

For interested water consumers of the City of Colusa this informative newsletter addresses manganese content, its health effects, treatment and other alternatives.

**What is Manganese:** Manganese is a mineral that naturally occurs in rocks and soil, and is a normal part of the human diet. Manganese may become noticeable in drinking water at concentrations greater than 0.05 parts per million (ppm) of water by adding color, odor or taste to the water. However, health effects are not a concern until concentrations are approximately 10 times higher than 0.05 ppm. City of Colusa reports manganese in all three sources ranging from 0.07 to 0.08 ppm of water. You may see manganese in your water as a brownish-red discoloration. It can also stain your plumbing fixtures or clothes, and may cause taste or odor. As a side note, the average cup of tea may contain 0.4 to 1.3 ppm of manganese.

**What is ppm?** In this case, ppm refers to 1 **part** manganese **per** one **million** parts water. An example of ppm is 1 inch in 16 miles, or 1 ounce of salt in 31 tons of potato chips.

**Health Effects:** Manganese is unlikely to produce types of toxicity such as cancer or reproductive damage. Bathing and showering in water containing manganese does not increase your exposure, since manganese does not cross the skin barrier nor does it get into the air.

**Treatment:** The treatment of manganese in drinking water is not always difficult, but it is, in most cases, very expensive to treat. In this particular case, iron accompanies the manganese, and greensand filtration is the best available technology for removal. A great deal of plumbing is required for greensand filtration, as well as the electrical controls to run the filter units automatically. In addition, a higher level of operator certification to run this process is required by the California Department of Public Health (CDPH) regulations. All of these issues add up to dollars of investment, maintenance and increased staffing needs. **This would mean increased water rates for consumers.** An engineered plan would give us exact costs, but it is safe to estimate that monthly water rates could double and perhaps even go higher for the City of Colusa water customers.

**Other Options:** A good water system flushing program is our best alternative to the more expensive treatment. The flushing process requires staff time and public cooperation. Perhaps more frequent flushing in areas known to have a higher incidence of manganese problems would be beneficial. Historically, City of Colusa has attempted to flush the system twice yearly, as allowed. Timing is crucial, as hot weather water demand weighs heavily on flushing program water requirements. In other words, when the sprinklers start running, it is hard enough to keep up with the normal demand for water without the added demand of a flushing program running several hundred thousand gallons down the gutter. Let us know when problems exist so high priority sections can be determined for more frequent flushing.

**Summary:** Although they are a nuisance, iron and manganese are common water contaminants that are not considered health hazards. Their presence in drinking water results in staining, as well as offensive tastes and appearances. We understand and are interested in hearing your concerns, but the small size of our town demands more consumer investment (higher rates) than is desired or may be even possible. For more information regarding Colusa's drinking water requirements, contact Frank Garofalo at 458-2032, ext 108, or Dan Cikuth at the CDPH Valley District Office, 415 Knollcrest Dr, Suite 110, Redding, CA 96002, phone (530) 224-4866.

Website for more information: <http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Manganese.aspx>