2019 HAB Stakeholder Meeting

January 23-24, 2019
Proposed 2019 Kansas Public Water Supply Harmful Algal Bloom Seasonal Monitoring Program
The intent of this presentation:

Is to promote an honest and constructive discussion so that a proactive sampling process is created which parallels the current WTP sampling procedures and will be voluntarily applied to sample Harmful Algal Blooms at surface water treatment plants.
2018 HAB Logistic Issues

Biggest Logistical issue:
In heat of the bloom, KDHE resources were stretched to a point that we feel insufficient coverage and attention cannot be given to adequately serve the Public Water Supply Systems.

• Always in reaction mode
• Logistics of getting sample bottle to PWS with bloom in source water timely
• Samples are not attached to the PWS in databases causing errors in data
• Too much KDHE staff time is used in coordinating and delivering bottles and samples to PWS and Lab
• Lab resources and test kits are not utilized efficiently. Test kits not fully realized making testing very expensive per test.

A new system is needed to better serve the PWS to be prepared and use current sample processes to avoid always reacting to blooms

Our Mission: To Protect and Improve the Health and Environment of all Kansans
Proposed Seasonal Monitoring Program

- Voluntary program for Water Supply Systems
- Provides consistent proactive monitoring for potential toxins through the HAB bloom season (May-Oct.)
- Intended to provide water systems with important information, so that treatment processes can be modified, or other measures taken to assure safe drinking water is provided to their customer
- Early detection will also allow for timely notification to customers should an event occur.
Numerical Cyanotoxin Thresholds for Drinking Water Health Advisories

In 2015, EPA developed Health Advisories (HA) for the two cyanobacterial toxins. These thresholds will be used to determine when a public health advisory will be issued for a detection of cyanotoxins in finished drinking water. These HAs are not regulations and should not be construed as legally enforceable federal standards. HAs may change as new information becomes available.
## Numerical Cyanotoxin Thresholds for 10-Day Drinking Water Health Advisories

<table>
<thead>
<tr>
<th>Cyanotoxin</th>
<th>Drinking Water Health Advisory (10-day)</th>
<th>Drinking Water Health Advisory (10-day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microcystins</td>
<td>Bottle-fed infants and pre-school children</td>
<td>School-age children and adults</td>
</tr>
<tr>
<td>Cylindrospermopsin</td>
<td>0.7 µg/L</td>
<td>3 µg/L</td>
</tr>
<tr>
<td>Anatoxin-A</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Saxitoxin</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

*A few States have determined their own guidance/action levels for Anatoxin-A and Saxitoxin. However, Kansas will continue to follow EPA’s Guidance. From: [https://www.epa.gov/nutrient-policy-data/guidelines-and-recommendations](https://www.epa.gov/nutrient-policy-data/guidelines-and-recommendations)*

- Exposure Pathway – Oral Ingestion of Drinking Water
- Health Advisory Value – 10 Day Exposure
Proposed Seasonal Monitoring Program

1. Monitoring Season will run May 1, 2019 through October 31, 2019

2. HAB test Bottles will be delivered to PWS from KHEL at the beginning of season and additional bottles sent when/if needed

3. PWS will conduct initial microcystins monitoring for both raw and finished water during the first two weeks of May 2019. PWS Ships samples to KHEL

4. If no microcystins are detected, the PWS would begin weekly monitoring of raw water at water intake only (i.e. the same location as LT2 Samples are collected or water intake structure)

4. If microcystins are detected in the raw water, Contact KDHE PWS-Section immediately (contact information listed below). PWS will then collect a paired raw and finished water microcystins samples within 24 hours of receiving the positive results and complete analysis within five days.
Proposed Seasonal Monitoring Program

5. Depending on the microcystins levels detected, KDHE may instruct PWS to continue weekly monitoring or request increased testing of raw and/or finished water. Modifications to water treatment process may be required to remove toxins.

6. PWS will continue with weekly paired raw and finished water microcystins monitoring until results are non-detect for at least two consecutive weeks or as directed by KDHE.
2019 PWS-KDHE HAB Monitoring Flow Chart

Raw & Finish Water Monitoring
PWS at Intake / LT2 Sites
Finish Water at POE
by May 15, 2019

KHEL Analysis Results
> 0.3 ug/L – Microcystins
> 0.7ug/L Cylindro

PWS

No

KHEL Analysis Results
> 0.3 ug/L – Microcystins
> 0.7ug/L Cylindro

Yes

PWS Increase Monitoring Per KDHE & Implement Treatment Adjustments and Public Advisory.

