

Biological Analysis Report

SE-DIST-2017-05-09-01

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-G5 North Run**
Request ID: **RQ-2017-05-01-30**
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: Jacqueline Savage, Environmental Specialist III

Date Certified: 20-JUN-2017 13:21

A handwritten signature in black ink that reads "Jackie Savage". The signature is written in a cursive, flowing style.

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: South Relief Canal @ US 1

Collection Date/Time: 05/08/2017 10:00

Field ID: G5SE0044

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897328	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.3		ug/L	P325410	
		Phaeophytin-a	2.2		ug/L	P325410	
		Chlorophyll/Phaeophytin Ratio	1.5			P325410	
		Chlorophyll-a, Uncorrected	5.8		ug/L	P325410	
1897332	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1897341	Enterolert/QT	Enterococci-Quanti-Tray	52.0		MPN/100 mL		
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	192		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: Main Canal @ US 1

Collection Date/Time: 05/08/2017 10:40

Field ID: G5SE0045

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897329	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.1	I	ug/L	P325410	
		Phaeophytin-a	2.2	I	ug/L	P325410	
		Chlorophyll/Phaeophytin Ratio	1.4			P325410	
		Chlorophyll-a, Uncorrected	4.3	A	ug/L	P325410	
1897333	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1897342	Enterolert/QT	Enterococci-Quanti-Tray	20.0		MPN/100 mL		
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	105		MPN/100 mL		

Ref. Method and Comment:

SM 10200 H (mod.): Lab dup result is 1.4 for Chl:Ph Ratio, 2.8 I for Chl-a Corrected, and 1.9 I for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: North Canal below weir

Collection Date/Time: 05/08/2017 11:05

Field ID: G5SE0043

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897330	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.3		ug/L	P325410	
		Phaeophytin-a	1.9		ug/L	P325410	
		Chlorophyll/Phaeophytin Ratio	1.4			P325410	
		Chlorophyll-a, Uncorrected	4.6		ug/L	P325410	
1897334	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1897343	Enterolert/QT	Enterococci-Quanti-Tray	20.0		MPN/100 mL		
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	201		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: South Relief Canal @ US 1

Collection Date/Time: 05/08/2017 10:15

Field ID: G5SEDUPE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897331	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.5		ug/L	P325410	
		Phaeophytin-a	2.4		ug/L	P325410	

Field ID: G5SEDUPE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897331	SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio	1.5			P325410	
		Chlorophyll-a, Uncorrected	6.1		ug/L	P325410	
1897335	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1897344	Enterolert/QT	Enterococci-Quanti-Tray	62.0		MPN/100 mL		
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	155		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: Kid Creek @ Old Dixie

Collection Date/Time: 05/08/2017 12:10

Field ID: G5SE0050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897327	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P325410	
		Phaeophytin-a	0.40	U	ug/L	P325410	
		Chlorophyll/Phaeophytin Ratio	1.5			P325410	
		Chlorophyll-a, Uncorrected	0.66	I	ug/L	P325410	
1897340	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	921		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: Micco Ditch Weir off Dottie Rd.

Collection Date/Time: 05/08/2017 12:50

Field ID: G5SE0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897324	SM 10200 H (mod.)	Chlorophyll-a, Corrected	17		ug/L	P325410	
		Phaeophytin-a	2.0	I	ug/L	P325410	
		Chlorophyll/Phaeophytin Ratio	1.6			P325410	
		Chlorophyll-a, Uncorrected	19		ug/L	P325410	

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-54 1700m West of I-95

Collection Date/Time: 05/08/2017 14:30

Field ID: G5SE0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897325	SM 10200 H (mod.)	Chlorophyll-a, Corrected	26		ug/L	P325410	
		Phaeophytin-a	3.2		ug/L	P325410	
		Chlorophyll/Phaeophytin Ratio	1.6			P325410	
		Chlorophyll-a, Uncorrected	29		ug/L	P325410	

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-54 W of I-95

Collection Date/Time: 05/08/2017 14:00

Field ID: G5SE0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G5SE0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897326	SM 10200 H (mod.)	Chlorophyll-a, Corrected	27		ug/L	P325410	
		Phaeophytin-a	4.0		ug/L	P325410	
		Chlorophyll/Phaeophytin Ratio	1.6			P325410	
		Chlorophyll-a, Uncorrected	31		ug/L	P325410	

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: P325410

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)

Batch ID: P325410

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	99.5		P	84 - 116

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P325410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897329	Chlorophyll-a, Uncorrected	11.6	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	99.5				
	Chlorophyll-a, Uncorrected				11.6	

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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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	1897341, 1897342, 1897343, 1897344
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1897324, 1897325, 1897326, 1897327, 1897328, 1897329, 1897330, 1897331
SM 9223 Quanti-Tray / E86562	Escherichia coli by Colilert 18 Quanti-Tray method by FlowersOverflow Laboratory for Southeast District	1897340, 1897341, 1897342, 1897343, 1897344
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1897332, 1897333, 1897334, 1897335

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	05/08/2017			05/08/2017 16:40	Flowers-PSL	1897341, 1897342, 1897343, 1897344
SM 10200 H (mod.)	05/09/2017	05/09/2017 13:00	Morgan Lane	05/16/2017	Brian Cumbie	1897324, 1897325, 1897326, 1897327, 1897328, 1897329, 1897330, 1897331
SM 9223 Quanti-Tray	05/08/2017			05/08/2017 16:55	Flowers-PSL	1897340, 1897341, 1897342, 1897343, 1897344
SOP-PCR-4.0	05/09/2017	05/09/2017 14:00	Avril Wood	05/24/2017	Puja Jasrotia	1897332, 1897333
	05/09/2017	05/09/2017 15:00	Avril Wood	05/24/2017	Puja Jasrotia	1897334, 1897335