UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8 LABORATORY
16194 W 45th Drive
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Phone 303-312-7700

Ref: 8TMS-L

MEMORANDUM

SUBJECT: Analytical Results--- **HAB Emergency Bloom 2016 / 1609026**

FROM: Mark Murphy, Organic Chemist
William H. Batschelet, PhD, Laboratory Quality Assurance Officer

THRU: Mark Burkhardt, PhD, Director
Laboratory Services Program

TO: Tina Laidlaw, 8MO
Clean Water Act

Attached are the analytical results for HAB Emergency Bloom 2016 1609026. The table below shows the number of containers received , the work order number(s) assigned, and the date received:

	1609026	Total
15-Sep-2016	2	2

These samples were prepared, analyzed, and verified by the Region 8 Laboratory according to the requirements of the Laboratory Services Request (LSR) and procedures found in the laboratory Quality Assurance Manual (QSP-001) dated June 16, 2016.

Sample Receipt
All samples were received in acceptable condition except as noted in the Analyst Comments or Appendix A. The number of samples received and analyses are listed in Appendix B.

Sample Analysis
All sample results are reported on an as-received basis except as noted in the Analyst Comments. All samples were analyzed within holding times except as noted in Appendix A. All analyses met QC acceptance criteria except as noted in the Analyst Comments or Appendix A.

Field Measurements
All field measurements met QC acceptance criteria except as noted in the Analyst Comments or Appendix A.

QC Note
Routine sample quality control results such as blanks, matrix spikes, and laboratory duplicates, etc. are reported on the quality control pages of this report. Certain of the reported QC criteria may not be applicable or otherwise affect the data usability. Appendix C summarizes the guidelines used by the Region 8 Laboratory to qualify data. This is a general table and may or may not be applicable to this project.

Analyst Comments

Sample Receipt:
Samples were not collected in required PETG bottles. All samples are qualified since sample preservation requirements were not met.

Microcystins by LC/MS/MS

Station ID: 5931231 **Date / Time Sampled:** 09/13/16 09:50 **Workorder** 1609026
Comment: Scofield Reservoir **Matrix:** Water **Lab Number:** 1609026-01 A

Method	Parameter	Results	Units	Qual-ifier	Report Limit	Dilution Factor	Analyzed	By	Batch
Reg. 8 Lab	Anatoxin-A	< 0.05	ug/L	**J**	0.05	1	09/15/2016	MAM	1600370
Reg. 8 Lab	Cylindrospermopsin	< 0.05	ug/L	**J**	0.05	1	09/15/2016	MAM	1600370
Reg. 8 Lab	**Microcystin-LR**	**55.4**	ug/L	**J**	0.50	10	09/15/2016	MAM	1600370
Reg. 8 Lab	**Microcystin-RR**	**0.18**	ug/L	**J**	0.05	1	09/15/2016	MAM	1600370
Reg. 8 Lab	Microcystin-YR	< 0.05	ug/L	**J**	0.05	1	09/15/2016	MAM	1600370

Station ID: Mantua Boat Dock **Date / Time Sampled:** 09/12/16 18:20 **Workorder** 1609026
Comment: Scofield Reservoir **Matrix:** Water **Lab Number:** 1609026-02 A

Method	Parameter	Results	Units	Qual-ifier	Report Limit	Dilution Factor	Analyzed	By	Batch
Reg. 8 Lab	Anatoxin-A	< 0.05	ug/L	**J**	0.05	1	09/15/2016	MAM	1600370
Reg. 8 Lab	Cylindrospermopsin	< 0.05	ug/L	**J**	0.05	1	09/15/2016	MAM	1600370
Reg. 8 Lab	**Microcystin-LR**	**0.53**	ug/L	**J**	0.05	1	09/15/2016	MAM	1600370
Reg. 8 Lab	Microcystin-RR	< 0.05	ug/L	**J**	0.05	1	09/15/2016	MAM	1600370
Reg. 8 Lab	Microcystin-YR	< 0.05	ug/L	**J**	0.05	1	09/15/2016	MAM	1600370

Note: "J" Qualifier indicates an estimated value.

Microcystins by LC/MS/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1600370 - No Preparation									
Matrix Spike (1600370-MS1)		**Source: 1609026-02**		Prepared & Analyzed: 09/15/16					
Anatoxin-A	0.99	0.05	ug/L	1.00	< 0.05	98.7	60-140		
Cylindrospermopsin	0.96	0.05	"	1.00	0.04	92.2	60-140		
Microcystin-LR	1.55	0.05	"	1.00	0.53	102	60-140		
Microcystin-RR	0.88	0.05	"	1.00	0.04	84.1	60-140		
Microcystin-YR	0.90	0.05	"	1.00	0.03	86.6	60-140		
Matrix Spike Dup (1600370-MSD1)		**Source: 1609026-02**		Prepared & Analyzed: 09/15/16					
Anatoxin-A	0.88	0.05	ug/L	1.00	< 0.05	88.0	60-140	11.5	30
Cylindrospermopsin	0.89	0.05	"	1.00	0.04	85.3	60-140	7.52	30
Microcystin-LR	1.36	0.05	"	1.00	0.53	83.3	60-140	12.9	30
Microcystin-RR	0.76	0.05	"	1.00	0.04	72.0	60-140	14.7	30
Microcystin-YR	0.77	0.05	"	1.00	0.03	73.9	60-140	15.2	30

