

Biological Analysis Report

CEN-DIST-2018-03-01-01

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. - Altamonte
Springs
481 Newburyport Avenue
Altamonte Springs, Florida 32701
DOH Accreditation E83018

Event Description: **Lake Jessup_Haynes Creek BMAP**
Request ID: **RQ-2018-02-19-49**
Customer: **CEN-DIST**
Project ID: **LKJES-BMAP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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
Jennifer Walters - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Jacqueline Savage, Environmental Manager

Date Certified: 11-JUN-2018 13:27

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: SWEETWATER CREEK @ FLORIDA AVENUE **Collection Date/Time: 02/28/2018 12:35**

Field ID: G2CE0123

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970830	SM 5210 B	Biochemical Oxygen Demand-5 Day	1.5	IJ	mg/L	P341784	LCS
1970848	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1120		MPN/100 mL		
1970852	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.58	I	ug/L	P340996	
		Phaeophytin-a	0.40	U	ug/L	P340996	
		Chlorophyll-a, Uncorrected	0.75	I	ug/L	P340996	

Ref. Method and Comment:

SM 5210 B: Lab duplicate result is 1.5 IJ mg/L. Precision data unavailable due to small amt. of analyte in QC sample. Refer to QA report for QC exceeding limits. Dilution water blank is within laboratory historical limit of 0.50 mg/L.

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: SALT CREEK @ PACKARD AVENUE **Collection Date/Time: 02/28/2018 12:55**

Field ID: G2CE0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970831	SM 5210 B	Biochemical Oxygen Demand-5 Day	3.0	J	mg/L	P341784	LCS
1970849	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1300		MPN/100 mL		
1970853	SM 10200 H (mod.)	Chlorophyll-a, Corrected	33		ug/L	P340996	
		Phaeophytin-a	2.7		ug/L	P340996	
		Chlorophyll-a, Uncorrected	36		ug/L	P340996	

Ref. Method and Comment:

SM 5210 B: Precision data is unavailable due to the small amount of analyte in the QC sample. Refer to QA report for QC exceeding limits. Dilution water blank is within laboratory historical limit of 0.50 mg/L.

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: SALT CREEK @ PACKARD AVENUE **Collection Date/Time: 02/28/2018 12:55**

Field ID: G2CE0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970855	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P341663	

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

Sample Location: HAYNES CREEK @ JUST DS OF BURELL LOCK **Collection Date/Time: 02/28/2018 11:15**

Field ID: G1CE0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970850	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	12.1		MPN/100 mL		

Sample Location: HAYNES CREEK @ 300M DS OF CR 44 **Collection Date/Time: 02/28/2018 11:00**

Field ID: G1CE0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970851	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	5.2		MPN/100 mL		

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P340996

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: SM 5210 B
Batch ID: P341784

Component	Result	Code	Units
Biochemical Oxygen Demand-5 Day	0.27	I	mg/L

Reference Method: SOP-PCR-1.0
Batch ID: P341663

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: P340996

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.8		P	84 - 116

Reference Method: SM 5210 B
Batch ID: P341784

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Biochemical Oxygen Demand-5 Day	78.5		F	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P341663

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	124	91.9	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P341663

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969180	HF183-qPCR	103		P	50 - 175
1969348	HF183-qPCR	96.5		P	50 - 175
1969655	HF183-qPCR	98.3		P	50 - 175
1970727	HF183-qPCR	93.5		P	50 - 175
1970728	HF183-qPCR	106		P	50 - 175
1970729	HF183-qPCR	134		P	50 - 175
1970730	HF183-qPCR	110		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P341663

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970855	HF183-qPCR	81.9		P	50 - 175
1970889	HF183-qPCR	94.7		P	50 - 175
1970891	HF183-qPCR	87.0		P	50 - 175
1970975	HF183-qPCR	99.2		P	50 - 175
1971015	HF183-qPCR	95.2		P	50 - 175
1976478	HF183-qPCR	89.9	92.4	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P341663

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976478	HF183-qPCR	2.76	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: 1970855
Field Sample ID: G2CE0088

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	94.5	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	97.8				
SM 5210 B	Biochemical Oxygen Demand-5 Day	78.5				
SOP-PCR-1.0	HF183-qPCR	91.9 124	103 96.5 98.3 93.5			2.76

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1970852, 1970853
SM 5210 B / E31780	BOD, NOT nitrogen-inhibited	1970830, 1970831
SM 9223 Quanti-Tray / E83018	Escherichia coli by Colilert 18 Quanti-Tray method by FlowersOverflow Laboratory for Central District	1970848, 1970849, 1970850, 1970851
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1970855

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	03/01/2018	03/01/2018 13:18	Cathy Sherrer	03/05/2018 10:25	Kim M. Spencer	1970852, 1970853
SM 5210 B	03/01/2018			03/02/2018 08:45	Jennifer Mihalic	1970830, 1970831
SM 9223 Quanti-Tray	02/28/2018	02/28/2018 15:30		03/01/2018 10:12	Flowers - Altamonte Springs	1970848, 1970849, 1970850, 1970851
SOP-PCR-1.0	03/01/2018	03/01/2018 13:20	Puja Jasrotia	03/26/2018 11:00	Sarah Menz	1970855