DRINKING WATER HEALTH ADVISORY

_____Water System has high levels of Manganese**.**

DO NOT GIVE TAP WATER TO INFANTS UNDER 6 MONTHS OLD OR USE IT TO MAKE INFANT FORMULA

Our water system is routinely monitored by the Louisiana Department of Health (LDH) for primary and secondary drinking water contaminants. Sample results received on _____ showed manganese levels of _____. This level is above the Environmental Protection Agency's (EPA's) short-term health advisory (HA) of 0.3 mg/L for infants under 6 months old.

Manganese is a naturally occurring element found in soil, water, and air. It is commonly found in the food we eat, including nuts, legumes, seeds, grains, and green leafy vegetables and in drinking water. Our bodies require small amounts of manganese to stay healthy. Adults and children get enough manganese from the foods we eat. Infants and children get enough manganese from breast-milk, food, or formula.

Drinking water with manganese levels above the lifetime health advisory (0.3 mg/L) are not necessarily harmful to a majority of the population. An individual's nutritional requirements for manganese and potential for harmful health effects may be highly variable. In fact, some adults consume more than 10 mg/day of manganese in their diet without experiencing any harmful health effects.

Too much manganese can increase the risk of health problems, particularly for infants under 6 months old. Infants are more at risk than older children and adults because their brains and bodies are quickly developing. Formula-fed infants get enough manganese from formula to meet their dietary needs. However, they may get too much manganese (above the recommended amount for nutrition) in their bodies when formula is mixed with water that contains manganese. Infants exposed to manganese over 0.3 mg/L may experience learning or behavioral problems. Adult's drinking water with high levels of manganese for many years may experience impacts to their nervous system. EPA established a lifetime health advisory level of 0.3 mg/L which means adverse health effects are not expected below this level.

This health advisory is being provided because EPA identified health risks from short-term exposure.

What should I do?

DO NOT GIVE TAP WATER TO INFANTS. Formula and other food preparations for infants under 6 months old should not be prepared with tap water. Use bottled water or alternative sources of water for infants. Making formula or foods with water containing manganese levels above the health advisory can increase an infant's risk of health problems.

DO NOT BOIL THE WATER unless your water system issues a Boil Advisory per LDH requirements. Boiling, freezing, or letting water stand does not reduce manganese. Boiling can increase levels of manganese because manganese remains behind when the water evaporates.

Adults and children of all ages can continue to bathe and shower, brush their teeth, and wash clothes, food, and dishes in tap water.

If you have specific health concerns, you may wish to consult your doctor.

What happened? What is being done?

Manganese is naturally occurring element found in the groundwater source for the _____. (Water system should describe corrective actions being taken)

Where can I get more information?

See attached ***Frequently Asked Questions about Manganese in Drinking Water***.

For more information regarding manganese and drinking water regulations contact the Louisiana Department of Health at (225) 342-7499.

For more information regarding the _____, call _____.

Date distributed: _____, 2023

Frequently Asked Questions about Manganese in Drinking Water

What is manganese and where does it come from?

Manganese is a common, naturally-occurring element found in rocks, soil, water, air, and the food we eat. Manganese is an essential nutrient.

How are people exposed to manganese?

The majority of manganese exposure in the general population comes from food. Grains, beans, nuts, seeds, leafy vegetables, and teas are rich in manganese. Manganese is also found in breastmilk and infant formula. Although the primary source of exposure to manganese is food, drinking water can increase the overall dietary intake of manganese.

Is manganese regulated in drinking water?

No. There is no national primary drinking water regulation (NPDWR) for manganese. The Safe Drinking Water Act (SDWA) requires the EPA to evaluate unregulated drinking water contaminants. EPA included manganese on the fourth Contaminant Candidate List after considering new health effects information. The Agency is now gathering occurrence data for manganese in public drinking water systems as part of the fourth Unregulated Contaminant Monitoring Rule (UCMR 4). The next step of the SDWA process will be for the Agency to consider this occurrence information and available health effects information to evaluate whether EPA should develop a NPDWR for manganese.

