

# The nuclear threat to women

By Cynthia Halboth and Barbara Liske

"THE MUSHROOM CLOUD ROSE TO 40,000 FEET. IT BLOTTED OUT THE SUN. IT DROPPED ITS POISON DUST, ITS FALLOUT, ON EVERYTHING THAT STILL REMAINED NON-LETHAL IN HIROSHIMA. AND DEATH BY RADIOACTIVE SICKNESS FROM THE FALLOUT WAS THE FATE OF THOSE WHO HAD SURVIVED THE FLASH, THE RIVER, THE BLAST, THE FIRESTORM." —from "No Nukes"

34 years later the crippled Three Mile Island nuclear power plant faced the risk of a meltdown. State officials urged all pre-school children and pregnant women within five miles of the plant to evacuate immediately. Pennsylvania Governor Richard Thornburgh closed all 23 schools within a five mile radius of the power plant and urged anyone within 10 miles to stay indoors "until further notice." The evacuation was termed as "an excess of caution," with no probable immediate or future health effects being recognized. What they also failed to recognize is that all radiation is dangerous. Of all creatures on the Earth, human beings (pregnant women and children in particular) are one of the most susceptible to the carcinogenic effects of radiation. It takes only one radioactive atom, one cell, and one gene to initiate the cancer or mutation cycle.

To understand the dangers posed by nuclear power generation, nuclear weapons and nuclear warfare, we must acquire a basic knowledge of the nature of radiation and why it is such a threat to ourselves and our children.

Radiation is the name given to the invisible atomic particles that are released by unstable, radioactive materials. All unstable or radioactive elements eject or radiate particles and energy waves from their nuclei. This emission process, during which an element disintegrates into other nuclear forms is referred to as radioactive decay. In the course of this decay, atoms give off three major forms of radiation: alpha, beta, and gamma, named after the first three letters of the Greek alphabet. We cannot see, hear, smell, taste or feel radiation. Gamma radiation can penetrate our bodies if we are exposed to radioactive substances. Beta particles can pass through the skin to damage living cells, although, like alpha particles, which are unable to penetrate this barrier, their most serious and irreparable damage is done when we ingest food or water or inhale air that has been contaminated with radioactive matter. During the Three Mile Island incident farmers were advised to keep their cows in the barn for at least a week as radioactive iodine fallout was suspected around the area of the plant. Ingested by the dairy cows it is passed along in milk. If pregnant women or young children drink the contaminated milk it can lodge in the fetus's tiny developing thyroid, where, by damaging cells, it may indirectly inhibit the development of intelligence and mental function.



Thyroid cancer is also increased later in life as is hyperthyroidism, a condition which, unless detected in the first few days after birth, can produce mental retardation.

Radioactive particles (like the iodine near TMI) break through cell walls, damaging the cell and often the genes in the cell. A child formed from an egg or sperm mutated by radiation in a dominant way will show the results of that mutation. It may spontaneously abort or, if it survives pregnancy, it may turn out to be a sickly, deformed individual with a shortened life span. If this person then reproduces, half of her/his children will inherit the dominant gene and its deformities. A radiation induced recessive mutation might not make itself known immediately. A child might seem normal but carry the deleterious gene and pass it on to the next generation. Since the disease caused by a recessive gene will not manifest unless the child inherits the gene from both parents, it might not show up for generations. Diabetes, muscular dystrophy, hemophilia, certain forms of mental retardation and cystic fibrosis are among the 1,500 recessive diseases now known.

Another repercussion of a damaged gene is that it can control the cell's rate of division. Years later the damaged cell, instead of reproducing normally, manufactures billions of identically damaged cells. That process, called cancer, is most likely to occur when cells are dividing as they do during growth periods. That is why children are ten to twenty times more susceptible than adults to the effects of radiation and fetuses most vulnerable of all.

Radiation is measured in terms of rem or roentgen equivalent man units. Small doses of radiation measured in millirems can affect us as the effects of radiation are accumulative. A single dose of ionizing radiation of 125-150 rem to the ovaries may cause a cessation of menstruation in 50% of the women contaminated. A single dose of 170 rem can produce temporary sterility lasting from one to

three years and a dose of 500 rem will permanently sterilize most women.

Federal standards for nuclear reactors state that reactors cannot emit more than the amount of radiation tolerable by the infant thyroid gland. But the early fetus is at least 15 times more sensitive to radiation than the infant. If the Nuclear Regulatory Commission rulings were to be changed to target the fetus as the most sensitive of all human life, certain

types of nuclear power plants would not be able to reduce their emissions low enough to accommodate the fetus.

Nuclear power threatens all life on this planet. But it is the women who will face the ultimate responsibility for fleeing with our children in the face of a nuclear holocaust. It is us who must acknowledge our responsibility for safe reproduction of the human race. And it is us, as curators of life, who must take the lead in the fight against the dangerous, life-threatening uses of atomic power.

Women have been nurturers for centuries. Our voices have not always been strong. But we must make them heard to every man who is driven by power and ego gratification who contemplates the uses of nuclear energy and "limited nuclear war." We must make our voices heard to all the research scientists (1/2 of which are employed by the military) who do not question the consequences or morality of their "work." We must make our voices heard to all men who cannot envision what death means and who put the "national security" and "military needs" of our country ahead of the safety and welfare of it's people.

And finally, we must work together in this struggle, as did our sister Karen Silkwood, to make our power felt so that we may secure safe energy alternatives for ourselves, our children, and our generations to come.

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