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Has Trust Leaked Away With the Tritium?

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AP/Glenn Russell, Burlington Free Press Workers drilled a well from which water contaminated with tritium would be pumped and stored at the Vermont Yankee nuclear plant last month. Leaks from a pipe there caused an uproar.

A panel of experts convened on Tuesday by the Nuclear Regulatory Commission to discuss how the agency should approach tritium leaks at reactors suggested that the biggest risk that nuclear operators faced was the erosion of public trust.

“Tritium is one of the most benign of radioactive materials that I’ve worked with in my career, and I’ve worked with many of them,’’ said Dr. John E. Till, a veteran radiation expert who has led studies at several nuclear weapons sites to determine doses. “I’m surprised to be here based on what we know about the science of this material.”

“But on the other hand, the perception of tritium as a potential risk in the environment to the public is huge; it is absolutely huge,’’ he said. He called it the industry’s biggest problem since the Three Mile Island accident in 1979.

An industry representative on the panel, Alex Marion, a vice president of the Nuclear Energy Institute, said, “We’re facing a policy issue, and that issue is maintaining public trust and confidence.”

The recent discovery of leaks in an underground pipe that allowed radioactive tritium to flow into the groundwater at a nuclear reactor in Vermont has caused an uproar and drawn national attention to the tritium issue.

Tritium is a radioactive form of hydrogen that occurs naturally yet is also created in reactors. It is almost always incorporated into a water molecule like an ordinary hydrogen atom and is therefore impossible to filter out, and readily absorbed by the body. But it is also quickly excreted from the body, as ordinary water is, which limits the dose.

In fact, doses ingested appear so far to have been extremely small, even though nearly all reactors have reported leaks. The reason is that very little tritium has reached drinking water.

This is small consolation to critics, who point out that the industry has a history of unintended and sometimes unmonitored releases.

James P. Riccio, a nuclear expert at Greenpeace, says that while nuclear plants have permits that allow them to emit material into surface water and the air, they do not have permits that let them release material to groundwater, which is where the tritium is going.

Public officials also voiced criticism. William Buscher, manager of the hydrology and compliance unit in Illinois's state Environmental Protection Agency, said that part of the problem was with the Nuclear Regulatory Commission's approach, which he said was to wait for leaks and then fix them rather than trying to prevent them, and to leave contaminated soil in place until a reactor was ready to be torn down at the end of its life.

A nuclear plant's neighbors "have a right to put in a well and have it not affected by someone else's dirty nest," he said. Two twin-unit power stations in Illinois have had tritium problems.

"It is my opinion that the regulatory culture of the N.R.C. needs to be reexamined and remolded," he said.

A member of the audience, Paul Gunter, the nuclear expert at a group called Beyond Nuclear, criticized the regulatory commission for having allowed the industry to design and carry out an inspection campaign to look for leaks. "The agency has basically turned over the oversight to the industry," he said. (The group recently produced a report on leaks.)

Joining the meeting by telephone, Arnie Gundersen, a nuclear engineer who is a member of nuclear safety panel established by the state of Vermont to evaluate Vermont Yankee, offered guidelines for a tritium strategy. "The first prong is to keep the horse in the barn, and the second prong is that if the horse gets out, to find it quickly."

Accomplishing either is unlikely, he said, if the pipes in question are underground and hard to inspect, as is the case at Vermont Yankee.

But he added, "It's not about dose, it's not about public health, it's about regaining public trust."