EPA's Drinking Water Health Advisories

EPA's 10-day Health Advisory manganese value for bottle-fed infants younger than six months is 0.3 mg/L (or 300 µg/L).

EPA's One-day and 10-day value for adults and children older than 6 months is 1 mg/L (or 1000 µg/L).

EPA's Lifetime Health Advisory value is 0.3 mg/L, or 300 µg/L.

Why does the EPA have a "secondary standard" for manganese in drinking water?

Manganese is among 15 contaminants for which the EPA has established National Secondary Drinking Water Regulations ("secondary standards") that set non-mandatory water quality standards. They are intended as guidelines to assist public water systems (PWSs) in managing their drinking water for aesthetic considerations. The EPA's secondary-standard concentration for manganese is 0.05 mg/L (or 50 µg/L) and addresses potential staining of plumbing fixtures and laundry, taste, and color effects that may occur above that concentration.

Does manganese cause "hard" water?

Water hardness is a measure of how much manganese and calcium is dissolved in water. Hard water does not readily rinse away soap and can leave deposits on glasses and plumbing. Water softeners are often used to reduce hardness by removing dissolved calcium and manganese.

Why are some drinking water systems testing for manganese?

The Louisiana Department of Health (LDH) monitors public water systems (using groundwater) every three years for manganese and other secondary and primary contaminants. Also, the EPA's Unregulated Contaminant Monitoring Rule (UCMR 4) requires all large drinking water systems and a subset of small systems to collect samples and report analytical results for manganese and 29 other chemicals. The purpose of this monitoring is to determine if establishing an enforceable national primary drinking water standard for these unregulated contaminants is warranted. Independent of UCMR, some water systems and states conduct voluntary monitoring for manganese and other unregulated contaminants.

What are EPA's Health Advisories for Manganese?

Health advisories (HAs) are concentrations in drinking water at or below which health effects are not anticipated to occur over a specific duration (i.e., a day, ten days, or lifetime). For manganese, drinking water concentrations above the lifetime HA are not necessarily harmful to a majority of the population. An individual's nutritional requirements for manganese and potential for harmful health effects may be highly variable. In fact, some adults consume more than 10 mg/day of manganese in their diet without experiencing any harmful health effects. However, bottle-fed infants who drink water containing more than 0.3 mg/L of manganese over a period of 10 days may have negative neurological effects.

People who have decreased ability to excrete manganese, such as those with liver disease, and the elderly are more prone to the negative effects of elevated manganese exposure than the general population.

How can I find out if there are elevated levels of manganese in my public drinking water supply?

Customers that are served by a public water system can contact their local water supplier and ask for information on manganese in their drinking water. Customers are encouraged to request a copy of their Annual Water Quality Report (also known as a Consumer Confidence Report). This report lists the levels of contaminants that have been detected in the water during the prior calendar year and identifies whether the system meets state and EPA drinking water standards. Water quality data (test results) for public water systems (PWSs) in Louisiana can be viewed at the LDH's **Drinking Water Watch** website: www.ldh.la.gov/drinkingwaterwatch.

The most recent Consumer Confidence Report can be obtained from your drinking water utility, by visiting their website or contacting them for a copy. The base CCRs for PWSs in Louisiana can be found at www.ldh.la.gov/ccr.

Also, if your public water system is collecting occurrence data for UCMR 4 and has submitted results to the EPA, those results may be found in the National Contaminant Occurrence Database (NCOD).

I live in a community with elevated manganese levels. Who do I call to get more information about what my water system/supplier is doing to address the elevated levels?

Contact your local water supplier to find out more about manganese in your drinking water. If you don't know who your local water supplier is, the information should be included in your latest water bill.

How does a utility reduce or remove manganese from water?

Manganese levels in drinking water may be controlled through source water management prior to water treatment and distribution. For example, a groundwater system may pump water from alternate wells or a surface water system may use a multi-level intake to utilize source water with lower background manganese concentrations.

