

U.S. drinking water quality data flawed

88% of the violations go unreported

By Peter Eisler
USA TODAY

A1

WASHINGTON — Nearly 90% of all violations of the Safe Drinking Water Act are not reported in the government database that alerts consumers and triggers legal action when water systems don't meet health standards, a federal audit says.

The Environmental Protection Agency audit suggests there are tens of thousands more cases a year than previously documented in which water systems break safety rules.

Violations range from missed water quality tests to contamination problems.

"It's likely that regulators are unaware of many health risks to consumers that have been going on for extended periods," says Erik Olson of the Natural Resources Defense Council, an environmental group.

The audit, obtained by USA TODAY, reviews the accuracy of the Safe Drinking Water Information System (SDWIS).

The state-federal database is the main depository for information on 170,000 public water systems that must meet water quality and testing standards. It also is the basis for an EPA Web site that lets consumers check systems' records.

The audit blames many of the database's shortcomings on state regulators, who have primary responsibility for enforcing safety rules. Based on a sampling of state files and water system records, the audit finds that 80% of the unlisted violations are missing because states didn't report them.

Other problems include glitches in data transfers and different interpretations of what constitutes a violation.

State officials note that all but about 10% of the unreported violations involve failure to test properly. Many are missed deadlines or other errors that may not involve safety.

Most are resolved by "the water system and a (state) field engineer to our satisfaction" without being reported, says David Spath, head of California's drinking water program.

In an investigation last October, USA TODAY reviewed SDWIS data and found 40,000 water systems with violations of testing and purity standards. Of those, 9,500 systems serving 25 million people had violations that the EPA deemed "serious threats to public health."

The new audit suggests that the violations found by the newspaper might reflect just 12% of what is really occurring; 88% are going unreported.

"This (audit) is part of an overall effort that we're making to improve our data," the EPA's Chuck Fox says. "The job is obviously not done yet."

Study: Bus safer than driving kids to school

By Jayne O'Donnell
USA TODAY

A1

Parents worried about the lack of safety belts in school buses are not improving their children's safety by driving them to school, a report released today shows.

An average of 600 school-age children a year died in auto accidents during school hours from 1987 to 1997, according to an analysis of federal statistics released by Cal LeMon, an independent school bus safety advocate. During the same period, 11 children on average died while riding in school buses that crashed.

About 24 million students ride school buses, or half of all school-age children. Most of the others ride in cars, although some walk, ride bikes or take public transportation.

The 60-1 odds "should be a wake-up call for parents and make them think twice before driving their children to school or allowing teen-agers to drive to school unnecessarily," National Highway Traffic Safety Administration chief Ricardo Martinez says.

Many parents who are worried about the lack of safety belts on school buses drive their children to school. A survey financed by the government and the industry-backed School Bus Information Council found that one-third of parents believe incorrectly that driving their children to school is the safest way to get them there.

"The greatest threat of harm to their children is not violent incidents or weapons at school but their choice of transportation," says Mike Martin, executive director of the National Association of Pupil Transportation.

But Arthur Yeager, a school bus safety advocate in Edison, N.J., says that although "you don't want to have an inexperienced 16-year-old driving to school," it could be safer for parents to drive children if buses are poorly maintained or travel high-risk routes.

LeMon's report also shows that 21 states have some buses that were built before 1977, when many basic safety features, including high-back, closely spaced seats and padded interiors were federally required. Louisiana has the highest percentage on the road, 14%. Older buses made up 5% or more of school bus fleets in Washington, Oklahoma, Nebraska, Pennsylvania, North Dakota and South Carolina.

Smart mice could point way to brainier people

By Steve Sternberg
USA TODAY

A1

Researchers have genetically engineered a strain of ultra-smart mice, a study released today says, an advance that one day might lead to brainier humans and drugs to treat forms of dementia.

Ultimately, researchers say, the study in today's *Nature* could be the thread that unrav-

els the mystery of memory.

The mice, nicknamed "Doogie" after the precocious TV doctor Doogie Howser, excelled at navigating mazes, recognizing objects in their environment and sustaining their newfound knowledge, says lead researcher Joe Tsien of Princeton University.

The mice retain into adulthood the mental agility of youth and pass their brainpower on to their offspring.

later you have transgenic pups," Tsien says.

The gene, called NR2B, is taken up into every nerve cell in the brain. It holds the blueprint for a key part of the gate-way that ferries nerve impulses through the cell wall. The more NR2B there is in a nerve cell, the stronger the cell's link with other nerve cells.

The stronger these biochemical links, known as synapses,

the better memory will be.

In short, Tsien says, the gene acts as a switch that controls the brain's power to associate one event with another, a key feature of learning.

Charles Stevens, a neurobiologist at the Salk Institute in La Jolla, Calif., says the study is a giant step toward answering one of neurobiology's "really big questions: What is memory? That's why it's interesting."

B-3
Safety

Ancient trees need a little help from a friend: Fire

By John Ritter
USA TODAY

AI

SEQUOIA NATIONAL PARK, Calif. — No plant on Earth inspires more awe than giant sequoias, those cathedrals of antiquity that remind humans of their brevity.

