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**Subject:** FW: Radioactive water may be following cracks in bedrock to Hudson

More local perspective.

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**From:** Lettmoden, Lynn  
**Sent:** Wednesday, March 01, 2006 6:05 AM  
**To:** Lettmoden, Lynn  
**Subject:** Radioactive water may be following cracks in bedrock to Hudson

Radioactive water may be following cracks in bedrock to Hudson

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THE JOURNAL NEWS

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**BUCHANAN** - Radioactive water moving toward the Hudson River may be traveling along tiny cracks in the bedrock created decades ago by explosive charges used during a construction project, Indian Point engineers and federal regulators say.

"When they blasted the bedrock in the late 1960s to early 1970s for the construction of various facilities, they created seams," said Jim Steets, spokesman for Entergy Nuclear Northeast, the owner of the nuclear plants. "Do they know exactly where those seams are? I don't think they do, but the seams created flow paths toward the river."

Indian Point officials released test results Monday showing for the first time that tritium, a radioactive material, had traveled to a testing well within 150 feet of the river. They added that the hairline cracks in the bedrock are not large enough to create structural problems for buildings at the site.

Officials from the Nuclear Regulatory Commission and Entergy acknowledged that tritium probably was reaching the Hudson River, though the isotope did not show up in tests near the waterline.

A second, more dangerous radioactive isotope - strontium 90 - has been found, however, said state Department of Health officials who tested a well closer to the 400,000-gallon spent-fuel pool where a leak of radioactive water was discovered in August.

State health officials completed those tests late last week and released them Monday as well.

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Entergy has estimated it will take six months to a year to determine the extent of the radioactive water release and clean it up.

NRC and Entergy officials say there is no indication that the more powerful isotope has made it as far as the river, but the company is continuing to drill wells to chart where underground water is traveling at the site and what it contains.

"We're still in the midst of our own special inspection and will be there every step of the way," NRC spokesman Neil Sheehan said.

There is no public health concern at this point, Sheehan said.

Yesterday, the NRC took more samples of water from a well that earlier showed tritium was closing in on the Hudson. Those results will probably not be ready for a week, officials said.

Health Department spokeswoman Claire Pospisill said her agency is continuing to test for strontium 90 at other Indian Point wells. Those tests take a month or more to run and must be done with very sensitive equipment.

The NRC has tentatively scheduled a public meeting on the leak and inspection for the end of the month, with a full report to be made public a few weeks later.

The company has hired a hydrologist to determine where water is flowing underneath the two nuclear reactors, which deliver about 2,000 megawatts of power to the region.

Most of the water below ground moves north to south, Entergy officials say, but the discovery of tritium closer to the Hudson River means the water is finding some east-west pathways.

One of the facilities built for Indian Point was a discharge canal that runs between the Hudson River and a large turbine building where nuclear energy is actually transformed to electricity.

The discharge canal has served as a means for the company to monitor the release of radioactive particles into the ecosystem. For instance, the company has a permitted release of tritium that just exceeds 1,800 curies - the unit of measure of radioactive substances.

The amount of radiation found in wells near the canal is a tiny fraction of that - so small it is measured in picocuries. A picocurie is a trillionth of a curie.

Still, the federal drinking-water limit is 20,000 picocuries of tritium per liter of water, and testing from the leak site to the Hudson River showed amounts varying from that level to 511,000 picocuries near the storage tank.

What created concern among local emergency officials and others when the latest testing data were made available Monday was that tritium showed up in greater concentrations - about 30,000 picocuries per liter - in a well that was on the river side of the discharge canal.

That meant the radioactive water was running below the canal, and its release was not being monitored or counted against Indian Point's tritium release allowance.

"We liked it better when the tritium was in the discharge canal, because that's a monitored pathway," Steets said. "We have another monitored with the new well, but is that the only place? We don't know. That's why we're digging additional wells."

Steets said there would be 14 more, part of a second phase of drilling that Entergy hopes will pinpoint the tritium plume underground.

As the hydrology reports - one by the NRC and one by the company - are finished, Entergy engineers hope to determine where the radioactive water originated. One theory is that it was released more than a decade ago during another leak.

So far, half-life tests done to determine the age of the water have been inconclusive. Tritium has a half-life of 12 1/2 years, meaning that half of its radioactivity dissipates every 12 1/2 years.

The company is continuing its efforts to determine if there are more leaks in the 6-foot-thick walls of the spent-fuel storage pool, which is 40 feet deep and poses enough danger that underwater divers can venture only so far without exposing themselves to deadly levels of radiation.