Fact Sheet

Des Moines
Water Works
Water You Can Trust for **Life**

Turbidity

Q: What is turbidity?
Turbidity is a measure of the amount of particles in water, often referred to as "cloudiness." The particles are usually soil, sand or mud, but can also include algae and other organic particles. Turbidity levels often vary depending on many factors. In rivers, turbidity can increase during rainfall or during increased flow. High turbidity reduces light penetration and visibility in the water, which in turn limits plant growth, fish movements and the ability of fish and birds to see their prey. It also harms fish and fauna by clogging gills and causing injuries to respiratory systems. When sediment settles, it can smother organisms living on the bottoms of waterways and alter the ecosystem.

Q: Does turbidity indicate how clean the water is?
Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria.

Q: How is turbidity measured?
A Turbidimeter is used to measure the degree of cloudiness in the water. A beam of light passes through the water and the amount of light deflected by the suspended particles indicates the level of turbidity.

Q: How is turbidity in source water treated to make drinking water?
Turbidity of source water is decreased by several processes, including chemical coagulation (clumping together of smaller particles making them heavier so they will settle), settling and filtration.

Q: What is the range of turbidity in the source water for DMWW?
Depending on different conditions, such as flood, drought, ice, etc., turbidity in the source water for DMWW can range anywhere from less than 10 Nephelometric turbidity units (NTU), which is very clear to over 1000 NTU (very muddy).

Q: What is the turbidity level of Des Moines Water Works tap water?
Des Moines Water Works tap water generally has a turbidity of less than 0.1 NTU.

Q: What causes turbidity?
A: Most turbidity comes from soil and riverbank erosion. Logging, dredging, extractive industries (such as mining) and sewage flow also add to turbidity. Turbidity also increases in urban areas where rain has few run-off areas and can quickly produce a large volume of fast flowing water. Places where poor agricultural practices are used when plowing, excessive farm stock grazing, unrestricted access by stock to streams and removal of vegetation that maintains bank stability and filters run-off also impact turbidity. Clay soils contribute to turbidity more than other soils.

Q: How can turbidity be controlled?
Taking care of the land is the best way to help control turbidity. Trees, plants and grass help to keep soil intact and out of the water. Forestry controls that prevent harmful clearing also can reduce turbidity. Controlling post-harvest burning is another way to reduce turbidity in water. Growing vegetation or creating wetlands near water areas helps to keep the soil out of the water. Many urban areas are practicing storm water management to help channel and drain water properly during high rainfall.

Q: What are the health effects of turbidity?
Turbidity itself has no health effects, but depending on the source of the turbidity, there could be hazardous organisms or compounds contained within. High turbidity in drinking water can shield bacteria or other organisms so that chlorine cannot disinfect the water as effectively. Some organisms found in water with high turbidity can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

For more information, call Des Moines Water Works at (515) 283-8700 or visit www.dmww.com.