

Harmful Algal Bloom Sampling Protocol
July 2015

- 1) Once an algal bloom event has been observed on a lake/reservoir utilized as a drinking water source, a sample of the “worst-case” portion of the bloom should be taken as soon as possible to determine if it contains cyanotoxins. This will be done using the recreational microcystin dipstick kit. If there is a nearby entity that has testing capability, (e.g., USACE staff at USACE reservoirs), this can be done locally. For other lakes/reservoirs where there is no local capability to perform testing, MDNR/ESP/Environmental Emergency Response (EER) or ESP Water Quality Monitoring staff will arrange for the testing.
- 2) If this initial testing determines that cyanotoxins are present, then a raw water microcystin dipstick kit will be delivered to all public drinking water treatment plants utilizing the lake/reservoir by either EER or MDNR regional office staff. MDNR staff will meet with the plant operator to discuss the plant’s treatment processes¹ and train the operator in the usage of the test kits. Each kit can analyze a total of 20 water samples².
- 3) Water treatment plant staff will be requested to visually observe lake/reservoir conditions on a daily basis, perhaps in communication with other local entities capable of observing other portions of the lake. The operator should conduct raw water analysis as follows:
 - a. If a bloom is visually observed to be located at or near the plant intake, the operator should perform daily raw water testing with the provided test kit.
 - b. If a bloom is present on the lake/reservoir, but is not located near the intake OR a bloom was previously located at or near the intake but has recently dissipated, the operator should conduct precautionary sampling of raw water 1-2 times per week until no blooms are observed anywhere on the lake or reservoir.
- 4) If raw water testing by the operator confirms the presence of cyanotoxins, then the operator should immediately conduct finished water sampling using the same kit (the provided kits have 20 test strips that will be capable of analyzing both raw and/or finished drinking water at levels between 0.0 ug/L to 5.0 ug/L).
 - a. If finished water sampling by the operator confirms the presence of cyanotoxins, the operator should immediately contact MDNR. MDNR will then arrange for the collection of several preserved finished water samples for delivery to ESP’s Jefferson City lab for more detailed analysis using their CAAS equipment.
 - b. If finished water sampling by the operator does not confirm the presence of cyanotoxins, the operator should continue conducting both raw and finished water sampling 2-3 times per week.

- 5) The samples collected pursuant to 4a will be analyzed by ESP staff using CAAS equipment. The levels will be reported to PDWB³ and others.
- 6) If the CAAS equipment confirms the presence of cyanotoxins, then daily samples will need to be collected and analyzed by the CAAS equipment until the bloom dissipates and cyanotoxins are no longer detected.

¹ MDNR staff will also discuss potential modifications to the treatment process to minimize the release of cyanotoxins, remove cyanotoxins via addition of Powdered Activated Carbon (PAC), etc.

² MDNR is ordering extra kits to replace any that are used-up by the water systems.

³ PDWB will determine the appropriate response action(s), including the possible issuance of a precautionary public notice and/or a limited or full Do Not Drink Order.