How Dangerous is Manganese in Drinking Water?

At the end of September you may remember headlines, such as “Manganese in water tied to kids' low IQ” (CBC News), in the news. The study, by researchers at University of Quebec, concluded that children exposed to higher concentrations of manganese in tap water had lower IQ scores. Much of the information provided in the news was brief and complicated, citing information such as “the average IQ of children whose tap water was in the upper 20 per cent of manganese concentration was six points below children whose water contained little or no manganese” (CBC News). So what is high manganese??

Manganese occurs naturally in the soil, leaching slowly from minerals and rocks. Industrial effluent, sewage and landfill leachate may also contribute to manganese in groundwater. Manganese is generally beneficial to the human body – in fact, it is an essential dietary element that helps build bones and regulate various enzymes and hormones in the body. High levels of manganese can be easily processed by the liver and usually do not pose a health risk to adults.

The Canadian drinking water quality guideline for manganese is an Aesthetic Objective (AO) of less than or equal to 0.05 mg/L. Levels of manganese above this level are currently not considered a health risk since we typically ingest more than this level in our food. However, levels above this guideline may cause staining or have an unpleasant appearance or taste. The World Health Organization health-based guideline is 0.4 mg/L, which is believed to be adequate to protect public health (WHO). The results in the Quebec study found that children that drank water with a manganese concentration between 0.2 and 0.3 mg/L had 6 points lower in IQ tests than children that drank water with a concentration of 0.01 mg/L. Their research findings support similar studies in other countries which found a relationship between high manganese in drinking water and IQ or related tests.

If you have high manganese in your drinking water (over 0.2 mg/L) and are concerned for your children’s mental health, you may want to consider using a carbon filtration pitcher for drinking water. There are more effective treatment options (e.g. greensand filtration), especially if you want to reduce levels below 0.05 mg/L. The *Drop on Water-Iron and Manganese* information sheet by NS Environment is a good resource for treatment options.

Manganese is one of many minerals that the EFP program tests for when we take water samples during our farm visits – be sure to get us to test your water on your follow-up farm visit!