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New Rules Tackle Bacteria in Drinking Water

New national drinking water rules are expected to lead to fewer pathogens flowing out of the tap

By Brian Bienkowski and Environmental Health News | Thursday, January 10, 2013

New national drinking water rules are expected to lead to fewer dangerous pathogens coming out of the tap.

The new regulation, which was announced last month and takes effect within three years, switches focus to a type of bacteria that more accurately reflects the presence of pathogens that can make people sick.

The Environmental Protection Agency estimates that its revised rules will cost U.S. utilities an additional \$14 million a year. About 155,000 public water systems, providing water to more than 300 million people, must comply.

For two decades, water agencies have used an indicator of water quality called total coliform to check for dangerous fecal matter in drinking water. But its presence does not necessarily mean there's a public health threat. Under the new rule, the agencies will add tests for *E. coli*, the most dangerous pathogen. Discovery of any amount will spur immediate notification of customers.

"The total coliform notifications were a terrible way to communicate risk to the public," said Mark LeChevallier, a director at American Water, a nationwide water company, who served on an EPA advisory board that helped draft the revisions.

"All the previous notices did was meaninglessly scare people," he said.

The changes will let large water utilities focus more on public health instead of paperwork, said Gary Burlingame, director of the Philadelphia Water Department's Bureau of Laboratory Services.

"With 20 years of data since the rule, we know now that *E. coli* is the best indicator of safety in drinking water," Burlingame said. "We're the ones that know the system best – and now they're (EPA) letting us use our knowledge."

Environmental groups endorsed the revisions.

"This a major win for public health," said Lynn Thorp, a senior policy specialist with Clean Water Action. "It's rare to see us [environmental advocates], utilities, federal regulators ...speaking together on something like this."



Public water systems serving three million people must comply with the new pathogen regulation.

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E. coli, found in the intestines of animals and humans, can get into the water supply from runoff or sewage. It causes diarrhea, and in some people, especially children and the elderly, it can lead to kidney failure and death.

The most common *E. coli* infection in the United States afflicts about 70,000 people a year. Most of the risk comes from food; about 15 percent of the cases are from tainted water, according to the U.S. Centers for Disease Control and Prevention.

The changes revise the 1989 Total Coliform Rule, part of the Safe Water Drinking Act. Total coliform was used as a water quality indicator since the rule's inception because "that's what science told us at the time," LeChevallier said.

Utilities still must test water for total coliform, a broad category of bacteria, most of which pose no threat to humans.

LeChevallier said under the old rule, when tests found total coliform, utilities didn't have to locate the source of the bacteria and would just send the state monthly notices.

Under the changes, total coliform findings will force an investigation into the cause and utilities will have to fix it. If it happens twice in a year, a third party will inspect the utility. This is to stop problems before they happen – total coliform usually isn't a health threat but often is a harbinger of worsening water quality.

Smaller systems – with less staffing and resources to investigate total coliform detections -- will be most affected, said Mike Keegan, an analyst at the National Rural Water Association.

About 100,000 of the federally regulated systems covered are "small," serving fewer than 4,100 people, and about 62 percent of these small systems serve under 100 people, according to an economic analysis by the EPA.

While small and rural systems might have more costs, Keegan said the revision is a good thing because they will face fewer violations. Smaller systems have historically had more violations due to lack of money, staffing and other resources, he said.

According to the EPA, about 86 percent of small system violations are for record-keeping failures. Keegan said total coliform notices for the state and public cause many violations – with few health benefits. "It gives a lot of our smaller communities and rural areas a false impression about the safety of their water," he said.

EPA officials were unavailable to comment. But an agency analysis suggests that smaller systems will see the most improvement in water quality.

The agency expects the rule will result in fewer infections and illnesses but didn't estimate the decreases.

The estimated \$14-million increase in costs will be largely shouldered by smaller systems, according to large providers. The cost increase is mostly due to the need to investigate and fix when total coliform shows up.

"It would take a lot of tainted samples (with total coliform) for us to have to investigate," said Ricardo De Leon, a microbiology unit at the Metropolitan Water District of Southern California. "And even if we did, we have the manpower to do it."

J.C. Davis, a spokesman for the Southern Nevada Water Authority, said it would have no impact at all on their system. "I don't think we've ever had a month where we've exceeded total coliforms," he said.

Violations involving *E. coli* have totaled about 500 or 600 a year, according to EPA data, while violations for total coliform have consistently exceeded 5,000 annually.

The revisions signed by EPA Administrator Lisa Jackson, who will resign the post later this month, mark the first changes to the original rule. Utilities have until April 1, 2016, to comply.

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