

Biological Analysis Report

SE-DIST-2018-11-16-01

Florida Department of Environmental Protection
Central Laboratory
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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- Fort Pierce**
Request ID: **RQ-2018-11-12-14**
Customer: **SE-DIST**
Project ID: **SMP**

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Date Certified: 12-DEC-2018 16:19



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: C-25 CANAL WEST @ GODWIN

Collection Date/Time: 11/15/2018 12:20

Field ID: G2SE0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2042342	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.3		ug/L	P355628	
		Phaeophytin-a	3.4		ug/L	P355628	
		Chlorophyll-a, Uncorrected	9.5		ug/L	P355628	
2042349	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	48.0		MPN/100 mL		

Sample Location: C-25 CANAL WEST @ GODWIN

Collection Date/Time: 11/15/2018 12:25

Field ID: DUPE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2042341	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.0		ug/L	P355628	
		Phaeophytin-a	3.7		ug/L	P355628	
		Chlorophyll-a, Uncorrected	9.3		ug/L	P355628	

Sample Location: MOORES CREEK @ 2nd

Collection Date/Time: 11/15/2018 13:45

Field ID: G2SE0025

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2042345	SM 10200 H (mod.)	Chlorophyll-a, Corrected	24		ug/L	P355630	
		Phaeophytin-a	0.61	I	ug/L	P355630	
		Chlorophyll-a, Uncorrected	25		ug/L	P355630	
2042347	SOP-PCR-1.0	HF183-qPCR**	170	I	GEU/100 mL	P355112	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
2042352	Enterolert/QT	Enterococci-Quanti-Tray	3170		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: MOORES CREEK @ 7th

Collection Date/Time: 11/15/2018 14:00

Field ID: G2SE0016

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2042346	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.3		ug/L	P355630	
		Phaeophytin-a	2.9		ug/L	P355630	
		Chlorophyll-a, Uncorrected	7.2		ug/L	P355630	
2042348	SOP-PCR-1.0	HF183-qPCR**	550	I	GEU/100 mL	P355112	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
2042353	Enterolert/QT	Enterococci-Quanti-Tray	561		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: FIVE-MILE CREEK @ OKEECHOBEE

Collection Date/Time: 11/15/2018 14:40

Field ID: G2SE0008

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2042344	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.5		ug/L	P355630	
		Phaeophytin-a	3.2		ug/L	P355630	

Field ID: G2SE0008

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2042344	SM 10200 H (mod.)	Chlorophyll-a, Uncorrected	7.7		ug/L	P355630	
2042351	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	299		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: TEN-MILE CREEK @ GORDY

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

Field ID: G2SE0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2042343	SM 10200 H (mod.)	Chlorophyll-a, Corrected	45		ug/L	P355630	
		Phaeophytin-a	2.4		ug/L	P355630	
		Chlorophyll-a, Uncorrected	48		ug/L	P355630	
2042350	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	148		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: P355628

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: P355630

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: SOP-PCR-1.0

Batch ID: P355112

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)

Batch ID: P355628

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	93.2		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P355630

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

Reference Method: SOP-PCR-1.0
Batch ID: P355112

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	184	113	F/P	50 - 175
HF183-qPCR	204	99.2	F/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P355112

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034437	HF183-qPCR	56.6		P	50 - 175
2034438	HF183-qPCR	54.5		P	50 - 175
2034440	HF183-qPCR	51.9		P	50 - 175
2038134	HF183-qPCR	70.0		P	50 - 175
2038135	HF183-qPCR	65.6		P	50 - 175
2038136	HF183-qPCR	70.4		P	50 - 175
2039236	HF183-qPCR	83.2		P	50 - 175
2040439	HF183-qPCR	71.4		P	50 - 175
2042347	HF183-qPCR	76.9		P	50 - 175
2042348	HF183-qPCR	77.6		P	50 - 175
2044072	HF183-qPCR	77.3	84.4	P/P	50 - 175
2044546	HF183-qPCR	80.2		P	50 - 175
2044547	HF183-qPCR	89.1		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P355628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2042312	Chlorophyll-a, Corrected	0.161	Sample	P	0 - 25
2042312	Chlorophyll-a, Uncorrected	0.860	Sample	P	0 - 25
2042312	Phaeophytin-a	6.82	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P355630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2042516	Chlorophyll-a, Corrected	3.30	Sample	P	0 - 25
2042516	Chlorophyll-a, Uncorrected	1.41	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P355112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044072	HF183-qPCR	8.82	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: 2042347
Field Sample ID: G2SE0025

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	103	P	50 - 300

Lab Sample ID: 2042348
Field Sample ID: G2SE0016

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	100	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	93.2							0.161	
	Chlorophyll-a, Corrected	102							3.30	
	Chlorophyll-a, Uncorrected								0.860	
	Chlorophyll-a, Uncorrected								1.41	
	Phaeophytin-a								6.82	
SOP-PCR-1.0	HF183-qPCR	184	99.2	204	51.9	83.2	71.4			8.82
		113				76.9				

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	2042352, 2042353
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2042341, 2042342, 2042343, 2042344, 2042345, 2042346
SM 9223 B Quanti-Tray / E86562	Escherichia coli by Colilert 18 Quanti-Tray method by Flowers Chemical Laboratory in Port St. Lucie	2042349, 2042350, 2042351
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2042347, 2042348
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2042347, 2042348

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	11/15/2018	11/15/2018 16:25		11/16/2018 16:40	Flowers-PSL	2042352, 2042353
SM 10200 H (mod.)	11/16/2018	11/16/2018 14:15	Edwin Gonzalez-Soto	12/03/2018 17:05	Peterson Janvier	2042341, 2042342
	11/16/2018	11/16/2018 14:15	Edwin Gonzalez-Soto	12/04/2018 13:15	Peterson Janvier	2042343, 2042344, 2042345, 2042346
SM 9223 B Quanti-Tray	11/15/2018	11/15/2018 16:35		11/16/2018 11:40	Flowers-PSL	2042349, 2042350, 2042351
SOP-PCR-1.0	11/16/2018	11/16/2018 14:30	Sarah Menz	12/04/2018 16:58	Mailin Lopez	2042347, 2042348
SOP-PCR-4.0	11/16/2018	11/16/2018 14:30	Angela Smith	11/27/2018 08:52	Sarah Menz	2042347, 2042348