

# Ipswich Water Department Manganese Discussion

Proposed Action Plan

June 16, 2014

# What is Manganese (Mn)

- \* Naturally-occurring mineral in rocks, soil, groundwater and surface water
- \* Natural component in foods and an essential mineral in our diets
- \* Principal source of exposure is food
- \* Drinking water can increase overall intake

# Background

- \* October 2013 “Notice” from DEP to raise awareness of Manganese in drinking water
- \* Studies identified health risks particularly among infants and children
- \* Water suppliers *encouraged* to take action
  - \* Increase monitoring: started in Nov. 2013
  - \* Public education: released public notice Nov. 2013
  - \* Treatment: retained consultant to evaluate options

# MassDEP

## Manganese Health Advisory Levels

Target Population	Exposure Period	Health Advisory
General Population	Lifetime	0.3 mg/L
General Population	10-day	1 mg/L
Infants and children less than 1 year of age	<10 days	0.3 mg/L

At Manganese concentrations greater than 0.3 mg/L, parents are advised to use bottled or treated water for their young children, in particular to make formula.

# MassDEP Mn Policy

- \* Mn > 0.3 mg/L, but < 1.0 mg/L
  - \* DEP will assess if treatment is required
- \* Mn consistently > 1.0 mg/L
  - \* DEP will require treatment
- \* DEP advised Ipswich that Mn at Browns & Fellows is not considered high enough to warrant treatment

# Ipswich Water Sources

- \* 2 surface water reservoirs treated by WTP
- \* 5 groundwater wells
- \* 2 of 5 wells have Manganese levels of concern
  - \* Browns Well (High Street)
    - \* Mn 0.26 – 1.11 mg/L
  - \* Fellows Road Well
    - \* Mn 0.396 – 0.537 mg/L
- \* Customers consume a blend of water from various water sources

# Short Term Action Plan

- \* Maximize operation of WTP - ongoing
- \* Use WTP to maintain level in Town Hill Tank - Ongoing
- \* Repair well casing at Browns Well – Summer 2014
- \* Install VFD on Browns Well pump – Summer 2014
- \* Rotate use of wells – Ongoing
- \* Monitor surface water levels near supply wells – Summer 2014
- \* Optimize use of sequesterant – Ongoing
- \* Targeted flushing – Ongoing
- \* Increase sampling – Ongoing

# Long Term Options

- \* Fellows Road Well
  - \* Greensand filter system at well site
  - \* Upgrade water main on portion of Fellows Road
  - \* **Conceptual Cost Estimate = \$5.27MM**
  - \* With connection of Essex Road Well & piping
  - \* **Conceptual Cost Estimate = \$7.29MM**
- \* Browns Well
  - \* Greensand filter system on lot across from well site
  - \* **Conceptual Cost Estimate = \$4.07MM**

# What are we doing now?

- \* Maximizing use of WTP
- \* Rotating sources to provide rest period
- \* Optimizing use of sequesterant
- \* Performing targeted bleeding/flushing
- \* Performing Mn analysis of sources and distribution system monthly

# What we have planned...

- \* Repair well casing at Browns Well
- \* Install VFD on Browns Well pump
- \* Monitor surface water levels near supply wells
- \* Modify chemical injection locations as necessary to further optimize sequesterant

# Public Education

- \* Advisory to all customers November 2013
- \* Utilities Newsletter April 2014
- \* Additional customer resources in upcoming newsletter and website
  - \* Mn free bottled water: MassDPH website:  
<http://www.mass.gov/eohhs/gov/departments/dph/programs/environmental-health/food-safety/bottled-water/>
  - \* Mn free infant formula

# More Information

- \* Visit MassDEP's website:  
<http://www.mass.gov/eea/agencies/massdep/water/dinking/manganese-in-drinking-water.html>
- \* Questions related to Mn exposure and health contact Michael Hutcheson of MassDEP's Office of Research and Standards [Michael.Hutcheson@state.ma.us](mailto:Michael.Hutcheson@state.ma.us) or 617-292-5998