

Biological Analysis Report

SE-DIST-2017-03-14-02

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-G1 Okeechobee Run (1/5)**

Request ID: **RQ-2017-02-20-10**

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: Cheryl A. Swanson, Environmental Manager

Date Certified: 10-APR-2017 15:40



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: Otter Creek @ 441

Collection Date/Time: 03/13/2017 12:10

Field ID: G1SE0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879875	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.3	I	ug/L	P322160	
		Phaeophytin-a	2.1		ug/L	P322160	
		Chlorophyll/Phaeophytin Ratio	1.3			P322160	
		Chlorophyll-a, Uncorrected	2.6		ug/L	P322160	
1879879	SOP-PCR-1.0	HF183-qPCR**	30	T	GEU/100 mL	P321954	RPD
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1879883	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	2420	J	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.

SM 9223 Quanti-Tray: Estimated value; one or more QC components associated with this data value exceed current QC limits.

Sample Location: Taylor Creek @ SR-70

Collection Date/Time: 03/13/2017 13:10

Field ID: G1SE0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879876	SM 10200 H (mod.)	Chlorophyll-a, Corrected	61		ug/L	P322160	
		Phaeophytin-a	13		ug/L	P322160	
		Chlorophyll/Phaeophytin Ratio	1.6			P322160	
		Chlorophyll-a, Uncorrected	71		ug/L	P322160	
1879880	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1879884	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	79.4		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: P322160

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: P321954

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: P322160

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	92.7		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P321954

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	96.1	84.5	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P321954

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879036	HF183-qPCR	93.1		P	50 - 175
1879879	HF183-qPCR	115		P	50 - 175
1882175	HF183-qPCR	83.6		P	50 - 175
1882176	HF183-qPCR	93.9		P	50 - 175
1882177	HF183-qPCR	72.7	94.9	P/P	50 - 175
1882178	HF183-qPCR	92.5		P	50 - 175
1882540	HF183-qPCR	104		P	50 - 175
1882541	HF183-qPCR	95.4		P	50 - 175
1882542	HF183-qPCR	116		P	50 - 175
1882543	HF183-qPCR	92.9		P	50 - 175
1882544	HF183-qPCR	95.7		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P322160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879841	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1879841	Chlorophyll-a, Corrected	15.5	Sample	P	0 - 25
1879841	Chlorophyll-a, Uncorrected	14.0	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P321954

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882177	HF183-qPCR	26.4	Spike	F	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: 1879879
Field Sample ID: G1SE0007

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
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Quality Assurance Report Surrogates

Lab Sample ID: 1879879
 Field Sample ID: G1SE0007

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	81400	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-a, Corrected	92.7			15.5	
	Chlorophyll-a, Uncorrected				14.0	
SOP-PCR-1.0	HF183-qPCR	84.5 96.1	104 95.4 92.9 95.7			26.4

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1879875, 1879876
SM 9223 Quanti-Tray / E86562	Escherichia coli by Colilert 18 Quanti-Tray method by FlowersOverflow Laboratory for Southeast District	1879883, 1879884
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1879879
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1879879, 1879880

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	03/14/2017	03/14/2017 14:05	Carina A. Tull	03/22/2017	Jennifer Mihalic	1879875, 1879876
SM 9223 Quanti-Tray	03/13/2017			03/13/2017 14:45	Flowers-PSL	1879883, 1879884
SOP-PCR-1.0	03/14/2017	03/14/2017 01:00	Avril Wood	03/24/2017	Puja Jasrotia	1879879
SOP-PCR-4.0	03/14/2017	03/14/2017 01:00	Avril Wood	03/24/2017	Puja Jasrotia	1879879, 1879880