Now, proof that wisdom comes with age, the big trees are playing a central role in the evolution of policies on forest fires in public lands.

It was the giant sequoias, some more than 2,500 years old, that taught foresters to revise their thinking about their worst enemy: fire. Today, foresters say they can use sequoias to teach a dubious public that fire is good for a forest.

And none too soon, scientists say. Decades of putting out — or trying to put out — virtually every fire have turned forests into dangerously overgrown tinderboxes, ripe for catastrophe far beyond the 200,000-plus acres burning this week in seven Western states.

The U.S. Forest Service estimates that 39 million acres in national forests alone are at high risk of major wildfires. Setting intentional fires to thin them out, called controlled burning, is a key strategy to ease the danger.

Yet despite a major federal policy shift in 1995, and quadrupled spending since then, the amount of controlled burning in the West remains small. Many forests are so thick with brush and trees that they need to be thinned first with chainsaws, but not nearly enough of that is being done, a General Accounting Office study in April found.

Moreover, an entrenched fire-suppression ethic dies hard, particularly in the face of a misinformed public, outright opposition and clean-air and water mandates.

"We have this vast backlog of literally hun-

dreds of millions of acres throughout the West that are more dangerous now than before fire suppression," Interior Secretary Bruce Babbitt says.

The GAO study predicted a 10-to-25-year window to thin forests "before damage from uncontrollable wildfires becomes widespread." But public opinion and a century-old "10 a.m. policy" — put out fires by 10 the morning after they're discovered — don't change easily. That's where giant sequoias come in. The trees are so revered — three of the first four national parks had them — and they elicit such an emotional reflex in people that they're seen as potentially powerful tools to educate the public about fire.

By using fire to help manage giant sequoia groves in the western Sierra Nevada, the only place on Earth where they grow naturally,

COVER STORY

foresters believe the public will not only see the value of controlled burning but also be willing to compromise on environmental concerns.

And cutting the risk of giant conflagrations that threaten lives and property has become an urgent public safety issue throughout the West as urban development nudges up against forests.

"We're strongly supportive of efforts to restore fire to its natural, ecological role," says Jay Watson, Wilderness Society regional director for California and Nevada. "But it's still largely misunderstood by the general public. The public sees smoke in the air and thinks it's a bad thing."

But to a giant sequoia, among the biggest and oldest living things, fire is critical to perpetuating the species. Fire creates openings in the forest canopy that allow sun-loving seedlings to thrive.

With fires suppressed during most of the century, sequoias simply didn't reproduce, except in a few places where logging had cleared openings. Practically no new seedlings took root. That alarming observation, that an entire generation of sequoia reproduction had been lost, sparked a research frenzy. The result was a 30-year learning curve that reshaped fire policy.

By the mid-1960s, scientists knew that the trees needed fire, but when they set off controlled burns in sequoia groves, no seedlings came up. It took a 1977 burn that got out of hand in Kings Canyon National Park to show them why.

A high-intensity fire scorched a 2-acre section, creating a "hot spot" within the much larger controlled blaze. Seedlings sprouted soon after, and scientists saw that low-intensity fire alone wasn't enough. There had to be spots, at least a quarter-acre, where all the other species that competed for water were burned off, where the soil was disturbed and where the heat opened sequoia cones so seeds could fall to the ground.

That had been nature's way, producing a Swiss-cheese mosaic in the 75 known sequoia groves up and down the Sierra. The trees are often found in clusters, three or four or more together, forged out of age-old hot spots.

Nathan Stevenson, a U.S. Geological Survey ecologist, took hundreds of core samples from giant sequoias to show the utter failure of 20th century reproduction. "Fire suppression has had a greater effect on giant sequoias than anything else humans have done," he says.

Scientists also noticed that after years of fire suppression, a lightning-ignited natural wildfire would burn so hot from accumulated brush that it killed mature sequoias. A 250-foot-tall, 20-foot-diameter sequoia is normally resistant to fire. Fire scars it — creating those blackened, hollowed-out "cat faces" around the trunk — but the tree heals and actually grows faster for a while after fires.

Tree rings as time capsules

Core sampling and the study of sequoia tree rings led to discoveries about the history of fire in the Sierras that scientists say have major implications for the 21st century. The rings are remarkable time capsules of year-by-year data on fires and climate.

Some of what was learned seemed self-evident: Fire was more frequent and severe in drier, hotter years and less frequent in wetter years. A pattern became apparent: Fire came often to sequoia forests, every eight to 20 years, and usually at low intensity. Occasionally a severe blaze would rip through.

Samples from groves up and down the Sierra revealed years, as many as five a century, when fire didn't just burn single groves but was prevalent throughout the mountains. Of course, in these "regional" fire years of the past, the forests weren't overgrown as they are today. Today, a regional fire year means millions of dollars in firefighting costs.

Even more sobering was what the rings told scientists about drought. The bottom line:

1/2