

Taylor, Bailey

Subject: FW: Blue Green Algae Complaint - Prairie Creek- Mena WWTP NPDES Permit AR0036692

Brie & Bailey

Aaron Benzing called me back and said the operator, Mike Spencer, Mena WWTP, had contacted a lab in Florida who could run a sample for the Blue Green Algae. They have already collected a sample and sent it to the lab in Florida. As soon as they have the results they will notify DEQ.

Thanks

Richard C. Healey | Enforcement Branch Manager
Office of Water Quality | Enforcement Branch
Arkansas Energy and Environment | Environmental Quality
5301 Northshore Drive, North Little Rock, AR 72118
t: 501.682.0640 | e: healey@adeq.ar.state.ar



From: Healey, Richard
Sent: Monday, September 30, 2019 3:53 PM
To: Olsen, Brie
Cc: Blanz, Bob; Leamons, Bryan; Lemaster, Jeff; Bolenbaugh, Jason; McCabe, Kerri; Taylor, Bailey; Carstens, Loretta; McWilliams, Carrie
Subject: Blue Green Algae Complaint - Prairie Creek- Mena WWTP NPDES Permit AR0036692

Brie
Aaron Benzing P.E. with Hawkins Weir Engineers (501-414-9851) the engineering consultant for the City of Mena called the OWQ Enforcement Branch to report a neighbor is complaining about a blue green algae in Prairie Creek. The neighbor is concerned because his cows drink out of the creek. The City of Mena discharges their wastewater into unnamed tributary of Prairie Creek then into Prairie Creek which flows to Ouachita River. The Operator is reporting the City's WWTP lagoon is full of algae and they are discharge a greenish color effluent.

Anyone have thoughts on how to proceed?

Mena is under a CAO LIS 18-046.

Thanks

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Mena Water Utilities

ADDA MICROCYSTINS/NODULARINS RESULTS

Tested on: 10/4/2019
Method: Enzyme-Linked ImmunoSorbent Assay (ELISA)
Analyte: Adda Microcystins/Nodularins (MCs/NODs)
Analyzed by: Kamil Cieslik

Sample ID/ Date Collected	Initial Conc. Factor	Assay Value (ng/mL)	Dilution Factor	Avg. LFB Recovery	Avg. LFSM Recovery	Final Concentration (ng/mL)	Average (ng/mL)
Lagoon 2	1x	2.92	10	104%	---	29.2	31.5
10/1/2019	1x	3.38	10			33.8	
Effluent	1x	0.40	10	104%	---	4.0	3.7
10/1/2019	1x	0.33	10			3.3	
Mouth of Prairie Creek	1x	0.11	10	104%	---	<1.5	ND
10/1/2019	1x	0.10	10			<1.5	

ND = Not detected above MRL
 MRL = 1.5 ng/mL
 LFB = 1.0 ng/mL MC-LR
 LFSM = 1.0 ng/mL MC-LR

Submitted by: *Amanda Foss*
 Amanda Foss, M.S.
 Date: 10/4/2019

Submitted to: Mena WWTP
 Mena Water Utilities
 701 Mena St.
 Mena, AZ 71953
 (479) 234-2592
menawwtp@gmail.com

Adda Microcystins/Nodularins Report*Project: Mena Water Utilities*

Submitted to: Mena WWTP
Organization: Mena Water Utilities
Address: 701 Mena St. Mena, AZ 71953
Email: menawwtp@gmail.com
Sample Receipt Date: 1 October 19
Sample Condition: 9.4 °C upon arrival
Report#: 191001_Mena Water Utilities
Date Prepared: 4 October 19
Prepared by: Kamil Cieslik

Table 1: Samples analyzed

<u>Description/Site</u>	<u>Description/Site</u>	<u>Collection Date</u>	<u>Collection Time</u>
Lagoon 2	Mena	1 October 19	1200
Effluent	Mena	1 October 19	1150
Mouth of Prairie Creek	Mena	1 October 19	1100

Analytes: Adda Microcystins/Nodularins (Adda MCs/NODs)

Sample Preparation***Water Sample Freeze-Thaw***

The samples were received and inverted for 60 seconds to mix. A subset from each sample was removed prior to cell lysis for algal identification purposes. Second subsets from the samples were transferred to 15 mL vials. Three freeze-thaw cycles were employed prior to additional sample preparation and subsequent analysis.

Analytical Techniques

Enzyme-Linked Immunosorbent Assay (ELISA)

Adda MCs/NODs

A microcystins/nodularins Adda ELISA (Abraxis) was utilized for the quantitative and sensitive congener-independent detection of Adda MCs/NODs (US EPA Method 546 & Ohio EPA DES 701.0). The current method reporting limit is 1.5 ng/mL (ppb) based on kit sensitivity, dilution factors, and initial demonstration of capability.

