We work with others to protect the health of the people of Washington State by ensuring safe and reliable drinking water.

MANGANESE IN DRINKING WATER
UPDATE AND DISCUSSION
Washington State Department of Health
Office of Drinking Water

Manganese

\[
\begin{array}{c}
25 \\
\text{Mn} \\
\text{Manganese} \\
54.938
\end{array}
\]
Manganese

- Traditional View—Not A Health Concern
  - Aesthetic effects (taste and color)
  - EPA Secondary MCL—0.050 mg/L
- Mn—Recent Health Effects Research
  - Water different than food
  - People under 6—hyperactivity, mental abilities
  - Older people—increased risk of disease similar to Parkinson’s
- Regulatory Updates
  - USEPA (2003) Recommended health advisory levels (0.3; 1.0 mg/L)
  - Health Canada (2016)—Proposed maximum acceptable concentration of 0.1 mg/L (100 ug/L) mainly to protect bottled fed infants
  - Minnesota DOH—Advisory level of 100 ug/L for formula fed infants

Manganese—Effects on Child Development

- Study followed 362 children in southern Quebec, Canada

Ref. Bouchard et al., 2011

WA State DOH | 3
Manganese—Summary

1. Maximize treatment effectiveness
   - Treatment goal of 0.020 mg/L (20 ppb) or less
   - Reduce “legacy manganese” risk
2. Plan ahead for changes to
   - Hydraulics
   - Source
   - Treatment
3. Changes in manganese communications
   - Discolored water—Do not tell customer “just a nuisance” unless you are sure
   - Update publications to remove “manganese does not pose a threat to human health”