KHEL Analysis Results
> 0.3 ug/L – Microcystins
> 0.7ug/L Cylindro

No

KDHE

Continue Weekly Raw Water Monitoring Through October 31, 2019

Yes

KDHE Notification
Sample Finished Water

No

PWS Continue Weekly Raw Water Monitoring Through October 31, 2019

Our Mission: To Protect and Improve the Health and Environment of all Kansans
Optional qPCR Monitoring

1. PWS may choose to conduct additional qPCR screening for mycE genes, sxtA and cyrA genes. Screenings would normally be performed biweekly. However, the PWS might elect to forgo screenings until a HAB is identified in the water source.

2. If mycE, sxtA or cyrA genes are detected in the raw water, Contact KDHE PWS-Section immediately (contact information listed below). PWS would then collect a paired raw and finished water microcystins samples within 24 hours of receiving the result and complete analysis within five days.

3. If microcystins are not detected, the PWS would remain on biweekly qPCR screening.

4. If microcystins are detected in either the raw or finished water, the PWS continues with weekly raw/finished microcystins monitoring and optional biweekly qPCR screening until microcystins are non-detect for at least two consecutive weeks or as instructed by KDHE.
Public Notification Procedure

❖ Should and exceedance of the 2015 EPA Health Advisory occur in the finish water or distribution system samples, Contact KDHE PWS-Section immediately.

❖ KDHE will assist the PWS to issue an immediate Tier 1 public advisory (24-hour notification) informing all customers of the situation.

❖ A public advisory template will be provided by KDHE containing the appropriate health effects language and use restrictions depending on tested levels vs. health advisories.
PWS Contingency Planning

- KDHE encourages public water systems to work with KDHE, their local emergency management agency, and local health departments to develop a coordinated response to cyanotoxin detections in finished water above EPA designated health advisory Levels.

- A detailed response protocol should be included in the contingency plans of those PWSs using surface water sources susceptible to a harmful algal bloom.
Additional items the water system should address in their contingency plan include:

- A communication strategy, including 24-hour emergency contacts, identification of critical users/possible susceptible populations

- Considerations for water restrictions or connections to a backup water supply

- KDHE can provide additional guidance as requested.
Lab and HAB Sample Kit Costs

- Testing Costs will depend on how many Systems that Participate
- Test Kits are approx. $400 per tray -30 tests per tray, but tray cannot be reused if all tests not filled
- PWS will pay for shipping
- Current estimated test cost without KHEL Staff time is just over $100/test
- KDHE will underwrite a portion of testing costs
- Estimated Cost per test to PWS $25 each
Discussion ???

KDHE is asking for your input in the design of the new 2019 PWS HAB Monitoring Plan

All ideas and observations welcome
2019 PWS-KDHE HAB Monitoring Flow Chart

Raw & Finish Water Monitoring
- PWS at Intake / LT2 Sites
- Finish Water at POE by May 15, 2019

PWS Analysis Results
- > 0.3 ug/L – Microcystins
- > 0.7ug/L Cylindro

KDHE Analysis Results
- > 0.3 ug/L – Microcystins
- > 0.7ug/L Cylindro

KDHE Notification
- Sample Finished Water

PWS Increase Monitoring Per KDHE & Implement Treatment Adjustments and Public Advisory.

Our Mission: To Protect and Improve the Health and Environment of all Kansans
Helpful Links

- Managing Cyanotoxins in Public Drinking Water Systems

- Drinking Water Cyanotoxin Risk Communication Toolbox
  - https://www.epa.gov/ground-water-and-drinking-water/drinking-water-cyanotoxin-risk-communication-toolbox

- Cyanotoxin tools - Management Plan Template

- Ohio EPA HAB Website
  - https://epa.ohio.gov/ddagw/HAB
KDHE PWS HAB Contact Information

To report possible Hazardous Algal Bloom or positive test results contact:

**During Normal Business Hours (8:00 to 5:00pm, M-F):**

Robert Gavin, Ph. 785-296-0643, rob.gavin@ks.gov
Amelia Springer, Ph. 785-2965523, amelia.springer@ks.gov
Cathy Tucker-Vogel, Ph. 785-368-7130, cathy.tucker-vogel@ks.gov

**After Hours or Weekend/ Holidays contact (24/7):**

KDHE Spill Hotline, 785-296-1679