ILLINOIS POLLUTION CONTROL BOARD
April 25, 1972

In the matter of	)	
JOINT APPLICATION OF COMMONWEALTH EDISON CO. & IOWA-ILLINOIS GAS & ELECTRIC CO. (QUAD-CITIES PERMIT)	)	PCB 71-20

Dissenting Opinion by Jacob D. Dumelle

My reason for dissenting in this proceeding was simply that the Board did not set an upper limit of power generation in the variance at 550 Mwe per reactor. I agree in the outcome of the balancing process that the thermal damage, though regrettable, will be reversible and that the Quad-Cities station ought to be operated. However, I have consistently voted against the nuclear plant permits since the issue of plant safety related to Emergency Core Cooling Systems (ECCS) was aired before this Board by Dr. Henry Kendall on November 11, 1971. Since that time additional significant evidence has come forth in the hearings before the Atomic Energy Commission in Washington, D.C. on the ECCS interim criteria. A large number of competent nuclear scientists, (at least 30 have been named,) have expressed doubts as to the adequacy of the interim criteria. Until some of the present doubts and uncertainties are resolved two courses of action have been suggested; to shut down the reactors or to operate the generating stations at a reduced power output level. My judgment is that operation at 70% of full power (809 Mwe) or 550 Mwe is a far safer level than full power operation. To do nothing once we are aware of the hazards is to play Russian roulette.

The ECCS can be likened to a fire extinguisher. It is a system of water sprays or some other means of cooling the heat of a core should a loss-of-coolant accident (LOCA) occur. The great worry with ECCS is not that it will not go on but that it may not cool enough to prevent a core from becoming molten. A meltdown would rupture the reactor vessel and also the building and release radioactive gases and particulate to the surroundings.

The Union of Concerned Scientists in their 352 page study An Evaluation of Nuclear Reactor Safety dated March 23, 1972 for a 2000 Mwt reactor (a Quad-Cities reactor is 2511 Mwt) estimated

meltdown effects under certain conditions as:

-lethal effects to 75 miles downwind in a strip of maximum width of 2 miles

-injuries at distances up to 200 miles

-land restrictions because of strontium -90

-possible excessive radioactivity levels in bodies of water

(Chapter 2, pp. 17-21.)

The same publication ends its analysis of the consequences of a major reactor accident with:

It is abundantly clear from our study that a major nuclear reactor accident has the potential to generate a catastrophe of very great proportions, surely greater than any peace-time disaster this nation has ever known.

(Chapter 2, pp. 22.)

To vote for this variance is then to permit full power operation and in my opinion as a Board member and a registered professional engineer at dangerous level of reactor operation.

Statistically, the chances of a Quad-Cities core meltdown are small but they are finite. And if a meltdown occurred, surely every nuclear plant in the nation would have to be shut down just as defective planes are grounded when crashes occur. We must be prudent in life-or-death matters. It is tragic that the ECCS test research will not be completed until 1975 and all persons living within 60 to 75 miles of a nuclear reactor must assume an involuntary risk until that time has elapsed.

A derating of a reactor lowers the fuel rod center temperatures from the range of 3470°F to 4000°F, which full power operation develops, to as low as 875°F at 20% of full-power. The choice of 70% of capacity is certainly a more prudent level than permitting 100% operation. The April 20, 1972 issue of Nucleonics Week mentions the possibility of a drastic derating by the AEC to 30% of full power. Robert J. Colmar, a senior nuclear engineer in the AEC's Division of Reactor Licensing is quoted in the same issue as stating flatly that some form of power reduction was desirable and said "...it is my feeling that we ought to stay at some power level where a great many of these uncertainties are lessened."

The warnings of Mr. Colmar and Alvin M. Weinberg, director of the Oak Ridge National Laboratory and Philip L. Rittenhouse, also of ORNL and many other scientists ought to be heeded. We have had other warnings in the past which we have not heeded. The Tacoma Narrows Bridge was known as "Galloping Gertie" before it galloped to its destruction. The vessel "Eastland" was known for its instability before it turned turtle in the Chicago River on July 24, 1915 to kill 815 persons.

When we have sound scientific advice we ought to listen. Norman Cousins is quoted in Dr. Lynton K. Caldwell's recent book Environment - a challenge to modern society

> The real meaning of the human expedition to the moon, if it is read correctly, is that the conditions required to sustain human life are so rare in the universe as to constitute the greatest achievement of creation. Yet the prime beneficiaries of this bounty are now engaged in converting their habitat into a wasteland not less congenial to life than the surface of the moon. The biggest challenge of all, therefore, is to prove that intelligent life can exist on earth. (Emphasis added, p. 220.)

For the record it needs to be mentioned that although this Board may soon decide, perhaps next week, that it has been ousted of jurisdiction to consider matters related to radiation because of the recent U.S. Supreme Court decision in Northern States Power Co. v. Minnesota, we presently are acting under the legislative mandate of Title VIa of the Environmental Protection Act. We are therefore obliged in reaching a decision in the present proceeding to consider the radiation pollution aspects of our action.

Jacob D. Dumelle
Board Member

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Dissenting Opinion was submitted and filed on the 1st day of May, 1972.

Christan L. Moffett, Clerk
Illinois Pollution Control Board