



FREQUENTLY ASKED QUESTIONS

WHAT ARE HARMFUL ALGAL BLOOMS AND CYANOTOXINS?

Cyanobacteria, formerly referred to as blue-green algae, are found naturally in lakes, rivers, ponds and other surface waters. When certain conditions exist, such as in warm water containing an abundance of nutrients, they can rapidly form harmful algal blooms (HABs). HABs can have negative impacts on the ecosystem, human and animal health and on the economy. Some HABs are capable of producing toxins, called cyanotoxins, which can harm humans and animals.

HOW DO HARMFUL ALGAL BLOOMS AFFECT DRINKING WATER QUALITY?

HABs producing cyanotoxins can occur in water used as sources of drinking water. If not removed during drinking water treatment, exposure to cyanotoxins in tap water above certain levels could be harmful to humans. Additionally, algal blooms can create taste and odor problems in drinking water, such as an earthy and musty smell, which are not cause for human health concern.

WHAT ARE THE HEALTH EFFECTS FROM CYANOTOXINS?

Drinking water containing cyanotoxins at levels exceeding the U.S. Environmental Protection Agency's national drinking water Health Advisories can put you at risk of various adverse health effects including upset stomach, vomiting and diarrhea as well as liver and kidney damage. Seek medical attention if you or your family members are experiencing illness.

Data for illnesses associated with exposure are being collected nationally at the Centers for Disease Control and Prevention (CDC). To report a cyanotoxin-associated illness for humans and animals, please contact your state or local health department.

WHAT ARE HEALTH ADVISORIES?

The U.S. Environmental Protection Agency (U.S. EPA) publishes Health Advisories for unregulated contaminants to help states and water systems assess local situations and during emergency situations and spills. They are not a federally enforceable federal regulatory limit. The Health Advisories provide the contaminant levels less than or equal to which adverse human health impacts are unlikely to occur over a certain time period. As new information becomes available, the U.S. EPA may develop updated advisories.

WHAT ARE THE HEALTH ADVISORIES FOR CYANOTOXINS?

The U.S. Environmental Protection Agency issued 10-Day Health Advisories for the cyanotoxins microcystins and cylindrospermopsin (see Table 1). Two distinct Health Advisories were developed for two population groups 1) infants and children younger than six years old and 2) adults and children six years and older. For more information please see <https://www.epa.gov/nutrient-policy-data/drinking-water-health-advisory-documents>. Health Advisories were developed for a 10-day exposure based on the most current science.

10-DAY HEALTH ADVISORIES	LEVEL
Microcystins	
Children pre-school age and younger (under 6 years old)	0.3 ppb
School-age children (6 years and older)	1.6 ppb
Cylindrospermopsin	
Children pre-school age and younger (under 6 years old)	0.7 ppb
School-age children (6 years and older)	3.0 ppb

Table 1. U.S. EPA's National 10-Day Health Advisories

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WHY ARE THERE DIFFERENT HEALTH ADVISORIES FOR THE TWO POPULATION GROUPS?

Two different Health Advisories were developed because of the variations in body weight and drinking water intake between the different age groups. Bottle-fed infants and young children under the age of six have higher water intake relative to body weight as compared to adults and children six years and older. Therefore, the Health Advisories are lower for younger children than for children six years and older and adults. Additionally, other groups of individuals may be more vulnerable to cyanotoxins including: pregnant women, nursing mothers, those with pre-existing liver conditions, those receiving dialysis treatment, the elderly and other sensitive populations. As a precautionary measure, the lower level Health Advisories could also apply to these individuals.

WHY DO OLDER CHILDREN HAVE DIFFERENT HEALTH ADVISORY LEVELS THAN YOUNGER CHILDREN?

The Health Advisories are lower for younger children than for older children because young children under the age of six consume more water relative to their body weight when compared to adults and older children. Therefore, younger children are at an increased risk of adverse health impacts of cyanotoxins at lower levels.

WHAT HAPPENS IF YOU EXCEED THE HEALTH ADVISORY LEVEL? IF IT IS A 10-DAY VALUE, WHAT HAPPENS IF YOU EXCEED FOR A SMALLER NUMBER OF DAYS?

The Health Advisory levels for microcystins and cylindrospermopsin are non-regulatory concentrations of drinking water contaminants at which adverse health effects are not anticipated to occur over a 10-day exposure period. Because it is difficult to determine in advance the duration of elevated algal toxin levels, the U.S. Environmental Protection Agency (U.S. EPA) recommends that water systems begin to take actions once the elevated levels have been confirmed by additional samples. Additionally, because of time needed to process sequential analytical tests, it can take several days following the detection of a bloom and/or cyanotoxins before

concentrations above the Health Advisories are confirmed in finished water. Therefore, the U.S. EPA recommends initiating the response activities as soon as practicable.

WHAT DO THE GREEN, YELLOW AND RED ADVISORY LEVELS OF CYANOTOXINS MEAN?

Using the the U.S. Environmental Protection Agency's national Health Advisory levels for microcystins and cylindrospermopsin as a guide, ranges of cyanotoxin levels in drinking water can be shown with the following advisory levels: **green**, **yellow** and **red** (see Figure 1). **Green** corresponds to drinking water toxin levels where adverse health impacts are unlikely to occur for everyone. **Yellow** indicates drinking water toxin levels where the risk of adverse health impacts is higher for infants, young children under the age of six and other vulnerable populations (including: pregnant women, nursing mothers, those with pre-existing liver conditions, those receiving dialysis treatment, the elderly and other sensitive populations). **Red** indicates drinking water toxin levels above which the risk of adverse health impacts is higher for everyone drinking the water. Drinking water systems can elect to issue Drinking Water Advisories using these categories as guides.

