

Clearing the air on clearing the water

A U.S. Environmental Protection Agency rule for regulating drinking water long has been the subject of a possible court battle. In the March 5 *FEDERAL REGISTER*, the agency proposes certain additions to and clarifications of that rule in hopes of settling "most issues in the pending litigation."

The pending lawsuit concerns an EPA rule established to regulate the concentration of trihalomethanes (THMs) in drinking water. Trihalomethanes are substances that form when the chlorine used to disinfect public drinking water reacts with natural substances in that water (SN: 1/24/81, p. 54). Perhaps the most infamous trihalomethane is chloroform — a substance known to cause cancer in laboratory animals. In November 1979, EPA promulgated a rule that established a maximum level of 0.10 milligrams of all trihalomethanes per liter of water. The rule applies to all community water systems that add a disinfectant to their treatment process and serve at least 10,000 persons.

Partly on economic grounds, the American Water Works Association is challenging that rule. Joined by various other parties, the association asked the District of Columbia Court of Appeals to review what it terms "serious scientific, technical and procedural issues arising from EPA's development and promulgation of the regulation" (SN: 11/1/80, p. 278). During the past several months EPA officials have met with representatives of the various parties filing this challenge in an attempt to resolve the conflict. The result of these meetings is highlighted in the *FEDERAL REGISTER*.

For example, the original THM rule does not identify which generally available methods a water treatment system could be required to use in order to comply. Now, EPA proposes an amendment that lists those methods.

One method is to use either chloramine or chlorine dioxide — disinfectants that will not cause the formation of THMs — instead of or in conjunction with chlorine. Another method is to use powdered, activated carbon to reduce the level of organic material — THM precursors — in the water. Yet another method involves improving the existing methods for reducing THM precursors. A final proposed technique is the rearrangement of the steps in water treatment so that the chlorine is added only after a filtering out of the THM precursors. (Chlorination is the first step in some water treatment systems.) "Each of these treatment methods is a widely recognized water treatment technology, is relatively low cost and is within the technical capabilities of the vast majority of public water systems subject to the [THM] Rule," EPA officials report.

These proposed treatment methods, along with other clarifications of the initial THM rule, now must pass through various regulatory stages before it becomes an official amendment, says Ervin Bellack of EPA's Office of Drinking Water. Should the amendment become official, he says, "the understanding is that the American Water Works Association will drop the litigation."

Metaldehyde: The rain maker

High above the Great Salt Lake, Norihiko Fukuta is testing a substance he believes could make cloud seeding less expensive and easier to control in the atmosphere. Fukuta, of the University of Utah, is seeding clouds with metaldehyde ($[\text{CH}_3\text{CHO}]_4$) — an alcohol derivative 100 times cheaper than the silver iodide that now is used to make rain.

Preliminary results indicate that all of the metaldehyde evaporates in the cloud-seeding process. This is in contrast to silver iodide particles — some of which remain in the atmosphere and drift downwind where they can adversely affect the weather. Says Fukuta, "Metaldehyde doesn't present that kind of threat."

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Tooth decay down substantially

Tooth decay has declined substantially among American youngsters during the past few years, the National Institute of Dental Research reported in the February *NIDR RESEARCH NEWS*. The institute surveyed the prevalence of tooth decay among 40,000 children in seven regions of the United States during 1979 and 1980, then compared the findings from this survey to those of a similar one conducted by the National Center for Health Statistics during 1971 to 1973. It found that dental caries among American children decreased 25 percent to 32 percent from the time of the first survey to the next.

Although the institute is not positive why this decline has taken place, it thinks it is from the more widespread use of fluorides in drinking water, fluoride tablets, fluoride mouth-rinses and fluoride toothpastes. Support for this belief, in fact, was reported by Herschel S. Horowitz and colleagues of the *NIDR* at the annual meeting of the International Association for Dental Research in New Orleans last week. In 1972, Horowitz and his team assessed the prevalence of tooth decay among youngsters ages six to 14 in Nelson County, Va., which has little fluoride in its drinking water. Then elementary school children in the county exposed their teeth to more fluoride — chewing sodium fluoride tablets, rinsing their mouths with fluoride rinses and using fluoride toothpastes. In 1980 Horowitz and his co-workers assessed the prevalence of tooth decay among youngsters in the county again. They found a 49 percent reduction in dental decay among county children between 1972 and 1980.

Toxic shock and tampon content

Chemicals in tampons are not the cause of toxic shock syndrome, Miles J. Jones of the Mayo Clinic in Rochester, Minn., reported at the spring meeting of the College of American Pathologists and of the American Society of Clinical Pathologists in New Orleans last week.

Jones and his co-workers used the scanning electron microscope and gas chromatography/mass spectrometry to identify the exact chemical contents of six brands of tampons, including Rely, the tampon withdrawn from the market when linked to several early reported toxic shock syndrome cases. They found no inherently toxic substances in any of them.

As of January 18 of this year, there had been 1,568 cases of toxic shock syndrome reported to the Centers for Disease Control in Atlanta, with 84 deaths. Of the 456 cases reported to the CDC during 1981, 85 percent were among menstruating women, and about 98 percent of the women affected used tampons.

Winter weather and heart attacks

Some past studies have suggested that harsh winter weather increases the risk of heart attacks. Further evidence of this is reported in the March *AMERICAN JOURNAL OF PUBLIC HEALTH* by Anita Baker-Blocker of Advance Science Consultants in Ann Arbor, Mich.

She attempted to see whether winter weather in Minneapolis-St. Paul, Minn., from 1973 to 1977 could be statistically linked with the incidence of heart attack deaths in those cities during the same period. She found that it could, and that snow, or snow mixed with rain, was linked more strongly to heart attack deaths than were cold temperatures. Thus, snow appears to be more important than air temperature in triggering deaths from heart disease, she concludes.

Exactly how winter weather increases heart attack risk isn't known. However, cold temperatures have been shown to alter heart rate and to increase blood pressure, while snow shoveling and other chores may make people overexert.

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