The Microscopic Particulate Analysis (MPA)

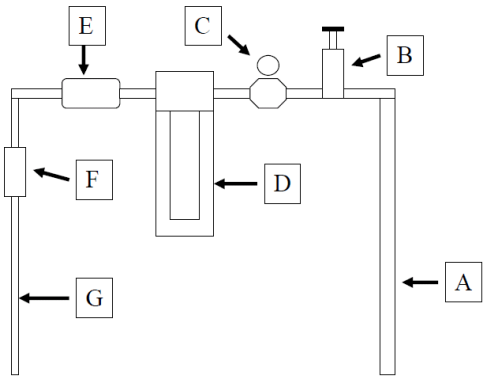
The Microscopic particulate analysis (MPA) is the current method in Oregon to determine if a water system is under the influence of surface water. Source water that has been confirmed positive for E. Coli indicates that the water system may be at risk from *Giardia* and *Cryptosporidium* and therefore an MPA must be conducted. Surface water organisms, such as diatoms, other algae, rotifers and insects are typically abundant in surface water. The MPA capitalizes on this occurrence, and, because diatoms and other algae are approximately the same size as *Giardia* (~10-15 microns[1]); these organisms serve as useful surrogates for the potential occurrence of *Giardia* in the water.

The MPAs are used to generate a relative risk factor for pathogenic organism such as *Giardia* and *Cryptosporidium.* In some instances, surface water pathogens (*Giardia* and *Cryptosporidium)* are filtered out by the natural conditions of the soil and underlying sediment. *Giardia* and *Cryptosporidium* do not occur in all surface water all the time. Therefore, simply testing the water for the presence of these organisms may not be representative of the water people are drinking year round. The MPA goes one step beyond testing the water alone and provides a mechanism to evaluate the natural filtration and the potential risk of pathogens in the drinking water source.

Conducting the MPAs

Sampling for a microscopic particulate analysis is **not** like a typical "grab sample". A grab sample requires that the water line is flushed and the sample bottle be filled. Collecting a sample for MPA is a carefully controlled procedure that requires specialized equipment operating over a period of at least eight hours; refer to diagram below. The MPA sampling requires a minimum of 500 gallons of water is directed at a rate of approximately 1 gallon/minute through a one micron cartridge filter. That filter captures all surface water organisms of that size and bigger. The filter is sent to the lab where it is examined under a microscope to identify the organisms present and their abundances. The MPA test then yields "score" that depends on the type of surface water organisms present and their relative abundances. Refer to OAR 333-061-0032(8)(h)(Table 11:Modified Scoring for MPA).

MPA Sampling device



A. Six-foot inlet hose with backflow preventer – (HG-80 female fittings)
B. Pressure regulator, adjustable, pre-set at 10 psi
C. Pressure gauge, 0-100 psi
D. Filter holder housing (Fulflo in Lebanon, IN, model F15-10) containing propylene yarn filter
(Carborundum Co., Lebanon, IN Model 39R10A, 2.5 inches in diameter and 9.75 inches long,
or equivalent)
E. Gallon meter
F. Limiting flow orifice, 1 gpm (3.79 liters/minute)
G. Six-foot discharge hose

For Technical questions regarding the MPA and scoring please contact the OHA Regional Geologist for your area:

OHA Drinking Water Services
444 A Street
Springfield, OR 97477
Phone: 541-726-2587 x24, 26, or 32