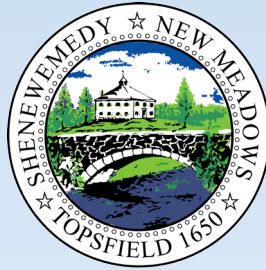


Manganese

**Essential nutrient in our diet,
nuisance in our water system!**

The Topsfield Water Department is considering construction of a water treatment facility to improve water quality to our customers. For many years now, naturally occurring manganese in our wells has created aesthetic issues in our supply causing staining of laundry and bathroom fixtures. Manganese is a common problem in New England and many of our surrounding communities on the north shore treat their supplies to remove manganese. In 2013, The Massachusetts Department of Environmental Protection (MassDEP) began regulating manganese for health purposes.

The Topsfield Water Department believes construction of a water treatment facility is needed to improve the quality of water provided to our customers. The residents of Topsfield will be asked to vote for the funding needed for the design and permitting portion of this project at the Annual Town Meeting held in May 2014.



**Gregory Krom, Superintendent
Topsfield Water Department**

Town of Topsfield
279 Boston Street
Topsfield, MA 01983
978-887-1517

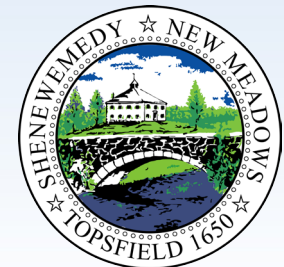
www.topsfieldpublicworks.org



Improving Water Quality for Our Community



Manganese
**Aesthetically unpleasant
causing laundry and fixture staining**



Manganese is a common problem in New England

Removal is possible using common water treatment technologies

Where does Topsfield's water come from?

Topsfield's water comes from two groundwater sources within the Ipswich River watershed. One wellfield is located off North Street and the second wellfield is located off Perkins Row. The wells have supplied water to Town residents since the late 1940's.

How did manganese get into our wells?

Manganese is found naturally in bedrock and in wetlands in New England. Manganese is common in municipal water supplies in Massachusetts.

Is manganese unhealthy to consume?

Low levels of manganese are primarily an aesthetic concern leading to staining of laundry and bathroom fixtures. The Massachusetts Department of Environmental Protection (MassDEP) recommends concentrations are kept below 0.05 milligrams per liter (mg/L) to avoid staining. MassDEP also recommends keeping levels below 0.3 milligrams per Liter (mg/L) to avoid health risks. If this level is exceeded, MassDEP will require steps be taken ranging from public education to treatment depending on concentrations. Information about the health effects of manganese is available on our website, www.topsfieldpublicworks.org, and in our annual water quality report. Removal of manganese from the well supply to levels well below 0.05 mg/L will correct both the aesthetic and health concerns.

How high are manganese levels in Topsfield's wells?

Manganese concentrations have varied over the years with only trace amounts detected in the 1980's and 1990's and levels as high as 0.5 mg/L observed in the last few years. The town regularly observes levels exceeding 0.3 mg/L which exceed MassDEP's new treatment threshold.

What type of treatment will be required?

The type of manganese present in Topsfield is easy to remove with sand media filters. This type of treatment "adsorbs" the manganese onto a special sand media called "greensand". The technology is simple to use and not overly sophisticated.

Where will the treatment facility be located?

The proposed location of the facility will be on Town-owned land behind the Public Works Facility off Boston Street (US Route 1). The facility will be largely hidden from view and not visible from any roads or existing homes.

How Much will Treatment Cost?

The current cost estimates to build a treatment plant is approximately \$7 million at current market values. The average annual water bill will increase if treatment is installed. This is in addition to other needed infrastructure projects such as water main replacements, source improvements and storage tank repairs.

Do we have other options?

The Water Department retained an engineering firm to study supply alternatives. The study found that building a treatment plant, over time, was more cost effective than purchasing water from another system through an interconnection. These costs will be borne by the water rate payers. The Water Department has operated on an enterprise accounting system since the late 1980s. Water Department finances are independent of the tax rate and all department related expenses are paid by revenue generated through water rates and fees.



Other Benefits of Treatment

A treatment plant provides others benefits in addition to removing manganese. Chlorine levels will be reduced and be more consistent. The plant will provide additional disinfection contact time, sufficient to meet USEPA's Ground Water Rule requirements. It will also protect against potential Surface Water Treatment Rule requirements that are always a concern due to the proximity of our wells to adjacent surface water. At any time MassDEP could mandate filtration if the soil formations near the wells do not provide enough natural filtration.

For more detailed information...

Your attendance at one of the informational meetings at the Town Library is highly encouraged:

Tuesday, March 25th at 7:30 PM

Thursday, April 24th at 7:30 PM

Feel free to call the Water Department at 978-887-1517, or visit www.topsfieldpublicworks.org