Drinking Water Health Advisories

ADVISORY LEVEL

Cyanotoxins detected in tap water at levels of concern.

Cyanotoxins detected in tap water at levels of concern for young children and vulnerable populations.*

Cyanotoxins not detected in tap water at levels of concern.

ACTION



*vulnerable populations = infants, children under the age of six, pregnant women, nursing mothers, those with pre-existing liver conditions, those receiving dialysis treatment, the elderly and sensitive populations.

Figure 1. Drinking Water Health Advisories

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WHICH ADVISORY LEVEL SHOULD SENSITIVE POPULATIONS OR NURSING MOTHERS FOLLOW?

Populations such as nursing mothers and pregnant women, those with pre-existing liver conditions, those receiving dialysis treatment, the elderly and other sensitive populations may be at risk of experiencing adverse health effects of cyanotoxins at lower levels. As a precautionary measure, such vulnerable populations should consider following the health advisories stated for infants and young children under the age of six.

WHAT HAPPENS IF CYANOTOXINS ARE SUSPECTED OR FOUND IN THE DRINKING WATER?

You may receive a drinking water advisory from your public water supply if cyanotoxins above Health Advisories are found in your tap water. If a drinking water advisory is issued, follow the recommendations described in the advisory notification. If you are concerned about the potential occurrence of cyanotoxins in drinking water please contact your public water system.

CAN I BOIL MY WATER TO MAKE IT SAFE TO DRINK?

No, boiling water will not remove cyanotoxins and may increase toxin levels.

WHAT SHOULD I DO IF I CONSUME WATER WITH CYANOTOXINS?

If you or your family members have consumed water that may have contained cyanotoxins at levels above the national Health Advisories and you are experiencing cyanotoxin-related illnesses, contact your healthcare provider for medical attention. Data for illnesses associated with exposure are being collected nationally at the Centers for Disease Control and Prevention (CDC). To report a cyanotoxin-associated illness for humans and animals, please contact your state or local health department.

IF A DRINKING WATER ADVISORY IS ISSUED, IS THE TAP WATER SAFE FOR OTHER USES OTHER THAN DRINKING?

Given the current scientific understanding, it is unlikely that showering, bathing, washing hands, doing laundry, etc. in tap water with cyanotoxin levels near or below the Health Advisory will be harmful to human health.

However, infants and young children under the age of six should be supervised while bathing and during other tap water-related activities to prevent accidental ingestion of water. You may also accidentally consume water that is used to prepare or wash your food, make beverages or make ice. If a drinking water advisory is issued, the U.S. Environmental Protection Agency recommends using alternative water sources for these activities as well as using alternative water sources to make infant formula.

CAN DIALYSIS BE IMPACTED BY CYANOTOXINS?

Drinking water with elevated cyanotoxins levels can be harmful to humans if used in dialysis treatment. The U.S. Environmental Protection Agency recommends dialysis centers and those using in-home dialysis use an alternative source of water if their current water source becomes contaminated with elevated levels of cyanotoxins. Please consult your local health department or physician.

ARE THERE IN-HOME DEVICES THAT CONSUMERS CAN USE PROTECT THEMSELVES FROM CYANOTOXINS IN DRINKING WATER?

Third-party organizations are currently developing certification standards for in-home devices and are evaluating how reliably they can remove cyanotoxins from drinking water. The NSF International has certified some filters in their ability to reduce microcystin to below the national Health Advisory levels. More information about these treatment units and the contaminants they can remove can be found at: <http://www.nsf.org/Certified/DWTU/>.

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WHAT ABOUT ANIMALS EXPOSED TO CYANOTOXINS THROUGH DRINKING WATER?

Cyanotoxins can be harmful to animals if they drink tap water contaminated with elevated levels of cyanotoxins. Contact a veterinarian if animals show signs of illness.

WHAT IS MY PUBLIC WATER SYSTEM DOING TO ADDRESS HARMFUL ALGAL BLOOMS OR CYANOTOXINS?

Des Moines Water Works has an aggressive testing regimen for the presence of harmful cyanotoxins when elevated cyanobacteria levels are present in raw water sources.

Des Moines Water Works samples three times per week during the warmer months of the year, and more frequently when necessary. The utility can also switch source waters between the Raccoon and Des Moines Rivers. Water conservation may be required in the event the levels of cyanotoxins become too high in the raw water source.

WHERE CAN I FIND MORE INFORMATION ABOUT HARMFUL ALGAL BLOOMS AND CYANOTOXINS?

For general information, please visit <http://www.epa.gov/cyanohabs> or contact your public water system, state, or local government. For information about harmful algal bloom-associated illnesses, please visit <http://www.cdc.gov/habs>.

WHAT CAN WE DO TO HELP PREVENT CYANOTOXINS FROM OCCURRING IN MY DRINKING WATER SOURCES?

Reducing nutrient pollution, such as excess nitrogen and phosphorus, is essential to decreasing cyanotoxins in drinking water sources. Excess nutrients may originate from agricultural, industrial and urban sources as well as from atmospheric deposition. Things you can do to reduce nutrients in drinking water sources include: using phosphate-free detergents, disposing of your pet waste properly, applying fertilizers only when necessary and at the recommended amount and volunteering in local watershed protection efforts. Additional prevention activities can be found at <https://www.epa.gov/nutrientpollution/what-you-can-do>.