

# Fluoridation

Steven Drew, Director  
Water Resources



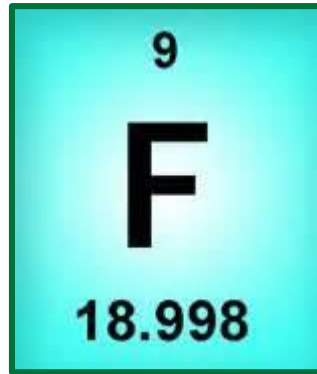
# Fluoridation

- What is Fluoride?
- How and Why is it used
- Recent Public Concern
- Agency Positions
- Local Authority to Fluoridate
- Operational Cost for City to Fluoridate
- Council Action for Consideration



# What is Fluoride?

- Fluorine is the 13th most abundant element in the earth's crust
- Fluoride is a compound from the element fluorine (F)



# Sources of Fluoride

- Toothpaste
- Supplements
- Mouthwash
- Processed Food
- Well Water
- Surface Water
- Drinking Water:
  - 0.7 to 1.2 mg/L (milligrams per liter)
  - 0.7 to 1.2 ppm (part per million)



# How and Why Fluoride Used?

- Early 1900's - Dr. Frederick S. McKay discovered that fluoride in drinking water prevented tooth decay.
- 1945 - Grand Rapids MI. became the first City in the world to add fluoride to drinking water.
- 1949 - Charlotte first City in NC.
- Over 64% of Americans drink fluoridated water including 150 Surface Water Systems in North Carolina or 88% of North Carolinians.
- All of NC's 15 Largest Water Systems Continue to Fluoridate
- Nearest Neighbor, City of Graham Stopped in February 2013

<http://www.nidcr.nih.gov/OralHealth/Topics/Fluoride/TheStoryofFluoridation.htm>

[http://usatoday30.usatoday.com/yourlife/health/medical/2011-01-07-too-much-fluoride\\_N.htm](http://usatoday30.usatoday.com/yourlife/health/medical/2011-01-07-too-much-fluoride_N.htm)



# Public Concern

- Concerns over Fluoridation of Public Drinking Water are rooted in political, moral, ethical, safety and economic factors
- Despite support by public health organizations and authorities, the practice remains controversial as a public health measure
- Consumer confidence has been challenged by recent water quality issues that have gained national attention
- As a result, local concern over Greensboro's practice of fluoridation has increased



# Agency Statements on Fluoridation

## **NCDEQ/Public Water Supply Section Position Statement Regarding EPA/HHS Fluoride Announcement - February 2, 2011**



The goal of fluoride treatment is to add enough fluoride to prevent tooth decay while avoiding the unwanted health effects from too much fluoride. Considering that the proposed recommendation of 0.7 mg/L is, according to EPA and HHS, based on “most up to date scientific data,” the Public Water Supply Section does not intend to pursue action if any system chooses to adjust their treatment process to achieve a fluoride ion (F) concentration in treated water in the range from 0.7 to 1.0 mg/L.

(NC Rules Governing Drinking Water Non Enforced Target is 1.0 mg/L)



# City's Authority to Fluoridate Drinking Water

## Fluoridation is Voluntary

The decision to fluoridate a water supply is made by the state or local municipality, and is not mandated by EPA or any other Federal entity. (15A NCAC 18C .1402)

## Greensboro City Council Resolution - 16 January 1967

Authorizing application to the NC State Board of Health relative to fluoridation of Greensboro's Public Water Supply.





# Limits for Fluoridation

Greensboro adheres to guidelines established by the US EPA and overseen by NC DEQ – PWS

## US EPA

0.7 mg/L New recommended dosage

2.0 mg/L Unenforceable Secondary Std.

4.0 mg/L Enforcement Std.

NC DEQ PWS New dosage range: 0.07 to 1.0 mg/L

Greensboro's target dosage: 0.7 mg/L



# Operational Cost to Fluoridate

## Annual Operational Costs 2 Water Treatment Plants

- \$59,000 Hydrofluorosilicic acid
- \$6,000 OSHA Safety
- \$25,000 Life cycle replacement for equipment, tanks, piping and ongoing maintenance



# Operational Impact

## If Fluoridation is Discontinued:

- Estimated Annual Operating Cost Savings of \$90,000
- Repurpose Equipment, Tanks and Chemical Feed Space
- Increased Employee Safety – Removal of Hydrofluorosilicic Acid
- No Drinking Water Treatment Process Value Loss
- Contract Suppliers Reidsville, Burlington and PTRWA Fluoridate
- Some Residual Fluoride Will Still Exist in the Distribution System

# City Council Action for Consideration

- Decision to Continue or Discontinue the Practice of Adding Fluoride to the City of Greensboro's Drinking Water