

## MICROPARTICULATE ANALYSIS (MPA) TESTING

DEQ will be requiring a number of systems to use the MPA method to do further assessment. Using the MPA direct evidence of microorganisms associated with surface water can be obtained from a water sample. **But the procedure is totally different from the bacteriological water sampling:**

- The water sample should be from the source, before any water treatment, NOT from the distribution system.
- Both organic and inorganic particles larger than 1 micron in size are filtered out of source water during a long-duration test typically lasting 18 to 25 hours. These particles are filtered out by circulating the water through a polypropylene yarn filter. Between 1000 and 1500 gallons of water are filtered at a rate of 1 gpm. Water pressure upstream of the filter is at most 10 psi.
- Special equipment is required and can be obtained by the laboratories that do the analyses.
- The sampling is NOT done on a regular periodic schedule such as monthly, quarterly, or annually. Typically only two samples will be required by DEQ. One will be taken during the spring high surface runoff (May to June) when the ground near the source is saturated. The other will be taken during the hot dry late summer conditions (August to September) when peak water demand occurs.

After the test, the filter is shipped to the lab in a similar fashion as bacteriological samples (i.e. in a cooled state in a refrigerated container). At the lab, the filter yarn is washed, and the wash water concentrated for microscopic analysis of slides. During the analysis, the slides are analyzed for indicator organisms of surface water, including giardia, cryptosporidium, insects and larvae, algae, diatoms, and rotifers. Based on the numerical abundances, a Low, Medium, or High risk factor for surface water contamination is assigned. DEQ provides detailed instructions for the MPA test. The [EPA manual](#) for the MPA method explains both the field and lab procedures. [PWS-5](#) explains how these risk factors are used in the GWUDISW process.

Only a few [laboratories](#) are certified to process MPA samples. Typically one sample will cost \$250-\$300. The MPA equipment can be rented from the labs for \$50-\$100.

Assistance is available. System operators and owners can request that DEQ staff provide the equipment and run the test. Midwest Assistance Program also offers the same services.