

(1-in-400,000) or 5.0 per million (1-in-200,000) depending upon the correct radium level. Since the variance runs for $3\frac{1}{2}$ years, those same risks increase to 1-in-114,000 and 1-in-57,000 respectively over that period. These are real risks which apply now.

It is quite possible that the risk given above is understated. The Agency does not cite or provide two recent studies on cancer (including leukemia) and radium in drinking water. The respected Journal of the American Medical Association on August 2, 1985 carried a paper titled "Association of Leukemia with Radium Groundwater Contamination" and is authored by a physician, Dr. Gary H. Lyman and others. The article points out that "A significant association between leukemia incidence and the extent of groundwater incidence and the extent of ground water contamination with radium is reported herein". It urges further studies.

A related paper is "Drinking Water and Cancer Incidence in Iowa" by Dr. Judy A. Bean and others. This appeared in the American Journal of Epidemiology (Vol. 116, No. 6). A conclusion was "Incidence rates of cancers of the lung and bladder among males and of cancers of the breast and lung among females were higher in towns with a radium 226 level in the water supply above 5.0 pCi/l". More studies are also urged.

The USEPA is currently evaluating the radium standard. It may well find these two studies and others so convincing that the radium standard will be tightened in 1987.

A major point at issue in this and related proceedings is whether a "threshold" exists for ionizing radiation effects. The Agency's principal technical expert, Dr. Richard E. Toohey, feels that there is a threshold.

The April 26, 1986 explosion at the Chernobyl nuclear plant in the Ukraine has raised this same issue. The New York Times of May 18, 1986 in an article by Malcolm W. Browne sums up the controversy as follows:

The long term effects of relatively small doses of radiation include increased susceptibility to cancer, but these effects are hard to quantify and remain the subject of scientific controversy. According to one school of thought, there may be a threshold of ionizing radiation below which tissues are able to repair themselves, leaving a person essentially unscathed. But an opposing view is that any amount of ionizing radiation, however small, inevitably causes damage of the kind that can lead to genetic disruptions and cancer. The difference between these views accounts for the

widely varying predictions of the global total of cancer cases from Chernobyl's fallout.

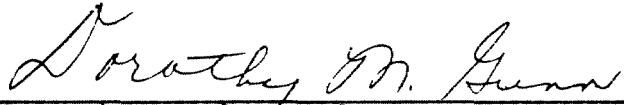
The USEPA risk estimate, mentioned above, is an annual risk. It is based upon the "no threshold" theory.

I agree that there is no threshold for radiation effects. Because there is a real risk to people of cancer and leukemia from the Oswego drinking water, I dissent.



Jacob D. Dumelle, P.E.
Chairman

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Dissenting Opinion was submitted on the 23rd day of June, 1986.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board

