



# Colorado Water Fluoridation Guidelines

## Operational & Administrative Guidelines

Updated: August 2020

### INTRODUCTION

More than 70 years of scientific research has consistently shown that an optimal level of fluoride in community water is safe and effective in preventing tooth decay by at least 25% in both children and adults. Community water fluoridation improves the oral health of all residents, regardless of dental insurance coverage, access to health care, age, gender, income, race, or ethnicity. The Centers for Disease Control and Prevention (CDC) named community water fluoridation one of 10 great public health achievements of the 20th century.

Fluoride is present in varying amounts in almost all soil, water supplies, plants, animals, and thus is a normal constituent of all diets. Water fluoridation is the adjustment of the natural fluoride concentration in drinking water to the level recommended for optimal health. Adjustments of drinking water are in accordance with scientific and dental guidelines.

Data consistently indicate that fluoridation is safe, cost-effective and the most efficient means for reducing the incidence of tooth decay for all community members. Additional studies have demonstrated that oral health benefits are reduced if the optimal level of fluoride is not maintained.

The following is an overview of guidelines and recommendations for water fluoridation- [Engineering and Administrative Recommendations for Water Fluoridation, 1995.](#)

### GUIDELINES & RECOMMENDATIONS FOR FLUORIDATED COMMUNITY PUBLIC WATER SUPPLY SYSTEM

#### I. Personnel

- A. A trained water plant operator (one who has received greater than or equal to six hours of fluoridation training) should be responsible for each fluoridated water system.
- B. The CDC offers courses to assist with managing state fluoridation programs and water treatment facility operations.<sup>1</sup>

#### II. System Reporting Requirements

When the fluoride content of drinking water is adjusted, staff (water quality operator, etc) should be designated to report daily fluoride results to the Colorado Department of Public Health and Environment (CDPHE). These reports should be submitted each month to the state fluoridation program.

#### III. Monitoring and Surveillance

- A. Monthly reporting should be done on CDPHE fluoride monitoring forms and submitted to the fluoridation program at [cdphe.psfluoridationsmf@state.co.us](mailto:cdphe.psfluoridationsmf@state.co.us).
- B. Daily Monitoring: Water system personnel are expected to monitor daily fluoride levels in the water distribution system. Samples that will reflect the actual level of fluoride

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<sup>1</sup> <http://www.cdc.gov/fluoridation/engineering/training.htm>

in the water distribution system should be taken at points throughout the water system. The sites where samples are taken should be rotated daily.

1. In April 2015, the U.S. Department of Health and Human Services (HHS) released updated recommendations for fluoride levels in public drinking water supplies. The updated policy statement recommends that public water systems maintain fluoride levels at 0.7 mg/L.<sup>2</sup> CDPHE has adopted the HHS recommendation, and supports an optimal range of 0.6 mg/L to 0.9 mg/L. This range supports oral health for optimal health and decreases the risk of dental fluorosis.
- C. Monthly Split Sample: At least once each month, water system personnel should divide one sample and have one portion analyzed for fluoride by water system personnel and the other portion analyzed by the state laboratory or a state-certified laboratory.<sup>3</sup>
1. Split samples should be taken in the distribution system. You will want to collect the sample in the distribution system at a location which is representative of the flow to be sampled.
  2. We encourage you to conduct the split sample at the same time every month.
  3. Email the state laboratory chemistry department to request an analytical services form, [CDPHE\\_Chemistry@state.co.us](mailto:CDPHE_Chemistry@state.co.us). Once you receive the pre-populated form it must be filled out clearly. A few specifics to follow:
    - a. SAMPLE SITE:
      - I. Collected in Distribution System: If the sample was collected in the distribution system (i.e. after the first customer) Mark as "DS001 - RTOR".
      - II. Collected at the Entry Point: If the sample was collected at the entry point then use the sample point ID and facility ID listed on your [schedule](#) (e.g. "001 - 001").

