

Biological Analysis Report

SE-DIST-2018-08-22-01

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- Dade**
Request ID: **RQ-2018-08-20-55**
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
J. Marshall Faircloth - Aquatic Toxicology
Jacqueline Savage - Bench Biology
Jacqueline Savage - Microbiology
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: 21-SEP-2018 10:17



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: Cutler Drain (C-100) (CD-06 Miami-Dade)

Collection Date/Time: 08/21/2018 11:50

Field ID: G4SECD06

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019033	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2019042	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	323		MPN/100 mL		

Sample Location: Miami (C-6) @ S26

Collection Date/Time: 08/21/2018 12:20

Field ID: G4SE0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019029	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.5	I	ug/L	P351302	RPD
		Phaeophytin-a	3.1		ug/L	P351302	
		Chlorophyll-a, Uncorrected	3.5		ug/L	P351302	RPD
2019031	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P350505	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2019040	Enterolert/QT	Enterococci-Quanti-Tray	52.0		MPN/100 mL		

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: Wagner Creek (WC-02)

Collection Date/Time: 08/21/2018 12:50

Field ID: G4SEWC02

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019030	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.94	I	ug/L	P351302	RPD
		Phaeophytin-a	0.40	U	ug/L	P351302	
		Chlorophyll-a, Uncorrected	1.0	I	ug/L	P351302	RPD
2019032	SOP-PCR-1.0	HF183-qPCR**	1.98E+04		GEU/100 mL	P350505	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
2019041	Enterolert/QT	Enterococci-Quanti-Tray	1480		MPN/100 mL		

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: Snake Creek (East) @ Flamingo

Collection Date/Time: 08/21/2018 13:30

Field ID: G4SE0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019027	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.2	I	ug/L	P351302	RPD
		Phaeophytin-a	0.40	U	ug/L	P351302	
		Chlorophyll-a, Uncorrected	1.2		ug/L	P351302	RPD
2019038	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	134		MPN/100 mL		

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: Snake Creek (East) @ Flamingo

Collection Date/Time: 08/21/2018 13:40

Field ID: DUPE_G4SE0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019028	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.3	I	ug/L	P351302	RPD

Field ID: DUPE_G4SE0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019028	SM 10200 H (mod.)	Phaeophytin-a	0.40	U	ug/L	P351302	
		Chlorophyll-a, Uncorrected	1.3		ug/L	P351302	RPD
2019039	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	120		MPN/100 mL		

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: P351302

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: P350505

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P351302

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	85.5		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P350505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	88.4	83.1	P/P	50 - 175

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P350505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2013668	HF183-qPCR	68.5		P	50 - 175
2013669	HF183-qPCR	75.1		P	50 - 175
2016247	HF183-qPCR	73.9		P	50 - 175
2016299	HF183-qPCR	67.0		P	50 - 175
2016300	HF183-qPCR	63.3		P	50 - 175
2017880	HF183-qPCR	70.6		P	50 - 175
2018595	HF183-qPCR	73.5		P	50 - 175
2018596	HF183-qPCR	64.6	66.8	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P350505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018597	HF183-qPCR	64.7		P	50 - 175
2018598	HF183-qPCR	68.2		P	50 - 175
2019031	HF183-qPCR	81.1		P	50 - 175
2019032	HF183-qPCR	78.3		P	50 - 175
2020117	HF183-qPCR	84.0		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P351302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018884	Chlorophyll-a, Corrected	31.9	Sample	F	0 - 25
2018884	Chlorophyll-a, Uncorrected	40.2	Sample	F	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P350505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018596	HF183-qPCR	3.44	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: 2019031
Field Sample ID: G4SE0024

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	118	P	50 - 300

Lab Sample ID: 2019032
Field Sample ID: G4SEWC02

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	117	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	85.5			31.9	
	Chlorophyll-a, Uncorrected				40.2	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SOP-PCR-1.0	HF183-qPCR	83.1	88.4	73.5	64.6	66.8			3.44
				64.7					

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
Enterolert/QT / E86240	Enterococci by Enterolert Quanti-Tray method by Pace Analytical Services in Pompano Beach	2019040, 2019041
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2019027, 2019028, 2019029, 2019030
SM 9223 Quanti-Tray / E86240	Escherichia coli by Quanti-Tray method by Pace Analytical Services in Pompano Beach	2019038, 2019039, 2019042
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2019031, 2019032
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2019031, 2019032, 2019033

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	08/21/2018	08/21/2018 16:27		08/22/2018 16:50	Pace Analytical Pompano	2019040, 2019041
SM 10200 H (mod.)	08/22/2018	08/22/2018 13:55	Mariam Hanna	09/04/2018 08:30	Carina A. Tull	2019027, 2019028, 2019029, 2019030
SM 9223 Quanti-Tray	08/21/2018	08/21/2018 16:27		08/22/2018 11:52	Pace Analytical Pompano	2019038, 2019039, 2019042
SOP-PCR-1.0	08/22/2018	08/22/2018 12:35	Angela Smith	08/29/2018 11:31	Mailin Lopez	2019031, 2019032
SOP-PCR-4.0	08/22/2018	08/22/2018 12:35	Angela Smith	09/06/2018 08:42	Sarah Menz	2019031, 2019032, 2019033