NOTE:
%REC is percent recovery, Result (less sample contribution) divided by the Spike Level
RPD is the Relative Percent Difference (difference between the Result and the Source Result) divided by their average

EPA Region 8 Laboratory

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Golden, CO 80403

HAB

Sample Submission Form

Instructions: Fill out the station ID, station description, date and time in the chain of custody section (the bottle ID column is for lab use only). Print and sign your name and date the sampler block. Note discrepancies to the sampling/shipping protocols or additional information that may be pertinent in the comments block (backside).

Chain of Custody

Waterbody:		LSR#: 1609026		
Station ID	**Station Description**	**Date**	**Time**	**Bottle ID (lab)**
5931231	Stofield Res - Mt. view boat ramp	9/13/16	0950	U: 1609026-01
				P:
NA	Mantua Res	9/12/16	1820	U: 1609026-02
				P:
				U:
				P:
				U:
				P:
				U:
				P:

Samples are algal toxin (LC-MS/MS and ELISA) (one unpreserved (U) and one preserved (P) 30 mL PETG container per station, water matrix. Preservative is 10x sample diluent concentrate. All samples are kept on ice in the dark. Note any discrepancies or deviations to this statement in the comments section.

Sampler Name:	Signature:	Date and time:	
Jim Harris		9/14/16 1440	
Received by Name:	**Signature:**	**Date and time:**	**Cooler Temp (°C):**
Mark A. Murphy	MAM	9/15/16 0950	4°C

Page 1 of 2

Appendix A - Exceptions Report

Lab Number	Sample Name	Analysis	Analyte Name	Explanation
1609026-01	5931231	Microcystins by LC/MS/MS_2016	*ALL*	Sample preservation requirements not met
1609026-01RE1	5931231	Microcystins by LC/MS/MS_2016	*ALL*	Sample preservation requirements not met
1609026-02	Mantua Boat Dock	Microcystins by LC/MS/MS_2016	*ALL*	Sample preservation requirements not met

Appendix B - Samples and Analysis

Work Order #	# Samples	Analysis	Method Name	Lab SOP
1609026	2	Microcystins by LC/MS/MS_2016	Reg. 8 Lab	Draft SOP

Appendix C - Data Assessment Guidelines

QC Check (Symbol)	Flagging Criteria
Initial Calibration (ICAL)	All failing analytes for all samples are qualified as estimated.
Initial Calibration Verification (ICV) or Standard Reference Material (SRM)	High failure: All detections for failing analytes for all samples are qualified as estimated. Low failure: All failing analytes for all samples are qualified as estimated.
Continuing Calibration Verification (CCV)	High failure: All detections for failing analytes for all associated samples are qualified as estimated. Low failure: All failing analytes for all associated samples are qualified as estimated.
Continuing Calibration Blank (CCB)	All detections for failing analytes for all associated samples where the concentration in the blank is greater than 1/10 the amount measured in the sample OR the blank contamination otherwise affects the sample results are qualified as estimated.
Blanks (BLK) Preparation Blank, Method, Trip, Storage, etc.	All detections for failing analytes for all samples where the concentration in the blank is greater than 1/10 the amount measured in the sample OR the blank contamination otherwise affects the sample results are qualified as estimated.
Lab Control Sample (LCS) or Standard Reference Material (SRM) or Blank Spike (BS)	High failure: All detections for failing analytes for all associated samples are qualified as estimated. Low failure: All failing analytes for all associated samples are qualified as estimated.
Matrix Spike (MS)	High failure: All detections for failing analytes in the parent sample are qualified as estimated. Low failure: All failing analytes in the parent sample are qualified as estimated. No qualification if the native concentration is greater than or equal to 4x the spike concentration.
Matrix Spike Duplicate (MSD)	%R Failure: Same as matrix spike. RPD Failure: All failing analytes in the parent sample are qualified as estimated.
Duplicate Sample (DUP)	All failing analytes in the parent sample are qualified as estimated. No qualification if the native concentration is less than the RL.
Serial Dilution (SD)	All failing analytes in the parent sample are qualified as estimated. No qualification if native concentration is less than or equal to 50x the RL.
Detection Limit Standard (CRA) or (CRL)	High failure: All detections for failing analytes less than or equal to 5x the concentration in the CRL for all associated samples are qualified as estimated. Low failure: All failing analytes less than or equal to 5x the RL for all associated samples are qualified as estimated.
Internal Standard (IS)	All analytes associated with the failing IS are qualified as estimated.
Surrogate Spike (SURR)	High failure: All detections for all analytes associated with the failing surrogate are qualified as estimated. Low failure: All analytes associated with the failing surrogate are qualified as estimated. If obvious chromatographic interference with the surrogate is present, qualification may not be necessary and will be based on the professional judgment of the analyst.

Note: The J Qualifier is used to indicate an estimated value.