Oregon Water and Algae Related Microcystin Information

Frequently Asked Questions (FAQ)

The City of Oregon relies on Lake Erie and Maumee Bay for our fresh water supply. We draw water from the bay and have successfully treated it to produce quality safe drinking water for decades.

In recent years we have faced some additional challenges from algae-related Microcystin, though these challenges are not substantially different from the routine treatment of other organics found in almost every fresh water supply. Because of the heightened public awareness of this matter following Toledo's issue last year, and new guidelines and recommendations from the U.S. and Ohio EPA, we believe it is important to provide additional information on the safety of our water as we move through the summer.

We do expect that we will detect algae-related Microcystin in our raw untreated water in the coming weeks as we do routinely in summer months. We also expect to successfully treat the water as we always have. The City is planning to post test results for Microcystin on the City of Oregon Water Facebook Page and the City of Oregon website.

It is important to note that Oregon is investing in an upgrade to our water treatment plant that will allow us to successfully treat organics such as Microcystin with Ozone treatment. Ozone will allow us to remove and treat for organics with much less chlorine after the upgrade is completed early in 2017. After this investment it will be easier for our community to put algae related Microcystin worries behind us.

Q: What is Microcystin?

A. Microcystins are a naturally occurring organic byproduct of blue green algae which are a group of organisms that are among the oldest on the planet. They can live in freshwater, salt water, or in mixed "brackish" water. Most people know them as "pond scum." These blue green algae can actually be many colors including green, red, orange, or brown. The appearance of blooms may also be described as fine grass clippings or small clumps. Blue green algae have also been found to share many characteristics of bacteria, which has led them to be known as "cyanobacteria."

Q: What level of Microcystin is safely allowed in our drinking water?

A. Microcystin in drinking water is currently not regulated, however the EPA advises that a 10 day exposure of 1.6 ppb is safe for school age children (6 and older) through adults and a 10 day exposure of 0.3 ppb is safe for infants and preschool children under age 6. In order to be protective and cautionary, the Ohio EPA has added additional sensitive populations to the 0.3 ppb exposure such as pregnant and nursing mothers, and those with pre-existing conditions of the liver or receiving dialysis treatment. Additional information can be found at http://www.epa.state.oh.us/Portals/28/documents/HABs/PWS_HAB_Response_Strategy.pdf

Q: What is the meaning of a 10 day health advisory level?

A. The 10 day health advisory levels (0.3 ppb and 1.6 ppb) are based on oral ingestion of drinking water at these levels for up to 10 days with no adverse effects expected. The advisory levels were established by the USEPA using an uncertainty/safety factor of 1000.

Q: What does it mean to have a safety factor of 1000?

A. The studies that tested the health effects of Microcystin were performed on laboratory mice, which are obviously not closely related to humans. To address these differences in species, the results have been multiplied by 1000 for setting the advisory levels.

Q: What does ppb mean?

A. The term ppb means parts per billion, or micrograms per liter. To give a better perspective, one ppb can be 1 blade of grass per 1 billion (1,000,000,000) blades of grass, which is equivalent to an area covered by 7 football fields.

Q: What are the possible effects of Microcystin exposure?

A. There are no harmful effects expected when exposure is limited to 10 days at the advised levels listed above. Consuming drinking water at the advisory levels beyond 10 days may result in abnormal liver function, diarrhea, vomiting, nausea, numbness, or dizziness. There is no medication available at this time for exposure to Microcystin, however, it is important to keep in mind that short term exposure at the advisory levels will not produce any harmful effects.

Q: When will an advisory be issued and how will the public be informed?

A. If there is a confirmed detection in the drinking water, a public notice will be issue by either the EPA or the City of Oregon. The Oregon Alerts (phone) system will be utilized in notifying the public, along with the Oregon website and the City of Oregon Water Facebook page.

Q: Can I safely bathe in water containing advisory levels of Microcystin?

A. Absolutely! The contact level for swimming/bathing has been set at 6.0 ppb, which is 20 times greater than the most conservative drinking water limit. It is important to distinguish here between higher levels in untreated lake water and treated water with slightly elevated Microcystin levels.

Q: Can I use water containing elevated Microcystin levels to water my lawn and garden, wash dishes, or feed my pets?

A. Yes you can, the majority of the water runs off the produce onto the ground for root uptake while the water that remains will be exposed to the sun's UV rays which destroys Microcystin. Dishes washed also shed the majority of the water as well and the remaining moisture will not contain enough Microcystin to be harmful. Pets can safely drink the tap water just as the people using the same 10 day exposure advisory.

Q: What precautions is the Oregon water treatment plant taking to prepare for algal blooms?

A. The water plant has installed a data sonde in the raw water supply coming from the lake at our Low Service pump station to give operators advance notice of any water quality changes which allows for necessary operational adjustments to be made to the treatment before the water arrives at the plant. Extra feeders for treatment chemicals have been set up, and standard operating procedures have been written to assist operators in techniques useful in removing algal cells.

Q: What actions are taken by the Oregon Water system when levels of Microcystin are detected in our raw water?

A. The water plant operators make adjustments to the chemical feeds throughout the process. PAC (powdered activated carbon) feed is increased at the pump station and also a secondary carbon feed is started at the plant for additional adsorption.

Additional aluminum sulfate is added as a coagulant to aid in removing intact algae cells during the treatment process.

Sand filters remove any remaining cells that did not settle out during coagulation.

Chlorine as an oxidizer works to destroy anything that remains after the treatment process. Water is in contact with the chlorine for nearly 24 hours prior to being pumped out to the city which gives it ample time to destroy Microcystin in most cases.

Q: What precautions should I take as a water consumer?

A. Being prepared for any emergency should involve having a 3 day supply of water on hand. Whether you buy bottled water from the store or refill your own containers at home, it will prove an invaluable resource in the event of water loss.

Q: If I bottle my own tap water for future use how long can I safely store it?

A. The CDC (Center for Disease Control) says you can safely store containers of tap water for up to 6 months.

Q: Can I safely store water in used milk jugs?

A. The CDC recommends not reusing milk containers, since even if washed thoroughly, bacteria may still be present.

Q: Where can I get additional information?

A. The City of Oregon website and the City of Oregon Water Facebook page will have the most accurate and current information.