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Hazards in the water

Turning on the faucet. Taking a bath. Washing dishes. Seemingly mundane tasks have turned into big headaches for small communities and districts across the state whose shoddy systems drew public health orders.

By David Olinger
The Denver Post

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More than 150,000 people in Colorado drank from water supplies last year that violated public health standards.

Nearly all these problems occurred in small communities and water districts, which have been struggling with new federal rules and aging distribution systems.

In 2008, a salmonella epidemic hit a water supply with decaying infrastructure, squirrels found their way into another drinking-water storage tank and died, and live birds fouled another. In one town, people defiantly drank unfiltered water from a stream despite state orders to boil their water since last spring.

Year by year, the price to fix Colorado's drinking-water infrastructure keeps climbing. Pending requests for state help to improve water systems have

Extras

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ballooned from \$800 million to \$1.3 billion since 2005. Forty-eight of these projects, totaling \$143 million, would treat water supplies posing acute or chronic health hazards.

Louise Malouff's 6-year-old son was among the children treated in emergency rooms after a pollutant — salmonella bacteria — invaded Alamosa's water supply.

As they waited for hours, he kept vomiting and passing bloody diarrhea. "He was lying on the floor like a puppy," she said. "He asked me, 'Mom, if I'm losing all my blood, am I going to die?' It just broke my heart."

Some infrastructure money in the \$787 billion federal economic-stimulus bill is coming to aid troubled Colorado water systems, but it's not nearly enough to assure safe drinking water statewide.

Colorado expects \$32 million in stimulus money to help finance drinking-water projects, about 2.5 percent of the total sought by hundreds of cities, towns and districts.

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"The amount of money available pales in comparison to the need," said Steve Gunderson, the state's water-quality director.

"A nick in the need," said Kevin Bommer, a Colorado Municipal League policy advocate. The federal funds "will help some communities and some projects that would not have gotten any assistance for some time. They will not solve the infrastructure problems."

This crisis is largely invisible. People typically notice infrastructure systems only if they fail.

"It's out of sight, out of mind," said Tom Curtis, deputy executive director of the American Water Works Association. "You turn on the tap, and water comes out. You flush, and it goes away."

Last year, the Alamosa water system gained national attention.

More than 400 people were sickened, and one man died, during its salmonella epidemic. It was the worst drinking-water disease outbreak nationwide since 2004, according to the federal Centers for Disease Control and Prevention.

Investigators suspect crumbling infrastructure, including a badly cracked water-storage tank, may have let a salmonella strain found in animal feces poison the water. When the epidemic struck, nobody had inspected the inside of the tank in 11 years. Six inches of sediment lay in the bottom. Bird droppings covered the roof of a nearby water tower that was missing bolts.

The salmonella outbreak was Colorado's worst infrastructure crisis last year. But it was by no means the only sign of trouble with drinking-water supplies.

Public health risks increase

In the past two years, the Colorado Department of Public Health and Environment has dealt with 120 "acute" drinking-water incidents that posed potential public health risks — up from 68 during the previous two years.

Last year there were 62 state orders to boil tap water or drink bottled water. Nearly half were caused by broken water mains or other maintenance issues.

Two water districts were ordered to boil water four times in one year, and the town of Rye has been told to boil its drinking water since May.

The health department says the growing number of acute incidents may reflect better reporting from local water systems, not a growing health risk. But it acknowledges that its current staff is insufficient to keep up with the combined effects of aging infrastructure, stricter federal rules and population growth.

"Currently, there is a backlog of about 120 community public-water systems with unresolved violations, and resources have allowed only one such system to be referred for enforcement," the Water Quality Control Division recently reported to the state legislature. "This type of performance will not be accepted under the new

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rules."

Ron Falco, Colorado's drinking-water program manager, said most of those inspection-based violations — inadequate maintenance or incorrect water sampling, for example — are not directly health-related. But new U.S. Environmental Protection Agency rules will require stricter state oversight, and there is a risk the agency "would find we're not doing an adequate job" of protecting water supplies, he said.

Overall, 97 percent of Colorado residents drink water that meets all health standards, Falco said. That's well above the EPA target of 90 percent and above the national average.

But that still meant 156,498 people in Colorado drank from water supplies with "health-based violations" in fiscal 2008, according to EPA data. And because those problems were concentrated in 100 small systems, almost one-eighth of Colorado's community water supplies violated health standards last year.

In Teller County, a pair of dead squirrels can still be seen lying side by side on a beam in a water tank that served 246 homes near the city of Woodland Park. The concrete tank has been drained, leaving Teller Water and Sanitation District No. 1 with no water storage. Woodland Park provided an emergency connection to its supply, promising water if a home in the district catches fire.

Even before the squirrels got in, the district was

confronting signs that its water system was old, substandard, leaking and breaking.

Systems show their age

Colorado let developers create their own quasi-governmental water and sewer districts, then turn the infrastructure over to homeowners after projects are completed. Many of these districts are now reaching the half-century mark with original pipes.

In the Teller district's case, a developer turned a golf course into a residential neighborhood in the 1950s. The board of homeowners who inherited its infrastructure found maps of water main locations sketchy. The whole system was woefully short of shutoff valves; if a water main broke anywhere, the entire water supply could be contaminated.

