puja Jasrotia, Ph.D. - Molecular Biology
Amelia Rankin - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 12-MAR-2019 10:47



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 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: CORAL GABLES CANAL @ SW 72nd

Collection Date/Time: 02/06/2019 11:55

Field ID: G4SE0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2060791	SM 10200 H (mod.)	Chlorophyll-a, Corrected	16	A	ug/L	P359460	
		Phaeophytin-a	3.3	A	ug/L	P359460	
		Chlorophyll-a, Uncorrected	18	A	ug/L	P359460	
2060794	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold			P358116	
2060797	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	63.0		MPN/100 mL		

Sample Location: CORAL GABLES CANAL @ SW 72nd

Collection Date/Time: 02/06/2019 12:00

Field ID: G4SE0098_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2060792	SM 10200 H (mod.)	Chlorophyll-a, Corrected	15		ug/L	P359460	
		Phaeophytin-a	3.8		ug/L	P359460	
		Chlorophyll-a, Uncorrected	18		ug/L	P359460	
2060795	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold			P358116	
2060798	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	41.0		MPN/100 mL		

Sample Location: C-6/ MIAMI CANAL WEST (MR-15 MIAMI-DADE)

Collection Date/Time: 02/06/2019 12:50

Field ID: G4SE0094

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2060790	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P359460	
		Phaeophytin-a	0.60	U	ug/L	P359460	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P359460	

Sample Location: CYPRESS @ 441 MARGATE

Collection Date/Time: 02/06/2019 13:40

Field ID: G4SE0038

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2060789	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.6		ug/L	P359460	
		Phaeophytin-a	1.3	I	ug/L	P359460	
		Chlorophyll-a, Uncorrected	5.5		ug/L	P359460	
2060793	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P358312	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P358312	RPD
	SOP-PCR-1.3	GFD-purified-qPCR**	170	UJ	TSC/100 mL	P358994	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P358312	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold			P358116	
2060796	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	520		MPN/100 mL		

Ref. Method and Comment:

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

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P359460

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.62	U	ug/L
Chlorophyll-a, Uncorrected	0.45	U	ug/L
Phaeophytin-a	0.68	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P358312

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

Reference Method: SOP-PCR-1.2
Batch ID: P358312

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

Reference Method: SOP-PCR-1.3
Batch ID: P358994

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

Reference Method: SOP-PCR-1.4
Batch ID: P358312

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: P359460

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

Reference Method: SOP-PCR-1.0
Batch ID: P358312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	108	124	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P358312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	128	125	P/P	50 - 300

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P358994

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	185	18.5	F/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P358312

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P358312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058130	HF183-qPCR	84.8		P	50 - 175
2058447	HF183-qPCR	63.6		P	50 - 175
2058484	HF183-qPCR	86.3		P	50 - 175
2058676	HF183-qPCR	61.5		P	50 - 175
2058677	HF183-qPCR	65.5		P	50 - 175
2059328	HF183-qPCR	93.6		P	50 - 175
2059330	HF183-qPCR	75.8		P	50 - 175
2059331	HF183-qPCR	91.4		P	50 - 175
2059332	HF183-qPCR	97.2	96.9	P/P	50 - 175
2060474	HF183-qPCR	109		P	50 - 175
2060793	HF183-qPCR	89.4		P	50 - 175
2061286	HF183-qPCR	91.4		P	50 - 175
2061287	HF183-qPCR	88.0		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P358312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058484	GULL2-qPCR	92.4		P	50 - 300
2059328	GULL2-qPCR	152		P	50 - 300
2059330	GULL2-qPCR	101		P	50 - 300
2059331	GULL2-qPCR	107		P	50 - 300
2059332	GULL2-qPCR	110	225	P/P	50 - 300
2060793	GULL2-qPCR	94.5		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P358994

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057759	GFD-purified-qPCR	125		P	50 - 175
2058484	GFD-purified-qPCR	265		F	50 - 175
2060793	GFD-purified-qPCR	246		F	50 - 175
2063185	GFD-purified-qPCR	264	289	F/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P358312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058130	BacR-qPCR	80.4		P	50 - 175
2058447	BacR-qPCR	83.5		P	50 - 175
2058484	BacR-qPCR	86.1		P	50 - 175
2058676	BacR-qPCR	75.7		P	50 - 175
2058677	BacR-qPCR	70.1		P	50 - 175
2059328	BacR-qPCR	68.1		P	50 - 175
2059330	BacR-qPCR	63.0		P	50 - 175
2059331	BacR-qPCR	72.6		P	50 - 175
2059332	BacR-qPCR	101	100	P/P	50 - 175
2060474	BacR-qPCR	97.9		P	50 - 175
2060793	BacR-qPCR	89.8		P	50 - 175
2061286	BacR-qPCR	91.1		P	50 - 175
2061287	BacR-qPCR	88.9		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P359460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060791	Chlorophyll-a, Corrected	3.67	Sample	P	0 - 25
2060791	Chlorophyll-a, Uncorrected	3.03	Sample	P	0 - 25
2060791	Phaeophytin-a	2.32	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P358312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059332	HF183-qPCR	0.315	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P358312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059332	GULL2-qPCR	68.3	Spike	F	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P358994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063185	GFD-purified-qPCR	9.05	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.4
Batch ID: P358312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059332	BacR-qPCR	0.749	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: 2060793
Field Sample ID: G4SE0038

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	85.2	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	83.1	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	82.6	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	106						3.67	
	Chlorophyll-a, Uncorrected							3.03	
	Phaeophytin-a							2.32	
SOP-PCR-1.0	HF183-qPCR	124	108	93.6	75.8	91.4			0.315
SOP-PCR-1.2	GULL2-qPCR	125	128	152	101	107			68.3
SOP-PCR-1.3	GFD-purified-qPCR	18.5	185	264	289	125			9.05
SOP-PCR-1.4	BacR-qPCR	102	102	68.1	63.0	72.6			0.749
				101					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2060789, 2060790, 2060791, 2060792
SM 9223 Quanti-Tray / E86240	Escherichia coli by Quanti-Tray method by Pace Analytical Services in Pompano Beach	2060796, 2060797, 2060798
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2060793
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2060793
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2060793
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2060793
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2060793, 2060794, 2060795

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	02/07/2019	02/07/2019 15:00	Jennifer Mihalic	02/18/2019 14:15	Carina A. Tull	2060789, 2060790, 2060791, 2060792
SM 9223 Quanti-Tray	02/06/2019	02/06/2019 16:21		02/07/2019 12:52	Pace Analytical Pompano	2060796, 2060797, 2060798
SOP-PCR-1.0	02/07/2019	02/07/2019 12:35	Angela Smith	02/26/2019 11:19	Mailin Lopez	2060793
SOP-PCR-1.2	02/07/2019	02/07/2019 12:35	Angela Smith	02/28/2019 11:09	Mailin Lopez	2060793
SOP-PCR-1.3	02/07/2019	02/07/2019 12:35	Mailin Lopez	03/04/2019 13:19	Sarah Menz	2060793
SOP-PCR-1.4	02/07/2019	02/07/2019 12:35	Angela Smith	02/27/2019 11:28	Mailin Lopez	2060793
SOP-PCR-4.0	02/07/2019	02/07/2019 12:35	Angela Smith	02/22/2019 09:32	Sarah Menz	2060793, 2060794, 2060795