

Hanford released 'safe' iodine, nuke waste

Editor's Note: This is the last in a three-part series of articles dealing with the Hanford nuclear power plants.

By **MICHAEL THOMPSON**
For the Emerald

Radioactive iodine is a by-product of nuclear fuel reprocessing at the Hanford Reservation. It belches out of the top of high smokestacks and scatters in the wind. Since iodine-131 is poisonous, amounts leaving the stacks are monitored and kept within standards for permissible release into the atmosphere.

In this case plants and animals combined to give health officials an unexpected surprise.

Iodine leaving the stacks fell to the ground in communities near the Hanford Reservation, according to the 1964 Straub report. Grazing grasses concentrated the iodine. Cows ate the grass and further concentrated the iodine in their thyroid and milk.

Because of this unforeseen food chain situation, Hanford reduced the permissible release standards for iodine-131 to one ten-thousandth of the former "safe" level.

Where did the iodized milk go?

According to current Energy Research and Development Administration (ERDA) figures, over 50,000 lbs. of milk per day is produced in the two counties bordering the Hanford Reservation, enough to keep 74,000 consumers supplied with fresh milk. One fifth of the total is consumed locally,

while the rest goes to processing plants throughout eastern Washington, and in Portland and Seattle.

The Hanford Reservation contains 152 large concrete and steel underground tanks for the storage of high level radioactive wastes, each capable of holding one-half million to one million gallons. These tanks have probably accounted for more headaches than any other aspect of the waste management program.

Nuclear wastes have proven highly corrosive to steel tanks. The first leaks began in 1958, when the earliest tanks were ten to fifteen years old. By the time of the 115,000 gallon leak from tank 106-T in 1973, Atomic Energy Commission (AEC) records listed a total of 16 confirmed tank leaks which had allowed some 530,000 gallons of highly radioactive wastes to escape into Hanford soil.

Today the earliest tanks still in use are over 30 years old. Hanford's 1975 environmental statement predicts two to three tank leaks per year while liquid wastes are gradually converted into solid salt cakes or transferred to newer double-wall tanks.

The leak in tank 106-T began on or about April 20, 1973. According

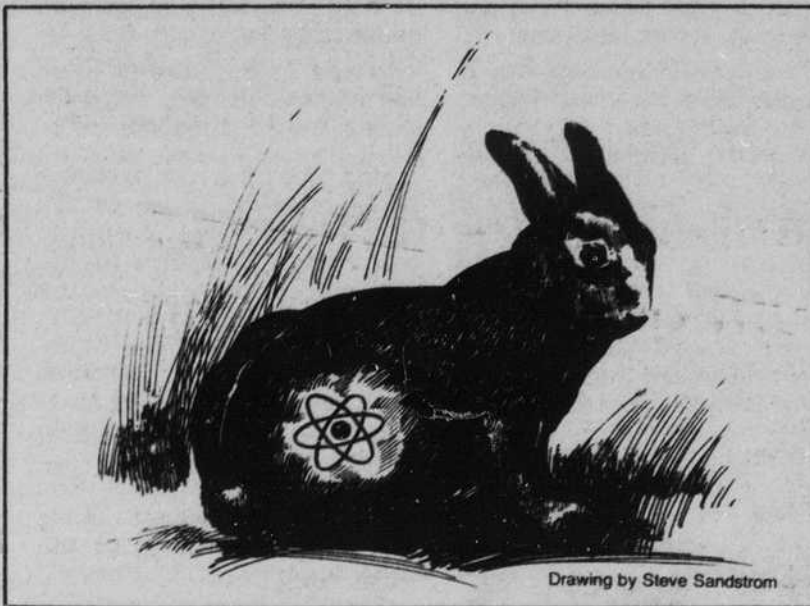
to procedures then in effect for monitoring waste levels, the leak should have been discovered no later than May 2, by which time some 26,700 to 37,600 gallons had spilled into surrounding soil. However, the leak continued unchecked for a total of seven weeks until June 8, while some 115,000 gallons of high-level radioactive wastes slipped forever beyond the control of the waste management system.

What went wrong?

According to the AEC investiga-

tion of this leak, the operators in question read the instruments that record the levels of liquid in the tanks once a week. Radioactivity levels in the soil were read monthly. In neither case were these expected to understand the significance of the numbers they read nor were they instructed to alert superiors when the liquid level dropped or radioactivity climbed.

The numbers were routinely placed on the desk of a supervisor who failed to review them.



Drawing by Steve Sandstrom

The report also criticized technical personnel further up the chain of command who, when they failed to receive the supervisor's reports on time, should have realized that they no longer knew the condition of the wastes under their care.

By then, say Hanford officials, enough of the hazardous radioactive elements will have decayed or been leached out in the soil so that dispersion of remaining wastes into the river will pose no serious health problems.

Other experts dispute this optimistic view. They point out that Hanford predictions are based on experiments with models rather than actual experience with the soils lying far beneath the Reservation. Some of the elements in the sinking waste will be dangerous for thousands of years. A few will remain hazardous for an estimated quarter of a million years, enough time, as one scientist has pointed out, for the next Ice Age to come and go.

"The thing that troubles me is that they no longer have control over it," said Robert C. Scott, a waste management expert with the Environmental Protection Agency.

Whatever the ultimate fate of the 106-T wastes, they are forever beyond retrieval.

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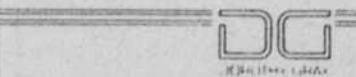
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