



Radium filtering doesn't get rid of it

It's taken out of water but put on land, in rivers

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Dozens of northeastern Illinois communities are stripping their drinking water of cancer-causing radium, only to dump the radioactive element back into the environment in sludge spread on farm fields and wastewater pumped into rivers and streams.

State officials say the disposal methods won't threaten human health, food crops or wildlife. But critics, including some federal regulators, fear that in the rush to make drinking water safer, towns might be trading one radium problem for another.

Communities including Joliet, Channahon and Geneva draw their drinking water from deep wells laced with naturally occurring radium. To comply with federal regulations, most of the towns will flush the element through their sewage plants, dividing it between treated wastewater and nutrient-rich sludge that farmers welcome as an inexpensive fertilizer.

A new federal report suggests that future homeowners could inherit a significant problem if suburban sprawl transforms the farmland into subdivisions. As radium decays, it forms radon, an odorless gas that seeps into basements and can cause lung cancer.

Moreover, critics said, releasing concentrated radium into rivers and streams could harm fish and other aquatic life.

"We need to get the radium out of our drinking water, but I'm really concerned there could be side effects that could be even more hazardous," said Michael McCoy, chairman of the Kane County Board and a former water company engineer.

In an August draft report intended to give local officials advice about radium treatment and disposal methods, the U.S. Environmental Protection Agency concluded that spreading radium-contaminated sludge on corn and soybean fields could create radium hot spots that would require future cleanup.

Although sludge may be good for crops, the report said, "EPA believes such benefits should be weighed against potential hazards and risks of the practice."

Communities have been forced to act by U.S. EPA regulations ordering utilities to reduce radium in drinking water to 5 picocuries per liter of water (picocuries are a measure of radioactivity). The rules, along with a federal appeals court ruling, strengthened a legal standard that has been on the books since the mid-1970s.

Illinois records more violations of the federal radium standard than any other state. Deep wells in northeastern Illinois tap geological sources of the radioactive element, which has been linked to bone cancer and poses a greater risk to children than adults.

High levels from deep wells

Many of the northeastern Illinois communities that rely on deep wells post radium levels that are three to five times the legal limit, according to the Illinois EPA. (Radium is not a problem for any community that draws its water from Lake Michigan, or for homes that rely on shallow wells.)

Enforcement of the federal standard was delayed for years by legal battles and conflicting opinions about the risks posed by radium. The U.S. EPA once considered relaxing the drinking water standard but eventually decided enough research existed to keep it at 5 picocuries per liter.

A child under age 5 exposed to radium-laced water has 10 times the lifetime risk of developing cancer as someone exposed to the same amount of radium at age 25, according to the agency.

Two towns, Elburn and Oswego, are installing equipment that removes radium from drinking water and traps the element in containers that can be sent to a landfill in the Pacific Northwest licensed to handle low-level radioactive waste.

"If there is concern about what is coming into our water treatment plants, there's going to be concern about what is coming out," said David Morrison, the Elburn village administrator. "We figured at some point somebody would figure out we were just moving radium from one place to another instead of getting rid of it."

Officials in Joliet and most of the other towns with radium problems have rejected the system. They say it has not been tested thoroughly and could force dozens of local utilities to register as radioactive waste handlers.

The state already enforces limits on radium in sewage sludge. Under an agreement between the Illinois EPA and the Illinois Division of Nuclear Safety, sludge spreading shouldn't be allowed if it raises the level of radioactivity by more than a tenth of a picocurie per gram of soil.

State regulators recently have warned five communities with radium problems--Joliet, Channahon, Geneva, Huntley and Lake in the Hills--that they will need to cut back the amount of sludge distributed to farmers to reduce potential health risks, according to Illinois EPA records obtained by the Tribune.

Joliet, the largest Illinois community with radium problems, plans to challenge the state's limits.

"There is no basis in science for the state's standard," said Dennis Duffield, the city's director of public works and utilities. "As a result, I don't think there is a problem."

Lower water standard sought

As the Illinois EPA defends its limits on radium in soil, the agency also is pushing to make it easier to dump radium-contaminated wastewater into rivers and streams.

The agency is asking the Illinois Pollution Control Board, a state rule-making panel, to eliminate a 32-year-old standard for radium in surface water.



Tribune photo by Carl Wagner

In Oswego, Public Works Director Jerry Weaver is overseeing the installation of a filter that clears water of radium and stores the element. Some towns put the waste back into the environment.

All of the communities with radium problems violate the current standard of 1 picocurie per liter of surface water, but Illinois EPA officials said they can't figure out why it was set at that level in 1972. The standard apparently has never been enforced.

"We don't expect there will be any measurable difference in the aquatic environment" if the standard is eliminated, said Marcia Willhite, chief of the Illinois EPA water bureau.

While state officials said they couldn't find any scientific literature suggesting there is a problem with radium in surface water, opponents found several papers that document how radiation can harm wildlife.

One Florida study found that levels of radium in some freshwater mussels were high enough that the mollusks would qualify as low-level radioactive waste.

"I don't think the state looked very hard, if they looked at all," said Brian Anderson, a biology professor at Lincolnland Community College in Springfield and a former top official at the Illinois Department of Natural Resources. "Everything out there suggests this is a problem."

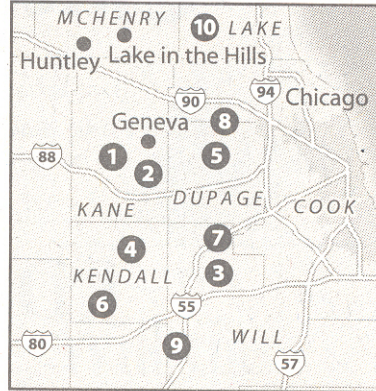
State officials don't think the new systems pose a risk to health or the environment, but would like a more definitive answer, Illinois EPA Director Renee Cipriano wrote in a recent letter to the U.S. EPA.

Said Cipriano: "Now is the time for all of us to be advised so that millions of dollars are not wasted on an unacceptable disposal alternative."

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Communities pushing to reduce radium in water

Many northeastern Illinois communities are installing expensive water treatment systems to bring down radium levels in drinking water. Water systems are allowed a maximum of 5 picocuries per liter for radium, which has been linked to cancer.



WATER SYSTEMS EXCEEDING FEDERAL RADIUM LIMIT

For communities serving more than 2,000 residents

WATER SYSTEM	POPULATION	RADIUM LEVEL *Level in picocuries per liter.
1 Elburn	2,236	24.5
2 Batavia	23,200	21.0
3 Joliet	106,221	19.1
4 Oswego	16,320	17.8
5 West Chicago	16,630	15.6
6 Yorkville	6,189	14.9
7 Romeoville	33,331	9.5
8 Bartlett	36,800	8.4
9 Channahon	5,094	7.5
10 Lake Zurich	17,591	6.8
Federal radium limit		5.0

*A picocurie represents the radioactivity in one trillionth of a gram of radium. Radium levels in sludge: This summer, state regulators told Joliet, Channahon, Geneva, Huntley and Lake in the Hills to reduce the amount of sludge they distribute to farmers.

Note: Numbers are from July 2003, but have generally remained the same.

Source: Illinois Environmental Protection Agency

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