

Biological Analysis Report

SE-DIST-2018-10-17-02

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

Overflow Analyses Performed By:
Flowers Chemical Laboratories Inc.
571 NW Mercantile Pl. Ste. 111
Port St. Lucie, FL 34986
DOH Accreditation E86562

Event Description: **SMP- Martin Boat**
Request ID: **RQ-2018-10-15-47**
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: 16-NOV-2018 18:23



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: MANATEE POCKET @ PORT SALERNO

Collection Date/Time: 10/16/2018 11:15

Field ID: G2SE0012

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033536	SM 10200 H (mod.)	Chlorophyll-a, Corrected	12		ug/L	P353957	
		Phaeophytin-a	1.8	I	ug/L	P353957	
		Chlorophyll-a, Uncorrected	14		ug/L	P353957	
2033551	Enterolert/QT	Enterococci-Quanti-Tray	20		MPN/100 mL		

Sample Location: GREAT POCKET @ MARKER 8

Collection Date/Time: 10/16/2018 11:35

Field ID: G2SE0033

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033535	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.7		ug/L	P353957	
		Phaeophytin-a	1.0	I	ug/L	P353957	
		Chlorophyll-a, Uncorrected	7.5		ug/L	P353957	
2033549	Enterolert/QT	Enterococci-Quanti-Tray	10	U	MPN/100 mL		
2033550	SM 9222 D	Fecal Coliforms-Membrane Filter	1.6	U	cfu/100 mL		

Sample Location: SOUTH FORK SLR @ SW FUGE

Collection Date/Time: 10/16/2018 13:10

Field ID: G2SE0041

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033539	SM 10200 H (mod.)	Chlorophyll-a, Corrected	33		ug/L	P353957	
		Phaeophytin-a	6.0		ug/L	P353957	
		Chlorophyll-a, Uncorrected	38		ug/L	P353957	

Sample Location: SOUTH FORK SLR @ ST. LUCIE SETTLEMENT

Collection Date/Time: 10/16/2018 13:30

Field ID: G2SE0040

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033540	SM 10200 H (mod.)	Chlorophyll-a, Corrected	33		ug/L	P354000	
		Phaeophytin-a	7.6		ug/L	P354000	
		Chlorophyll-a, Uncorrected	38		ug/L	P354000	

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: SOUTH FORK SAINT LUCIE @ MARTIN HWY

Collection Date/Time: 10/16/2018 13:45

Field ID: G2SE0044

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033537	SM 10200 H (mod.)	Chlorophyll-a, Corrected	32		ug/L	P353957	
		Phaeophytin-a	5.4		ug/L	P353957	
		Chlorophyll-a, Uncorrected	36		ug/L	P353957	
2033545	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2033552	Enterolert/QT	Enterococci-Quanti-Tray	10		MPN/100 mL		

Sample Location: SOUTH PORK SLR @ LEIGHTON PARK

Collection Date/Time: 10/16/2018 13:55

Field ID: G2SE0013

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033538	SM 10200 H (mod.)	Chlorophyll-a, Corrected	20		ug/L	P353957	
		Phaeophytin-a	4.6		ug/L	P353957	
		Chlorophyll-a, Uncorrected	24		ug/L	P353957	
2033546	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2033553	Enterolert/QT	Enterococci-Quanti-Tray	10		MPN/100 mL		

Sample Location: NORTH FORK SLR @ VETERANS MEMORIAL PARK **Collection Date/Time: 10/16/2018 14:40**

Field ID: G2SE0007

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033541	SM 10200 H (mod.)	Chlorophyll-a, Corrected	28		ug/L	P354000	
		Phaeophytin-a	6.8		ug/L	P354000	
		Chlorophyll-a, Uncorrected	33		ug/L	P354000	
2033547	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2033554	Enterolert/QT	Enterococci-Quanti-Tray	10	U	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: NORTH FORK ST. LUCIE RIVER JUST DOWNSTREAM C24 **Collection Date/Time: 10/16/2018 15:00**

Field ID: G2SE0045

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033542	SM 10200 H (mod.)	Chlorophyll-a, Corrected	30		ug/L	P354000	
		Phaeophytin-a	6.3		ug/L	P354000	
		Chlorophyll-a, Uncorrected	34		ug/L	P354000	
2033548	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
2033555	Enterolert/QT	Enterococci-Quanti-Tray	10		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: P353957

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.60	U	ug/L

Reference Method: SM 10200 H (mod.)
Batch ID: P354000

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

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P354000

Component	Result	Code	Units
Phaeophytin-a	0.68	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P353957

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	98.0		P	84 - 116

Reference Method: SM 10200 H (mod.)
Batch ID: P354000

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

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P353957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033393	Chlorophyll-a, Corrected	6.62	Sample	P	0 - 25
2033393	Chlorophyll-a, Uncorrected	6.22	Sample	P	0 - 25
2033393	Phaeophytin-a	1.11	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P354000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033845	Chlorophyll-a, Corrected	1.80	Sample	P	0 - 25
2033845	Chlorophyll-a, Uncorrected	1.38	Sample	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 Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	98.0			6.62	
	Chlorophyll-a, Corrected	105			1.80	
	Chlorophyll-a, Uncorrected				6.22	
	Chlorophyll-a, Uncorrected				1.38	
	Phaeophytin-a				1.11	

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E86562	Enterococci by Enterolert Quanti-Tray method by Flowers Chemical Laboratory in Port St. Lucie	2033549, 2033551, 2033552, 2033553, 2033554, 2033555
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2033535, 2033536, 2033537, 2033538, 2033539, 2033540, 2033541, 2033542
SM 9222 D / E86562	Fecal coliforms by membrane filter method by Flowers Chemical Laboratory in Port St Lucie	2033550
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2033545, 2033546, 2033547, 2033548

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	10/16/2018	10/16/2018 17:00		10/17/2018 17:15	Flowers-PSL	2033549, 2033551, 2033552, 2033553, 2033554, 2033555
SM 10200 H (mod.)	10/17/2018	10/17/2018 15:58	Mariam Hanna	10/29/2018 08:15	Peterson Janvier	2033535, 2033536, 2033537, 2033538, 2033539
	10/17/2018	10/17/2018 15:58	Mariam Hanna	10/29/2018 10:25	Peterson Janvier	2033540, 2033541, 2033542
SM 9222 D	10/16/2018	10/16/2018 16:30		10/17/2018 15:00	Flowers-PSL	2033550
SOP-PCR-4.0	10/17/2018	10/17/2018 14:30	Angela Smith	10/30/2018 13:44	Sarah Menz	2033545, 2033546, 2033547, 2033548