Quality Control

Table 2: Adda MC-ELISA Quality Control Value Table

Date Analyzed:	4 October	Requirement	Pass/Fail
R² value:	0.999	≥0.98	PASS
%CV range STDs:	0.5-83%	≤15%	PASS
LFB (1ppb) recovery:	82%	±40% True Value	PASS
%CV range LFB:	8.0%	<20%	PASS
Low CV (0.15 ppb) recovery:	113%	±50% True Value	PASS
LRB	<0.08	<0.08	PASS

Qualifier	Flag
CL	Analytical result is estimated due to ineffective quenching.
J	Analyte was positively identified; the associated numerical value is estimated.
PT	The reported result is estimated because the sample was not analyzed within required holding time.
B	Analytical result is estimated. Analyte was detected in associated reagent blank as well as the samples.
E	Analytical result is estimated. Values achieved were outside calibration range.
N	Spiked sample control was outside limits
T	The reported result is estimated because the sample exceeded temperature threshold when received

Abbreviations			
NA	Not Applicable	LFSM	Lab Fortified Sample Matrix
MDL	Method Detection Limit	LFSMD	Lab Fortified Sample Matrix Duplicate
MQL	Method Quantification Limit	LD	Lab Duplicate
ND	Not Detected above the MDL	SUR	Surrogate
Blank	Regent Water free from interferences	—	Not Analyzed
LFB	Lab Fortified Blank	MRL	Method Reporting Limit



Summary of Results

Table 3: Summary of results in ng/mL

Sample ID	Adda MCs/NODs (ng/mL)
Lagoon 2	31.5
Effluent	3.7
Mouth of Prairie Creek	ND
MRL (ng/mL):	1.5
Analyst Initials:	KC
Date Analyzed:	10/4/19

Interpretations:

The level of MCs/NODs detected by Adda ELISA in the Lagoon 2 sample (**31.5 ppb**) exceeds the current 'EPA Recommended Value for Recreational Criteria and Swimming Advisory', which is currently 8.0 ng/mL (ppb) total microcystins.

Submitted by:



Mark T. Aubel, Ph.D.

Lab Director

Date:

October 4, 2019

*The results in this report relate only to the samples listed above.
This report shall not be reproduced except in full without written approval of the laboratory.*

**Cyano
LAB**

Taylor, Bailey

Subject: FW: City of Mena, NPDES Permit AR00036692- PTOX Cyanobacteria sample results from 10/1/19

From: Healey, Richard

Sent: Thursday, October 10, 2019 4:42 PM

To: 'Wastewater'

Cc: Aaron Benzing (Aaron.Benzing@hawkins-weir.com); Olsen, Brie; Taylor, Bailey; Lemaster, Jeff

Subject: City of Mena, NPDES Permit AR00036692- PTOX Cyanobacteria sample results from 10/1/19

Mike

Thank you for submitting the sample results from the Cyanobacteria samples collected on October 1, 2019. DEQ has consulted with ADH. The numbers in the effluent were lower, but there is still some concern about the high numbers in the lagoon. Although the weather seems to be changing, DEQ requests Mena collect another round of sampling, perhaps by the end of next week October 18, 2019 to help ensure the Cyanobacteria in the receiving stream and in the lagoon is no longer a concern. Please submit the results to DEQ.

If you have any questions, please do not hesitate to ask.

Thanks

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Mena Water Utilities

ADDA MICROCYSTINS/NODULARINS RESULTS

Tested on: 10/16/2019
Method: Enzyme-Linked ImmunoSorbent Assay (ELISA)
Analyte: Adda Microcystins/Nodularins (MCs/NODs)
Analyzed by: Kamil Cieslik

Sample ID/ Date Collected	Initial Conc. Factor	Assay Value (ng/mL)	Dilution Factor	Avg. LFB Recovery	Avg. LFSM Recovery	Final Concentration (ng/mL)	Average (ng/mL)
Effluent	1x	0.08	1	90%	98%	<0.30	ND
10/14/2019	1x	0.08	1			<0.30	
Prairie Creek	1x	0.03	1	90%	---	<0.30	ND
10/14/2019	1x	0.02	1			<0.30	
Lagoon 2	1x	0.32	1	90%	---	0.32	0.34
10/14/2019	1x	0.35	1			0.35	

ND = Not detected above MRL
 MRL = 0.30 ng/mL
 LFB = 1.0 ng/mL MC-LR
 LFSM = 1.0 ng/mL MC-LR

Submitted by: *Amanda Foss*
 Amanda Foss, M.S.
 Date: 10/16/2019

Submitted to: Mena WWTP
 Mena Water Utilities
 701 Mena St.
 Mena, AK 71953
 (479) 234-2592
menawwtp@gmail.com

Adda Microcystins/Nodularins Report

Project: Mena Water Utilities

Submitted to: Mena WWTP
Organization: Mena Water Utilities
Address: 701 Mena St. Mena, AZ 71953
Email: menawwtp@gmail.com
Sample Receipt Date: 15 October 19
Sample Condition: 2.0 °C upon arrival
Report# 191014_Mena Water Utilities
Date Prepared: 16 October 19
Prepared by: Kamil Cieslik

Table 1: Samples analyzed

<u>Description/Site</u>	<u>Collection Date</u>	<u>Collection Time</u>
Effluent	14 October 19	0800
Prairie Creek	14 October 19	0830
Lagoon 2	14 October 19	0845

Analytes: Adda Microcystins/Nodularins (Adda MCs/NODs)

Sample Preparation

Water Sample Freeze-Thaw

The samples were received and inverted for 60 seconds to mix. Subsets from each sample were transferred to 15 mL vials. Three freeze-thaw cycles were employed prior to additional sample preparation and subsequent analysis.