On one street, the water main was just 2 inches in diameter and so badly corroded that pinholes riddled the pipe. At times, the district's little water system lost half its water somewhere between the well and the faucets.

Service lines broke, compelling some homeowners to spend thousands of dollars to replace the pipe from the water main to the house. And when water mains also ruptured, board members discovered they had not been laid in compacted sand to minimize the risk of pipe breaks.

The contaminated tank, originally built for a golf course irrigation system, "is 50 years old this

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year. We knew we had problems," said Kent Brady, a district board member.

Four times last year, the district was told to boil water or buy bottled water. The squirrels caused one. Broken water pipes caused the other three.

"I just keep 18 jugs of water here in my dining room, right on the floor," said Ken Whitney, a retired architect who recently moved into the neighborhood. "That's how I take care of the water problem."

Small providers most in need

The Teller district has joined the growing list of small water providers pleading for state help with infrastructure repairs.

In most years, the health department has had little or no grant money for drinking-water projects. Those who wanted help applied for loans. This year will be a little different. Thanks to the economic-stimulus package, the department expects an extra \$32 million — and to use half of that to forgive principal on loans to needy applicants.

That falls far short of the nearly \$1.3 billion in pending drinking-water projects statewide, plus another \$456 million in new projects from cities seeking a piece of the federal infrastructure pie. It won't even come close to covering the state's highest-priority projects for public health.

A hundred miles north of Teller County, in a district just west of Brighton in Adams County, Hi

Land Acres homeowners were told to boil their drinking water four times last year.

"The bottom line is the entire infrastructure needs to be replaced," said Nancy Gay, chairwoman of the district board. The projected cost: \$1.5 million for 114 homes — \$13,000 per house. "That's a pretty hard issue to get passed," she said, even when the costs are spread over 20 years.

Her husband, Michael, who runs a water-leak detection company, said similar problems plague small drinking-water systems across the West.

"No construction standards, no inspection, cheaper-grade materials, now it's coming back to haunt us years later," he said.

In Rye, a small town in the foothills southwest of Pueblo, boil-water orders have been distributed every two weeks since last spring. The issue: filtration.

Rye had installed new filters to meet drinking-water regulations, but they clogged during spring runoff, costing the tiny town hundreds of dollars to replace them daily. Citing the cost, the Rye council decided in May to stop filtering the water.

The state promptly ordered Rye to boil water before drinking it.

"You should try running a restaurant where you can't use the water coming out of the sinks," said Cat Irvine, who served breakfast and lunch at the

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Rye Rendezvous. "I jury-rig a way to run my espresso machine. I can't wash or rinse any of my vegetables" in the sink.

She closed the restaurant last month.

At home, many Rye residents simply ignored the biweekly series of boil-water orders.

"I drink mine right out of the tap," Irvine said. "I don't know anybody in Rye who didn't just drink the water."

The town is getting state help with a water-treatment project that could end the boil-water orders this year. But "the poor people in the town of Rye, it's going to cost them a lot of money," Mayor Thomas Holgerson said. "Their water bills are just going to skyrocket."

Falco, the drinking-water program manager, urged Rye residents not to ignore the state orders. "It is not safe for the public to drink unfiltered surface water," he said. "Campers know not to drink unfiltered water."

Maintenance falls behind

In Hot Sulphur Springs, a town west of Rocky Mountain National Park, spring runoff last year turned the drinking water cloudy, violating turbidity standards. Turbidity, a general measure of particles in the water, is regulated like a pollutant because past disease outbreaks in drinking water have often been associated with high turbidity levels. The town ended up boiling its water for months.

Lauralee Kourse, a water and sewer district operator called to help Hot Sulphur Springs, found a water system that had not been properly maintained for a long time.

Incorrectly applied chemicals had eaten into the concrete of a drinking-water well. The town had some wooden water mains, and its galvanized iron pipes were so corroded that half the water produced was leaking out. The water smelled and looked dirty, and it was accumulating dirt between the treatment plant and the faucets.

"There was so much dirt and debris in the distribution system — it just got dirtier and dirtier," Kourse said.

Residents were told they could bathe in the water, but not to drink it or even brush their teeth with it, and to boil the water before washing dishes.

"When you turn on the tap and the water smells foul, and you hold up a glass of water and it doesn't look so clean, you just kind of know," said Yvonne Knox, a 52-year resident of the town.

Even so, in 2008 the town's voters rejected a property-tax increase to modernize their drinking-water and wastewater systems. But the town is now under a state order to meet water standards, and so its residents face a 47 percent increase for basic water and sewer service next month.

And Hot Sulphur Springs still needs to replace a

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chlorination well that has become too small, raising the risk that drinking water will get withdrawn before bacteria are killed.

Before the salmonella epidemic, Alamosa had one of more than 90 drinking-water systems in Colorado exempted from chlorination. All drew water from deep underground sources, and many remain reluctant to take on the expense of chemically sanitizing water that has been safe to drink.

Alamosa's public-works director, Don Koskelin, now sees that risk as too great in any aging water system.

Though Alamosa had safely consumed untreated drinking water for a century, Koskelin now offers this advice: "Any system that's not chlorinating now — start chlorinating. Unless it's all brand new, and you can vouch for every joint and every pipe, don't take a chance."

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