

PLYMOUTH WATER AND SEWER DISTRICT NOTICE

Water Treatment Information May 2016

The Plymouth Village Water & Sewer District will be conducting necessary preventative maintenance to its two wells on Foster St. one of which historically has yielded discolored due to iron and manganese.

The District will be operating the second well from **May thru August 2016**. During this time Ortho-Polyphosphate treatment will be introduced to separate iron and manganese, and minimize discoloration throughout the distribution system. Iron and manganese are aesthetic components in drinking water that cause discolored water.

Water users are cautioned to check for discolored water prior to using, and it is recommended that laundry not be washed if discolored water is observed. The discolored water and/or Ortho-Polyphosphate treated water are safe for human consumption. This treatment is a necessary inconvenience to maintain the quality of the District's water system. If you have any questions please contact the office at 536-1733.



ARD-EHP-15

2006

Manganese: Health Information Summary

Manganese is a common element in the earth's crust, water, and particulate matter in the atmosphere. This element is used in manufacturing steel, dry cell batteries, electrical coils, ceramics, matches, glass, fertilizers, fungicides, and welding rods. Manganese may be used as an additive to animal food and in antiseptic solutions. It is also a constituent of a gasoline additive (MMT), primarily for fuel sold in Canada. MMT in US fuel supplies is currently at a very low 0.02 percent.

Manganese is an essential nutrient, present in all living organisms. While manganese is present in air and in most water supplies, the major portion of an individual's intake is derived from food. Drinking water usually comprises only a very small proportion of the total exposure.

The principal sources of manganese in the atmosphere are natural processes including continental dust, volcanic gas and dust, and forest fires. Other sources are industrial emissions and combustion of fossil fuels. In water, manganese may undergo chemical reactions or may persist for up to several hundred years. A survey of public water supplies found about 95 percent contained manganese at a concentration of less than 100 parts per billion (ppb).

Health Effects

Manganese Nutrition

Because manganese is an essential nutrient, a certain amount must be ingested on a regular basis to maintain health. Although the precise requirement has not been determined, 2.5 to 5.0 milligrams per day (mg/day) has been estimated to constitute an adequate and safe intake. Typical daily intakes in the United States range between one and 6.4 mg/day. Those who take supplements containing manganese may ingest an amount equal to the average intake from food. Foods that are high in manganese include nuts, beans, tea, and whole grains, while there is little manganese in meat, dairy, and refined grains. Therefore, individuals eating plant-based diets are likely to have the highest intakes of manganese. However, because plants also contain substances such as fiber that interfere with the absorption of manganese, the body is not able to utilize all the extra manganese provided by vegetarian diets.

Absorption

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Absorption

Limited data indicate that gastrointestinal absorption of manganese is low, averaging approximately 3 percent. The body has mechanisms that can usually control the total amount of manganese by increasing its elimination if excess levels are consumed. Because manganese and