

WE CAN STOP HANFORD

by Barbara McLaughlin

Vivienne Fleisher

The United States Department of Energy finally released more than three hundred documents containing original information about emissions from the Hanford Nuclear Reservation during its forty year history in late February, four months after agreeing to do so.

Some interesting highlights include:

Due to corrosion in the ductwork at two reprocessing plants, by 1947 an estimated five hundred thousand to one million radioactive particles, including strontium 90 and plutonium — two very dangerous substances — were emitted into the atmosphere each month for several months.

In 1945, three hundred and forty thousand curies of radioactive iodine 131 were released because the plutonium production reactors were equipped with inadequate filtering systems that were not replaced until the early 1950s.

Then on December 2, 1949, a secret experiment was performed that released five thousand, five hundred curies of iodine that covered parts of eastern Washington and Oregon and was measurable on vegetation as far away as The Dalles. By comparison fifteen curies of iodine were released over a period of forty-three days during the 1979 Three Mile Island accident, meaning the 1945 release was twenty thousand times larger and the 1949 release three hundred and ninety-two times larger than the TMI release. The reason for the experiment is reportedly a national secret, though Washington Republican Representative Sid Morrison said it was to prepare for Soviet atomic bomb testing and Michael Lawrence of the USDOE said that it was to develop instrumentation and monitoring techniques and "had nothing to do with human experimentation." The documents reveal that no warning was made to the public at the time of the release and that no follow up studies were done to determine the health effects. In fact the only health physicist who was part of a DOE team that reviewed records prior to the release was there to assure that no gaps existed in the data! No epidemiologist was a part of this team.

Some quotes regarding this matter include:

"I think that we've got to figure out why this was done, why all the secrecy and what the potential health impacts are." — Oregon Democratic Representative Ron Wyden.

"The potential is widespread and we have a responsibility decades later to see if in fact we've created a health problem." — Representative Sid Morrison.

"I'm furious. Our government conducted a secret warfare experiment against us and didn't even tell us." — Richard Ray, who has a farm nine miles southeast of Walla Walla in Umatilla County, Oregon.

"Our environmental monitoring indicates that there should be no observable health effects from any of the releases that have occurred at Hanford in its forty-plus years of operation. And the record clearly shows significant reductions in environmental releases over the years." — Michael Lawrence, DOE-Richland Manager.

"Whether they went to check with people at hospitals checking thyroids (the gland potentially harmed by exposure to radioiodine) we don't know." — Ron Gerton, DOE-Richland Director of Safety and Quality Assurance. In reference to a Battelle Northwest Laboratory report that said that the greatest "whole body" annual dose of radiation the "hypothetical maximum individual" living off the Hanford site received was one hundred and ten millirems in 1963, Gerton also said, "Based on what we've seen in our data banks, the impacts are minimal." (The annual limit currently observed by DOE is five hundred millirems.) Battelle is under contract to the DOE.

As a citizen extremely concerned about Hanford and as a member of a peace group currently focusing on Hanford, I found the conference in January sponsored by the Oregon Hanford Oversight Committee both informative and inspiring. Hanford is a complex subject involving lots of technical material and one I have been studying for some time. It was extremely helpful to attend the morning workshop because much of the data I have been gathering was crystallized into coherency, thus increasing my understanding. In addition, many new facts were brought out.

To have the informational workshops was good and to follow them with strategy sessions was even better, for what good is it to have the information if you don't/can't act on it? A



speech by Bob Alvarez, who is the director of the Nuclear Power and Weapons Project at the Environmental Policy Institute in Washington, D.C., was particularly inspiring. His speech and the strategy sessions dissipated some of the cynicism I have also been gathering that there really is not much any of us can do, and my hope and enthusiasm were rekindled.

Probably the worst thing that happens at daylong conferences is the inability to absorb everything, thus losing much of what is gained. So for my benefit as well as the readers', I would like to share some of what I learned/relearned.

From the Health Effects workshop given by Jackie Kling and Gary Burkett:

— Hanford is considered by some to be the most dangerous place in the entire United States to live near.

— Many people/scientists feel that because alpha and beta ionizing radiation can be easily detected (alpha by the skin or paper and beta by thin metal or cardboard) they pose no serious health risk. But often the fact that to inhale or ingest minute particles of these radiations can cause severe health problems is not mentioned. For example, just one particle of plutonium is enough to cause cancer.

