

Operator Quiz Corner – Fluoridation
(Dan Laprade, Training Coordinator)

Roughly 140 communities in Massachusetts provide fluoridated water to their customers. Nationwide the practice of water fluoridation gained traction between 1930 and 1950 when numerous studies, and controlled fluoridation in cities like Grand Rapids Michigan and Newburgh New York showed strong evidence of a dramatic reduction of tooth decay in children that drank fluoridated water. Today it is estimated that about 200 million Americans drink fluoridated water. The practice remains controversial with some studies showing health risks and others having concerns about whether or not drinking water is the best vector for addressing dental hygiene. You can learn more about water fluoridation by watching this video: <https://www.youtube.com/watch?v=Pxzif8z9imQ>
In Massachusetts, the decision to fluoridate rests with the local health agency.

Fluoride is a naturally occurring mineral and concentrations above 1000 mg/L have been found in waters from volcanic regions. In Massachusetts concentrations are typically very low and in most cases non detectable.

Whether your community practices fluoridation or not water operators taking both the treatment and distribution licensing exams will likely encounter a few questions on fluoridation. Answers to the following fluoridation problems can be found by going to the MWWA website and clicking on the “Education” tab and clicking the link under the heading “Answer to Fluoridation Practice Problems”.

- 1) True or false, fluoride is a regulated contaminant with an established maximum contaminant level (MCL) of 4.0 mg/L?
a) True
b) False
- 2) True or false, fluoride has a secondary maximum contaminant level (SMCL) of 2.0 mg/L?
a) True
b) False
- 3) The current recommended concentration of fluoride in drinking water is...?
a) 0.1 – 0.7 mg/L
b) 0.7 – 1.2 mg/L
c) 1.2 – 1.5 mg/L
d) 1.5 – 2.0 mg/L
- 4) When calculating the fluoride feed rate what data must be known in order to perform an accurate calculation?
a) The concentration (mg/L) of naturally occurring fluoride in the source water
b) The desired finished water fluoride concentration (mg/L)
c) The amount of water being treated
d) The purity of the fluoride chemical being used
e) The available fluoride ion in chemical being used
f) All of the above
- 5) The two most common methods of measuring the fluoride concentration in water are _____ and _____.
a) Titration and DPD

- b) MPA and Presence/Absence
- c) Gravimetric and volumetric
- d) SPADNS and Electrode