

Biological Analysis Report

SE-DIST-2017-10-19-02

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-G2 Martin**
Request ID: **RQ-2017-10-16-33**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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2199 South Rock Road
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Certified by: Puja Jasrotia,

Date Certified: 07-DEC-2017 11:08



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: St. Lucie North Fork @ Veterans Park

Collection Date/Time: 10/18/2017 10:00

Field ID: G2SE0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938591	SM 10200 H (mod.)	Chlorophyll-a, Corrected	8.3		ug/L	P334211	
		Phaeophytin-a	3.7		ug/L	P334211	
		Chlorophyll-a, Uncorrected	11		ug/L	P334211	
1938595	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1938599	Enterolert/QT	Enterococci-Quanti-Tray	31		MPN/100 mL		

Sample Location: Bessey Creek @ Murphy Rd.

Collection Date/Time: 10/18/2017 10:50

Field ID: G2SE0017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938593	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.3		ug/L	P334211	
		Phaeophytin-a	1.1	I	ug/L	P334211	
		Chlorophyll-a, Uncorrected	3.0		ug/L	P334211	
1938601	Enterolert/QT	Enterococci-Quanti-Tray	81		MPN/100 mL		

Sample Location: South Fork St. Lucie near Leighton Park

Collection Date/Time: 10/18/2017 11:20

Field ID: G2SE0013

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938594	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.4		ug/L	P334211	
		Phaeophytin-a	3.9		ug/L	P334211	
		Chlorophyll-a, Uncorrected	7.0		ug/L	P334211	
1938602	Enterolert/QT	Enterococci-Quanti-Tray	52		MPN/100 mL		

Sample Location: Danforth Creek @ Martin Hwy

Collection Date/Time: 10/18/2017 11:35

Field ID: G2SE0018

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938589	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.9		ug/L	P334211	
		Phaeophytin-a	1.4		ug/L	P334211	
		Chlorophyll-a, Uncorrected	3.9		ug/L	P334211	
1938597	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	63		MPN/100 mL		

Sample Location: South Fork St. Lucie @ Halpatiokee

Collection Date/Time: 10/18/2017 12:00

Field ID: G2SE0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938587	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.9		ug/L	P334211	
		Phaeophytin-a	0.79	I	ug/L	P334211	
		Chlorophyll-a, Uncorrected	5.5		ug/L	P334211	

Sample Location: South Fork St. Lucie @ Hosford Park

Collection Date/Time: 10/18/2017 12:30

Field ID: 28010478

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: 28010478

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938592	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.2		ug/L	P334211	
		Phaeophytin-a	0.92	I	ug/L	P334211	
		Chlorophyll-a, Uncorrected	3.9		ug/L	P334211	
1938596	SOP-PCR-1.0	HF183-qPCR**	22	T	GEU/100 mL	P334519	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1938600	Enterolert/QT	Enterococci-Quanti-Tray	206		MPN/100 mL		

Sample Location: Manatee Pocket, Park Salerno

Collection Date/Time: 10/18/2017 13:30

Field ID: G2SE0012

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938588	SM 10200 H (mod.)	Chlorophyll-a, Corrected	8.0		ug/L	P334211	
		Phaeophytin-a	2.1		ug/L	P334211	
		Chlorophyll-a, Uncorrected	9.5		ug/L	P334211	

Sample Location: RoeBack Creek @ Locks Rd.

Collection Date/Time: 10/18/2017 14:20

Field ID: G2SE0029

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938590	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.9		ug/L	P334211	
		Phaeophytin-a	1.6		ug/L	P334211	
		Chlorophyll-a, Uncorrected	8.1		ug/L	P334211	
1938598	Enterolert/QT	Enterococci-Quanti-Tray	682		MPN/100 mL		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P334211

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: P334519

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: P334211

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	110		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P334519

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	105	62.9	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P334519

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938442	HF183-qPCR	75.3		P	50 - 175
1938596	HF183-qPCR	55.8		P	50 - 175
1942883	HF183-qPCR	66.6		P	50 - 175
1942884	HF183-qPCR	75.0		P	50 - 175
1943571	HF183-qPCR	70.6	74.5	P/P	50 - 175
1945747	HF183-qPCR	75.8		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P334211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938538	Chlorophyll-a, Corrected	11.0	Sample	P	0 - 25
1938538	Chlorophyll-a, Uncorrected	10.8	Sample	P	0 - 25
1938538	Phaeophytin-a	9.36	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P334519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943571	HF183-qPCR	5.40	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: 1938596
Field Sample ID: 28010478

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	81.7	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	110					11.0	
	Chlorophyll-a, Uncorrected						10.8	
	Phaeophytin-a						9.36	
SOP-PCR-1.0	HF183-qPCR	62.9	105	66.6	75.0	70.6		5.40
				74.5				

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E86562	Enterococci by Enterolert Quanti-Tray method by Flowers Overflow Laboratory for Southeast District	1938598, 1938599, 1938600, 1938601, 1938602
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1938587, 1938588, 1938589, 1938590, 1938591, 1938592, 1938593, 1938594
SM 9223 Quanti-Tray / E86562	Escherichia coli by Colilert 18 Quanti-Tray method by FlowersOverflow Laboratory for Southeast District	1938597
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1938596
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1938595, 1938596

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	10/18/2017	10/18/2017 15:35		10/19/2017 16:05	Flowers-PSL	1938598, 1938599, 1938600, 1938601, 1938602
SM 10200 H (mod.)	10/19/2017	10/19/2017 14:25	Herbert Johnson	10/27/2017	Kim M. Spencer	1938587, 1938588, 1938589, 1938590, 1938591, 1938592, 1938593, 1938594
SM 9223 Quanti-Tray	10/18/2017	10/18/2017 15:50		10/19/2017 10:10	Flowers-PSL	1938597
SOP-PCR-1.0	10/19/2017	10/19/2017 13:45	Sarah Menz	11/15/2017	Sarah Menz	1938596
SOP-PCR-4.0	10/19/2017	10/19/2017 13:45	Sarah Menz	11/14/2017	Puja Jasrotia	1938595, 1938596