No. 9, Summer 2007

To: State Water Fluoridation Programs, State Dental Directors, State Drinking Water Programs

Subject: Program Update—CDC Community Water Fluoridation

The Centers for Disease Control and Prevention (CDC) Community Water Fluoridation Program periodically issues this update on program activities and resources for water fluoridation specialists, engineers with state drinking water programs, and state oral health officials. Please feel free to forward this update to anyone who might benefit from it.

Water Fluoridation Training

The CDC-sponsored course on basic community water fluoridation, **Water Fluoridation: Principles and Practices,** will be conducted next in Murfreesboro, Tennessee, during the week of October 22–26, 2007. The course is intended to build the skills needed to manage and operate a state water fluoridation program and to train engineers in fluoridation engineering principles. If you have a staff member who would benefit from this training, please have him contact us for registration information. Information on the training is available on the CDC Fluoridation Web site.

Water Fluoridation Quality Awards

CDC's Water Fluoridation Quality Awards annually recognize water systems that consistently adjust water fluoride to optimum levels. For an adjusted water system to be eligible for this award, the state must have documented in the Water Fluoridation Reporting System (WFRS) that the adjusted fluoride level for the water system was in the optimal range for all 12 months in a calendar year. Trends show increased use of WFRS as a regular management tool—the number of states having water systems earning the CDC Quality Award increased from 17 in 2003, to 18 in 2004, to 23 in 2005, and to 26 in 2006.

Fluoride Additives Supply Update

Many water utilities have experienced fluorosilicic acid (FSA) delivery disruptions in the past several months. Several industry sources have indicated to us that these shortages are regional and may last through the summer, but will likely improve later in the year. These disruptions are not expected to negatively affect the supplies of dry additives, sodium fluoride, or sodium fluorosilicate.

For the next several months, water utilities may experience supply limitations and unreliable delivery of FSA. A utility can work to minimize supply disruptions both now and in the future by taking the following steps:

1. Place orders early. When the supply is anticipated to be limited, it is important that suppliers have a reasonable idea of when orders will be placed and are given sufficient lead time.

2. Monitor inventories. It is important to understand the inventory of product available within a facility so orders can be placed in a timely fashion.
3. Calibrate pump delivery. Most FSA is handled by metering pumps, but facilities often do not properly calibrate the pump delivery. To extend supplies, regular and careful calibration of the metering pumps can ensure that sufficient solution is delivered within the optimal range.

If a water system anticipates that its supply of fluoride will be exhausted, it must notify the state fluoridation program of the termination date and date of resumption. For a community that has been consistently fluoridating, a few days, or even weeks, should not immediately result in an increase of tooth decay in community residents, since decay develops slowly. However, the system should notify its customers of the situation so they understand that everything reasonable is being done to ensure safe and healthy water for the community.

CDC has added frequently asked questions on temporary shortages of fluoride additives to its Division of Oral Health Web site.

Increasing Color in Some FSA Products

In the past several months, CDC has been asked to comment on the observed increase in color in some FSA products. This question about exceeding the American Water Works Association (AWWA) color standard for FSA is currently being addressed by the AWWA Fluoride Standards Committee. FSA can range from “water-white” to straw colored. The characteristic straw color is related to the iodine and phosphoric acid content. As iodine and phosphoric acid increase, the color of FSA will increase. The current color standard of 100 APHA units was established during a time when there was an excess of fluoride products, and was based on aesthetic considerations, not health concerns. The thought was that minimal color is more desirable than minor color. FSA with color in the 65–75 range typically contains total iodine in the 80–125 mg/L range (with scattering due to an imperfect data correlation). There is no operational, health, or scientific basis for the 100 APHA unit limit. After being diluted 250,000 times when added to drinking water, the color and iodine are not detectable.

The level of iodine in apatite ore varies; ore from some mines in central Florida has more iodine than the levels historically experienced. The same process that extracts fluoride from the ore extracts iodine in much the same manner. In the past, the "off spec" FSA was sold for other uses such as aluminum or glass flux, but those demands have disappeared. Recently, the total supplies of FSA have decreased for various reasons.

Since the EPA does not have a Maximum Contaminant Level for iodine, the National Science Foundation (NSF) has prepared an analysis on the levels of iodine that may have a health effect, either as a direct result of consumption or with respect to an ozonation derivative. The permissible levels from the NSF criteria are significantly greater than the maximum iodine observed in the colored FSA product. The preliminary data indicate that presence of regulated contaminants in the colored FSA product is the same as for lower-color product. At the June 2007 AWWA committee meeting in Toronto, the AWWA

Fluoride Standards Committee began the process of considering the data relevant to this issue. One confounding issue is that phosphoric acid also contributes to color; the committee is attempting to quantify the relative contributions to color by iodine and phosphoric acid. It should be noted that the European standards for drinking water FSA do not address color. AWWA may continue to stipulate a color standard or instead may decide to implement a numerical value for iodine and phosphoric acid. Because of AWWA procedures, all this may take 1 to 2 years.

New NSF Fact Sheet on Fluoridation Additives

NSF International publishes *NSF/ANSI Standard 60* concerning the purity and quality of water treatment chemicals. Most water fluoridation chemicals are certified by NSF in accordance with Standard 60, and a smaller portion are certified by Underwriters Laboratory in accordance with Standard 60. NSF periodically tests samples and issues the results as part of the certification process. It has recently issued a fact sheet on the quality of the 245 samples tested during 2000–2006.

Upgrade to Water Fluoride Laboratory Proficiency Testing Program

Proper measurement of fluoride in water requires diligence and attention to detail. Most states require split samples for water systems so that state reference laboratories can verify the methods that water systems are using. In April 2007, CDC implemented the new Web-based Water Fluoride Laboratory Proficiency Testing System (PTS) for submitting and reporting results. CDC will continue to enhance and improve this system over the next several months as user needs are identified and addressed. If you have questions about this important program, see the PTS fact sheet.

Please Contact Us with Questions or Comments

The Community Water Fluoridation Program is administered by CDC's Division of Oral Health, National Center for Chronic Disease Prevention and Health Promotion. If you have any questions or require assistance related to community water fluoridation, please visit our Community Water Fluoridation Web site.