ILLINOIS POLLUTION CONTROL BOARD June 20, 1986

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VILLAGE OF OSWEGO

Petitioner,

PCB 85-106

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,

Respondent.

DISSENTING OPINION (by J.D. Dumelle):

v.

The hazard to the public because of the grant of this variance may be far greater than apparent.

The Agency's data gives Oswego's combined radium level as 6.7 pCi/l compared to the State and Federal standards of 5.0 pCi/l. But Oswego's data show far higher levels; that of 13.5 ± 1.6 in the southwest portion of the Village and 13.5 ± 1.7 in the Windcrest Subdivision. These levels are more than twice those reported by IEPA.

The reason may simply be in the sampling frequency. The Agency samples were taken in four consecutive quarters and averaged. The Village's data are for a single day of sampling, that of September 5, 1984. Thus the Village may have inadvertently sampled in a high radium level quarter. Only more sampling will tell for certain.

Radium is a known carcinogen. It killed Madame Marie Sklodowska Curie and her daughter Madame Irene Joliot-Curie. It is a bone-seeker and caused bone cancers. And over the years as it breaks down within the body it generates radon gas which causes head cancers. It also may cause leukemia and other forms of cancer.

The Federal Register of August 14, 1985 gives the risk as "between 0.7 and 3 fatal cancers annually per million exposed persons" at 5 pCi/l of combined radium. At 6.7 pCi/l the risk would be 34% higher or 0.9 to 4, averaging 2.5. If the 13.5 pCi/l level proves correct, the fatal cancer risk becomes 170% greater or 1.9 to 8.1, averaging 5.0.

Thus <u>every year</u>, new residents drinking Osewgo's water will incur an individual average fatal cancer risk of 2.5 per million (1-in-400,000) or 5.0 per million (1-in-200,000) depending upon the correct radium level. Since the variance runs for $3/_2$ 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 <u>American Journal of Epidemiology</u> (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/1". 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 <u>New York Times</u> 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 <u>annual</u> 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. Øhairman

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Dissenting Opinion was submitted on the 23^{nd} day of 4^{nne} , 1986.

Dorothy M. Gun⁄n, Clerk Illinois Pollution Control Board