Analytical Techniques

Enzyme-Linked Immunosorbent Assay (ELISA)

Adda MCs/NODs

A microcystins/nodularins Adda ELISA (Abraxis) was utilized for the quantitative and sensitive congener-independent detection of Adda MCs/NODs (US EPA Method 546 & Ohio EPA DES 701.0). The current method reporting limit is 0.30 ng/mL (ppb) based on kit sensitivity, dilution factors, and initial demonstration of capability.

Quality Control

Table 2: QA/QC samples prepared for analyses.

Analyte	Concentration (ng/mL)	Sample ID	QC Type	Return
MC-LR	1.0	Effluent	LFSM	98%

Additional Quality Control/Quality Assurance checks included method blanks, LFBs, and standard curves.

Table 3: Adda MC-ELISA Quality Control Value Table

Date Analyzed:	16 October	Requirement	Pass/Fail
R² value:	1.000	≥0.98	PASS
%CV range STDs:	0.1-9.4%	≤15%	PASS
LFB (1ppb) recovery:	90%	±40% True Value	PASS
%CV range LFB:	9.2%	<20%	PASS
Low CV (0.15 ppb) recovery:	120%	±50% True Value	PASS
LRB	<0.08	<0.08	PASS

Qualifier	Flag
CL	Analytical result is estimated due to ineffective quenching.
J	Analyte was positively identified; the associated numerical value is estimated.
PT	The reported result is estimated because the sample was not analyzed within required holding time.
B	Analytical result is estimated. Analyte was detected in associated reagent blank as well as the samples.
E	Analytical result is estimated. Values achieved were outside calibration range.
N	Spiked sample control was outside limits
T	The reported result is estimated because the sample exceeded temperature threshold when received

Summary of Results

Table 4: Summary of results in ng/mL


Sample ID	Adda MCs/NODs (ng/mL)
Effluent	ND
Prairie Creek	ND
Lagoon 2	0.34
<i>MRL (ng/mL):</i>	<i>0.30</i>
<i>Analyst Initials:</i>	<i>KC</i>
<i>Date Analyzed:</i>	<i>10/16/19</i>

Abbreviations

NA	Not Applicable	LFSM	Lab Fortified Sample Matrix
MDL	Method Detection Limit	LFSMD	Lab Fortified Sample Matrix Duplicate
MLQ	Method Quantification Limit	LD	Lab Duplicate
ND	Not Detected above the MDL	SUR	Surrogate
Blank	Regent Water free from interferences	—	Not Analyzed
LFB	Lab Fortified Blank	MRL	Method Reporting Limit

Interpretations:

The level of MCs/NODs detected by Adda ELISA in the Lagoon 2 sample is below the current 'EPA Recommended Value for Recreational Criteria and Swimming Advisory', which is currently 8.0 ng/mL (ppb) total microcystins.

Submitted by: 
 Mark T. Aubel, Ph.D.
 Lab Director

Date: October 16, 2019

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Taylor, Bailey

Subject: FW: City of Mena WWTP Microcystin Data 10/14/19 for the Effluent, Prairie Creek and Lagoon 2

From: Olsen, Brie
Sent: Thursday, October 17, 2019 8:48 AM
To: Healey, Richard
Cc: Taylor, Bailey; Lemaster, Jeff; Blanz, Bob; Leamons, Bryan; Bolenbaugh, Jason
Subject: RE: City of Mena WWTP Microcystin Data 10/14/19 for the Effluent, Prairie Creek and Lagoon 2

That's much better. Since it's getting colder, I can't imagine they'll have issues until the spring. They should obviously keep an eye on it throughout the winter, but I wouldn't worry about continued sampling for this year unless it gets really green again or we have a warm spell.

However, I do think they should come up with some sort of plan for next growing season – unless they drastically reduce their nutrient load, I expect they may have problems again.

From: Healey, Richard
Sent: Thursday, October 17, 2019 7:18 AM
To: Olsen, Brie
Cc: Taylor, Bailey; Lemaster, Jeff; Blanz, Bob; Leamons, Bryan; Bolenbaugh, Jason
Subject: City of Mena WWTP Microcystin Data 10/14/19 for the Effluent, Prairie Creek and Lagoon 2

Brie
Please see the attached sample results for the City of Mena WWTP's effluent, Prairie Creek, and the lagoon 2 collected on 10/14/19.
Thanks

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