**\*\*Please note fluoride samples collected at the entry point and analyzed using an approved method by a certified lab are considered compliance samples and must be reported as such.**

- b. SPECIMEN INFORMATION:
  - I. Collected in Distribution System: If the sample was collected in the distribution system mark as "Special Purpose".
  - II. Collected at the Entry Point: If the sample was collected at the entry point mark as "Routine" **\*\*Read note above.**
  - III. Comments - Indicate Oral Health Unit.
- c. After collection, please send the split sample as soon as possible (within 1-2 days) to the state laboratory for analysis. Delays in shipping risk exceeding the testing hold time of 28 days, invalidating any result and necessitating a re-sampling.

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<sup>2</sup> [http://www.publichealthreports.org/documents/PHS\\_2015\\_Fluoride\\_Guidelines.pdf](http://www.publichealthreports.org/documents/PHS_2015_Fluoride_Guidelines.pdf)

<sup>3</sup> It is the PWS responsibility to research another state certified lab, if not using the state lab.

- d. You will receive bottles and mailing information once every four months from the Oral Health Unit.

Fluoride variances greater than one-tenth of a point between the water system and the state laboratory split sample result should be addressed by the water system. Variances can be addressed by testing and recalibrating the equipment to ensure the water system is maintaining the targeted fluoride level. Failure to adjust testing equipment and align with state laboratory sample results will make all data reported to the state invalid.

- D. Each water system is expected to send monthly operational reports to the state. The report must include:
  1. The amount and type of fluoride fed and the total number of gallons of water treated per day.
  2. The results of daily monitoring for fluoride in the water distribution system.
  3. The water system's results of monthly split samples.
- E. The calculated dosage should be cross-checked against the reported fluoride levels to spot chronic non-optimal operation.
- F. There is no state requirement for checking fluoride levels in raw water.
  1. If a system wants to do an annual raw water fluoride sample it should be sent to the state lab.
  2. If a system is not adjusting to optimal levels and having issues, one analysis that could be conducted is to sample raw water fluoride levels. The outcome with this sampling is to get a system to provide finished water with optimal fluoride levels.
- G. Water systems must maintain 75% of the month at optimal fluoride levels for 9 of 12 months to be considered optimally fluoridated and meeting operational standards. Meeting this criteria, and split sample criteria, will qualify a system as eligible for a Colorado Excellence Award.
  1. The Centers for Disease Control and Prevention recognizes water systems that achieve optimal fluoridation levels for all 12 months with an annual Quality Award.

#### IV. Inspection

- A. All new or updated fluoridation systems must submit plans and specifications for the construction, improvements, or modifications for prior approval to ensure construction and installation plans are in accordance with state-approved specifications.
- B. State Water Quality Inspectors will inspect public water systems. At a minimum, the following will be inspected:
  1. fluoride equipment;
  2. fluoride testing equipment;
  3. fluoride additive storage area;
  4. inspection of the fluoride additive certification, additives must meet ANSI/NSF Standard 60 . Commonly cited accredited organizations for product certification include Underwriters Laboratories- <http://www.ul.com>, National

Sanitation Foundation- <http://www.nsf.org> and Water Quality Association- <http://wqa.org>;

5. the operation and maintenance manuals;
6. that only state-accepted backflow preventers and anti-siphon devices (as well as testing procedures for such equipment) are being used;
7. the on-site emergency plans (stipulated actions in case of overfeed and public-notification procedures to be followed)<sup>4</sup>;
8. the plant's security (e.g., placement of appropriate signs and fences to prevent entrance by unauthorized persons); and
9. the on-site safety equipment available to the operator.

Please contact the following with any questions:

Email: [cdphe.psfluoridationsmf@state.co.us](mailto:cdphe.psfluoridationsmf@state.co.us)

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<sup>4</sup> Engineering and Administrative Recommendations for Water Fluoridation (1995), pg 6, <http://www.cdc.gov/mmwr/preview/mmwrhtml/00039178.htm>