

Biological Analysis Report

SO-DIST-2017-05-11-03

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

Overflow Analyses Performed By:
Sanders Laboratories
10090 Bavaria Road
Ft. Myers, FL 33913
DOH Accreditation E85457

Event Description: **SMP: Peace River Streams**
Request ID: **RQ-2017-05-01-15**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
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Fort Myers, FL 33901-3381
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Certified by: Daisys Matthews,

Date Certified: 26-JUN-2017 10:59

A handwritten signature in cursive script that reads "D Matthews". The signature is written in dark ink on a white background.

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: SHELL CR. @ SR 31

Collection Date/Time: 05/10/2017 08:30

Field ID: G3SD051017-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898627	SM 10200 H (mod.)	Chlorophyll-a, Corrected	8.9		ug/L	P325559	
		Phaeophytin-a	6.7		ug/L	P325559	
		Chlorophyll/Phaeophytin Ratio	1.4			P325559	
		Chlorophyll-a, Uncorrected	13		ug/L	P325559	

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: MYRTLE SLOUGH @ SR 31

Collection Date/Time: 05/10/2017 08:45

Field ID: G3SD051017-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898628	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.78	I	ug/L	P325559	
		Phaeophytin-a	1.2	I	ug/L	P325559	
		Chlorophyll/Phaeophytin Ratio	1.3			P325559	
		Chlorophyll-a, Uncorrected	1.5		ug/L	P325559	

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: MYRTLE SLOUGH @ SR 31

Collection Date/Time: 05/10/2017 08:45

Field ID: G3SD051017-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898632	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1898634	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray**	11		MPN/100 mL		

Sample Location: FIELD BLANK

Collection Date/Time: 05/10/2017 14:30

Field ID: G3SD051017-B

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898631	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P325559	
		Phaeophytin-a	0.40	U	ug/L	P325559	
		Chlorophyll/Phaeophytin Ratio	0.90			P325559	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P325559	

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: HAWTHORNE CREEK @ REYNOLDS ST.

Collection Date/Time: 05/10/2017 10:10

Field ID: G3SD051017-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898629	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.5		ug/L	P325561	
		Phaeophytin-a	3.2		ug/L	P325561	
		Chlorophyll/Phaeophytin Ratio	1.4			P325561	
		Chlorophyll-a, Uncorrected	6.7		ug/L	P325561	

Field ID: G3SD051017-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment: SM 10200 H (mod.): Laboratory blank failure. Uncorr chl-a component result is >10 times blank.							

Sample Location: HAWTHORNE CREEK @ REYNOLDS ST. Collection Date/Time: 05/10/2017 10:10

Field ID: G3SD051017-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898633	SOP-PCR-1.0	HF183-qPCR**	14	T	GEU/100 mL	P325693	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1898635	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray**	870		MPN/100 mL		

Sample Location: HOG BAY @ CR 763 Collection Date/Time: 05/10/2017 09:45

Field ID: G3SD051017-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898630	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.2	I	ug/L	P325559	
		Phaeophytin-a	1.3		ug/L	P325559	
		Chlorophyll/Phaeophytin Ratio	1.3			P325559	
		Chlorophyll-a, Uncorrected	2.0		ug/L	P325559	

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: P325559

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: P325561

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.41	I	ug/L
Phaeophytin-a	0.40	U	ug/L

Reference Method: SOP-PCR-1.0
 Batch ID: P325693

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

Quality Assurance Report Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
 Batch ID: P325559

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	102		P	84 - 116

Reference Method: SM 10200 H (mod.)
 Batch ID: P325561

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

Reference Method: SOP-PCR-1.0
 Batch ID: P325693

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	88.1	134	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P325693

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895704	HF183-qPCR	114		P	50 - 175
1896803	HF183-qPCR	105		P	50 - 175
1897242	HF183-qPCR	107		P	50 - 175
1897244	HF183-qPCR	124		P	50 - 175
1898633	HF183-qPCR	130		P	50 - 175
1900676	HF183-qPCR	93.4		P	50 - 175
1900677	HF183-qPCR	93.1	84.8	P/P	50 - 175
1901185	HF183-qPCR	104		P	50 - 175
1901186	HF183-qPCR	95.6		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P325559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898499	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1898499	Chlorophyll-a, Corrected	1.44	Sample	P	0 - 25
1898499	Chlorophyll-a, Uncorrected	2.43	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
 Batch ID: P325561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898781	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1898781	Chlorophyll-a, Corrected	1.47	Sample	P	0 - 25
1898781	Chlorophyll-a, Uncorrected	1.38	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P325561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898781	Phaeophytin-a	0.932	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P325693

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900677	HF183-qPCR	9.24	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: 1898633
Field Sample ID: G3SD051017-4

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	106	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	102						1.44	
	Chlorophyll-a, Corrected	105						1.47	
	Chlorophyll-a, Uncorrected							2.43	
	Chlorophyll-a, Uncorrected							1.38	
	Phaeophytin-a							0.932	
SOP-PCR-1.0	HF183-qPCR	134	88.1	114	93.4	93.1			9.24
				84.8					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1898627, 1898628, 1898629, 1898630, 1898631
SM 9223 Quanti-Tray / E85457	Escherichia coli by Colilert 18 Quanti-Tray method by Sanders Laboratories for South District	1898634, 1898635
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1898633
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1898632, 1898633

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	05/11/2017	05/11/2017 14:20	Morgan Lane	05/19/2017	Brian Cumbie	1898627, 1898628, 1898630, 1898631
	05/11/2017	05/12/2017 08:30	Morgan Lane	05/19/2017	Brian Cumbie	1898629
SM 9223 Quanti-Tray	05/10/2017	05/10/2017 15:47		05/11/2017 14:50	Sanders-Fort Myers	1898634, 1898635
SOP-PCR-1.0	05/11/2017	05/11/2017 12:35	Puja Jasrotia	05/25/2017	Puja Jasrotia	1898633
SOP-PCR-4.0	05/11/2017	05/11/2017 12:35	Avril Wood	05/24/2017	Puja Jasrotia	1898632, 1898633