

H₂O'C Engineering News - October 2003

Fluoride and Skeletal Fluorosis

The issue of safe levels of fluoride in drinking water has been raised anew (*Fluoride Concerns Surface Once Again*, American Chemical Society, C&ENews, August 25, 2003). While, in 1993, a National Research Council panel found the 1986 USEPA drinking water standards *acceptable*, a new NRC review will examine toxicological, epidemiological, clinical and exposure data on fluoride published since the 1993 review. Largely at issue is 'crippling skeletal fluorosis' which might occur owing to combined multiple exposures to fluoride through personal care products, topical applications, food, fertilizers and supplements. Although 55% of the U.S. population (162 million people) are supplied with fluoridated water to protect teeth, the NRC panel will not include a formal assessment of the benefits of fluoride. The review is scheduled for completion in November 2004.

Measure your System Residual's Persistence (Clean Pipe, Dirty Pipe)

Many of you who have attended H₂O'C water treatment plant operator training sessions have heard us preach about the benefit of each utility determining the persistence of their own disinfectant residual. We contend that, if your distribution system was perfectly clean (e.g., sterile glass pipe), the residual in your finished water should last, as a minimum, as long as the travel time in your system. Travel time might average several days and reach a week or more in remote areas (e.g., dead ends).

We suggest that you conduct a simple test in which you collect your finished water in a clean container, store it in the dark at a temperature comparable to the water in your system, and take samples daily to determine how long your residual will persist under ideal (clean pipe) conditions. If your water can't sustain a residual of, at least, 0.3 mg/l after three days in a perfectly clean container, you might want to give us a call.

However, it is no secret to operators that their distribution system piping is not perfectly clean. Instead, accumulations on interior pipe surfaces often exert an additional disinfectant demand due to surface reactions. The demand at the pipe surface commonly increases where velocities slow and pipe sizes decrease.

Bye-Bye, Water Lab Costs!

Most of a water utility laboratory's major analytical problems may be solved by a miraculous new water testing pen that sells for under \$20. In three seconds, it tests for "bacteria, pathogenic viruses, cyanide, mercury, lead, toxins and ions." Moreover, the supplier contends "its waterproof!" Order yours at <http://www.harborfreight.com/cpi/ctaf/displayitem.taf?Itemnumber=3106>

How Do the Japanese Do It?

From hybrid cars to sushi and origami, the Japanese have a way. At the MWWC meeting in Columbia this week, Tom O'Connor will provide some insight into way the Japanese do water and wastewater treatment.

Sayonara!