

Biological Analysis Report

SE-DIST-2017-03-14-01

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

Overflow Analyses Performed By:
Advanced Environmental Labs - Miami
10200 USA Today Way
Mirimar, FL 33025
DOH Accreditation E82535

Event Description: **SMP-Broward 2 Run**
Request ID: **RQ-2017-03-06-28**
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

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Certified by: Cheryl A. Swanson, Environmental Manager

Date Certified: 25-APR-2017 15:15



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: North New R. @ University Dr.

Collection Date/Time: 03/13/2017 11:30

Field ID: G4SENNR3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879796	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.8		ug/L	P322258	
		Phaeophytin-a	0.40	U	ug/L	P322258	
		Chlorophyll/Phaeophytin Ratio	1.9			P322258	
		Chlorophyll-a, Uncorrected	1.6		ug/L	P322258	
1879820	SM 9222 D	Fecal Coliforms-Membrane Filter	100	U	cfu/100 mL		

Sample Location: Flamingo Rd. & Stirling Rd.

Collection Date/Time: 03/13/2017 12:00

Field ID: 28030548

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879797	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.5		ug/L	P322258	
		Phaeophytin-a	0.40	U	ug/L	P322258	
		Chlorophyll/Phaeophytin Ratio	1.8			P322258	
		Chlorophyll-a, Uncorrected	3.4		ug/L	P322258	
1879821	SM 9222 D	Fecal Coliforms-Membrane Filter	100	U	cfu/100 mL		

Sample Location: New R. @ Andrews Ave

Collection Date/Time: 03/13/2017 13:00

Field ID: 28030521

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879799	SM 10200 H (mod.)	Chlorophyll-a, Corrected	9.6		ug/L	P322258	
		Phaeophytin-a	1.7		ug/L	P322258	
		Chlorophyll/Phaeophytin Ratio	1.6			P322258	
		Chlorophyll-a, Uncorrected	11		ug/L	P322258	
1879806	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1879823	EPA 1600	Enterococci-Membrane Filter	10	UQ	cfu/100 mL		

Sample Location: New River North Fork @ Sunrise

Collection Date/Time: 03/13/2017 14:10

Field ID: G4SEB064

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879800	SM 10200 H (mod.)	Chlorophyll-a, Corrected	36		ug/L	P322160	
		Phaeophytin-a	11		ug/L	P322160	
		Chlorophyll/Phaeophytin Ratio	1.5			P322160	
		Chlorophyll-a, Uncorrected	44		ug/L	P322160	
1879807	SOP-PCR-1.0	HF183-qPCR**	30	T	GEU/100 mL	P322137	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1879824	EPA 1600	Enterococci-Membrane Filter	230	Q	cfu/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: C-12 @ 9th Ave & Sunrise

Collection Date/Time: 03/13/2017 14:50

Field ID: G4SEB128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G4SEB128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879798	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.5		ug/L	P322258	
		Phaeophytin-a	0.40	U	ug/L	P322258	
		Chlorophyll/Phaeophytin Ratio	1.7			P322258	
		Chlorophyll-a, Uncorrected	4.7		ug/L	P322258	
1879822	SM 9222 D	Fecal Coliforms-Membrane Filter	100	U	cfu/100 mL		

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P322160

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: SM 10200 H (mod.)
Batch ID: P322258

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: P322137

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: P322160

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

Reference Method: SM 10200 H (mod.)
Batch ID: P322258

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	105		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P322137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	76.2	83.3	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P322137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879807	HF183-qPCR	80.5		P	50 - 175
1880174	HF183-qPCR	125		P	50 - 175
1880175	HF183-qPCR	111		P	50 - 175
1880176	HF183-qPCR	90.7		P	50 - 175
1880177	HF183-qPCR	100		P	50 - 175
1883270	HF183-qPCR	106	118	P/P	50 - 175
1883305	HF183-qPCR	99.7		P	50 - 175
1883306	HF183-qPCR	82.3		P	50 - 175
1883307	HF183-qPCR	84.0		P	50 - 175
1883308	HF183-qPCR	88.6		P	50 - 175
1883309	HF183-qPCR	84.6		P	50 - 175
1883310	HF183-qPCR	95.6		P	50 - 175
1884037	HF183-qPCR	146		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P322160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879841	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1879841	Chlorophyll-a, Corrected	15.5	Sample	P	0 - 25
1879841	Chlorophyll-a, Uncorrected	14.0	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P322258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879682	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1879682	Chlorophyll-a, Corrected	7.46	Sample	P	0 - 25
1879682	Chlorophyll-a, Uncorrected	7.34	Sample	P	0 - 25
1879682	Phaeophytin-a	5.37	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P322137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883270	HF183-qPCR	10.7	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

Quality Assurance Report Surrogates

Lab Sample ID: 1879807
Field Sample ID: G4SEB064

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	63.4	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio				0.0	
	Chlorophyll/Phaeophytin Ratio				0.0	
	Chlorophyll-a, Corrected	92.7			15.5	
	Chlorophyll-a, Corrected	105			7.46	
	Chlorophyll-a, Uncorrected				14.0	
	Chlorophyll-a, Uncorrected				7.34	
	Phaeophytin-a				5.37	
SOP-PCR-1.0	HF183-qPCR	83.3	76.2	106 118 99.7 82.3		10.7

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1600 / E82535	Enterococci by membrane filter method by Advanced Environmental Miami Overflow Laboratories for SED	1879823, 1879824
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1879796, 1879797, 1879798, 1879799, 1879800
SM 9222 D / E82535	Fecal coliforms by membrane filter method by Advanced Environmental Miami Overflow Laboratories for SED	1879820, 1879821, 1879822
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1879807
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1879806, 1879807

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1600	03/13/2017			03/14/2017 12:50	AEL - Mirimar	1879823, 1879824
SM 10200 H (mod.)	03/14/2017	03/14/2017 14:05	Carina A. Tull	03/22/2017	Jennifer Mihalic	1879796, 1879797, 1879798, 1879799, 1879800
SM 9222 D	03/13/2017			03/13/2017 18:03	AEL - Mirimar	1879820, 1879821, 1879822
SOP-PCR-1.0	03/14/2017	03/14/2017 01:00	Avril Wood	03/31/2017	Sarah Menz	1879807
SOP-PCR-4.0	03/14/2017	03/14/2017 01:00	Avril Wood	03/30/2017	Daisys Matthews	1879806, 1879807