— Radiation has an accumulated effect and is not reversible. Once it is in the environment it stays there. It can cause cancer deaths, problems in utero, birth defects and infant deaths.

— Children, infants and fetuses are many times more susceptible to radiation than adults. Strontium-90, a beta radionuclide, is particularly concentrated in milk as it acts like a calcium molecule and thus is especially dangerous to pregnant and nursing women and children and infants.

— There has been no background study on Hanford. The Atomic Energy Act pulled surveillance from public health agencies and any independent studies must use Battelle's (Hanford contractor responsible for monitoring) data.

— The U.S. Department of Energy claims there is no contamination off-site.

— There was an accident at Hanford in the 1950s almost as great as Three Mile Island, in addition to the two releases in the 1940s which have already been noted that were several times greater than TMI.

— To find a rough estimate of storage time necessary to protect the environment from radionuclides, multiply the half-life by 20. Thus plutonium (alpha radiation, half-life 24,000 years) needs a storage time of almost 500,000 years; strontium-90 (beta, half-life 28 years) needs 560 years; cesium-137 (gamma, 30 years) needs 600 years; uranium-233 (alpha, 162,000 years) needs 3,240,000 years; radium 226 (alpha, 1,620 years) needs 32,400 years; and thorium 234 (beta, 24.1 days) needs 482 days.

— Sources of contamination from nuclear facilities are numerous and include: emissions in the air which can lead to exposure to deposited materials and/or direct inhalation; emissions in the water which can lead to an uptake by aquatic animals and become part of the foodchain, and which may be used for drinking, irrigation, swimming and sports; fuel transports which can lead to deposits to the ground and/or direct irradiation, and which could also become part of the food chain; deposits on grass and food crops which may be ingested by livestock or humans and provide even another way to become part of the foodchain.

— Radiation concentrates in algae, salmon, oysters and green leafy plants. Agriculture is a main occupation in the Hanford area. Eleven miles downstream from Hanford the water from the Columbia River is used for drinking and irrigation. No studies on agricultural products have been done.

— The USDOE, according to Bob Alvarez, regulates radiological emissions when they reach the site boundary. In contrast the Environmental Protection Agency (EPA) regulates them at the point they touch the environment. He also said the DOE estimates are based on theoretical mathematical models put into a computer and that their model shows that by the time radiation reaches the plant boundary it is so small it is insignificant. But data he received through the Freedom of Information Act showed doses of gamma radiation at the Savannah River Plant, a second generation Hanford, to be fifty times greater than the model.

From John Arum's workshop on the Repository:

— Nuclear fuel rods from the N-reactor at Hanford are cut and dissolved in nitric acid to extract plutonium to make nuclear weapons. This process produces a vast amount of liquid waste, which is currently stored in about two hundred tanks, approximately twenty feet in diameter, of which thirty are confirmed leakers, and one hundred are suspected leakers.

— All tanks were built with single wall construction until the 1970s when double walls were used. Current DOE disposal strategy for liquid wastes includes: burial where most waste would be processed for placement in repositories; all waste left near the surface in engineered and natural containers; high level waste that is easily retrieved would be processed for burial, and low-level waste that is hard to retrieve would be left near the surface; and finally, continue storage and maintenance as is.

— USDOE's final disposal plan and draft Environmental Impact Statement (EIS) is due in April but has been delayed for two and a half years. There will be a four month public comment period upon release.

— The timeline for the selection of the first national high-level waste repository, as established by the Nuclear Waste Policy Act of 1982, includes recommendation of the first site to Congress by the President in 1990 (the state in which that site is located has veto power which can be overturned by a mere majority in both houses of Congress), then the DOE submits a construction application to the Nuclear Regulatory Commission in 1990, the NRC approves or disapproves the application by 1993, preliminary operation begins in 1998 and full scale operation in 2001.

— The question was raised: If the first repository falls behind schedule as is likely, would states become more aggressive in shutting down nuclear power plants because of the waste problem? (Nuclear power plant waste is currently being stored on site.) In fact, signatures are now being collected to get an initiative on the November ballot to prohibit nuclear power plant operations in Oregon until the federal government licenses a permanent disposal site. To get a copy of the initiative contact Forelaws On Board (of which John Arums is co-director), Room 202, 320 SW Stark, Portland 97204.

— Of the nine original sites selected to deposit the nation's nuclear waste, seven were west of the Mississippi River although eighty percent of the waste is produced east of it. The three sites that remain for final consideration are west of the river: Hanford, Yucca



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