If source water management does not result in a desired reduction in manganese concentration, multiple treatment options are available but are expensive and may require a water rate increase for customers. Prior to selecting a treatment option, monitoring should be conducted to characterize the concentration and form of manganese (e.g., dissolved, particulate, colloidal) in the source water, so that the most viable treatment option is determined. Chemical oxidation followed by precipitate removal, sorption and catalytic oxidation, ion exchange, and lime softening have been shown to be effective at reducing manganese levels in finished water.

How does a homeowner remove manganese from water?

Water softeners and reverse osmosis have been shown to be effective at lowering manganese levels in tap water, depending on the form of manganese in your water (dissolved or particulate) and concentration. Boiling water will not remove manganese but will instead concentrate it.

It's important to verify that the filter, purifier or treatment system is certified to the applicable standard for the reduction of the contaminants of most concern. For more information on home filtration treatment system certification, you can go to the following links: https://www.nsf.org/consumer-resources/water-quality/water-filters-testing-treatment/standards-water-treatment-systems or https://www.wqa.org/find-products#/. Filters found in refrigerators, water pitchers, or filters installed on your water tap are not effective at removing manganese and one should check with the filter manufacturer for specific detail. Also, keep in mind that any type of treatment device requires regular maintenance, such as changing filters, cleaning scale build-up, maintaining adequate salt levels in brine tanks, or disinfecting the unit. Failure to properly maintain a unit reduces its effectiveness and, in some cases, may make the water quality worse. Continued maintenance is necessary for the life of the device along with regular water testing to ensure the device is working properly. Ensuring your system is working properly may minimizes the need for testing.

Follow the manufacturer's recommendations for filter replacements and maintenance.

Frequently Asked Questions about Manganese in Drinking Water

Should I use this water to make formula for my baby?

For drinking water concentrations of manganese above 0.3 mg/L, do not use your tap water to prepare bottles or food for infants under 6 months.

If I have concerns about my child's health or my own, who should I contact?

If you have health concerns, you should speak to your health care provider.

Can I cook with the water?

For drinking water concentrations of manganese above 0.3 mg/L, infants, the elderly, and those with liver disease should avoid eating foods made with tap water such as soup. The tap water may be used to prepare foods, such as pasta, where the water is discarded prior to consumption.

Can I boil the water to remove manganese?

For drinking water concentrations of manganese above 0.3 mg/L, no, do not boil water that you intend to drink. Boiling will concentrate the levels of manganese.

Can I use the water to make ice and drinks?

For drinking water concentrations of manganese above 0.3 mg/L, infants, the elderly, and those with liver disease should avoid consuming the water. Do not use your tap water to prepare bottles or food for infants under 6 months.

Can I use the water to wash dishes and do laundry?

Yes, there are no health concerns associated with these activities. However, at concentrations above 0.05 mg/L, manganese can stain plumbing fixtures and laundry.

Can I bathe, shower, or wash my hands with the water?

Yes. Manganese does not easily absorb through the skin.

Can I brush my teeth with the water?

Yes, water with elevated manganese can be used to brush your teeth.

Can I give the water to my pets and livestock?

Information is not available on the effect of elevated manganese in drinking water on pets and livestock. Please contact your veterinarian.

If the manganese in my drinking water is currently elevated, should I expect it to return to "normal" levels quickly?

Generally speaking, the concentration of manganese and other naturally-occurring elements does not change significantly over short periods. This is particularly true if your water system relies on groundwater as its source. Centralized-treatment (at the public water system) or in-home treatment may be necessary to reduce high concentrations of manganese.

For more information:

- EPA's Office of Ground water and Drinking Water: https://www.epa.gov/ground-water-and-drinking-water
- EPA's Drinking Water Health Advisory for Manganese: https://www.epa.gov/sites/production/files/2014-09/documents/support_cc1_magnese_dwreport_0.pdf
- EPA's Secondary Drinking Water Standards: https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals
- EPA's Drinking Water Criteria Document for Manganese: https://www.epa.gov/wqc/drinking-water-criteria-document-manganese
- LDH's Safe Drinking Water Program website: www.ldh.la.gov/SafeDrinkingWater