NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

OFFICE OF THE
COMMISSIONER

August 28, 1979

MEMORANDUM FOR: Chairman Hendrie
Commissioner Gilinsky
Commissioner Kennedy
Commissioner Bradford

FROM: John Ahearne

SUBJECT: ACCIDENT CONSEQUENCE MITIGATION STRATEGIES

The staff recently supplied me with answers to some questions raised by Frank von Hippel concerning the use of KI. In his comments on their answers, Frank points out:

> The [NRC] staff memo suggests that, "for doses greater than 1 rem to the thyroid it may be better to evacuate the population than to distribute KI." It then goes on to discuss an EPA study which "has shown that masses of up to 150,000 persons have been evacuated safely in disasters" (p. 3) . . . .
>
> To illustrate the scale of distances involved, I do a simplified calculation in the Appendix [attached] which shows that, for I131 releases of the order of ten percent from a 1000Mw(e) reactor, thyroid doses could be above 1 rem for hundreds of miles downwind. Except for coastal sites where the plume is blown out to sea, the population which would have to be evacuated according to the staff's criterion would be on the order of one million over an area of thousands of square miles. If the plume blew towards an urban area (e.g., towards New York City from Three Mile Island), the population which the staff would propose to evacuate would be on the order of 10 million. The logistics of this effort with shifting winds, untrained personnel, and limited transportation capabilities boggle my mind. I would suggest that the staff be asked to work out a plan which would make their strategy credible assuming a 10% release to the atmosphere of the radioiodine in the TMI 1 core.

They should include a discussion of the number of people and areas which would have to be evacuated for various wind speeds and directions and the amount of time which would be available to accomplish these evacuations.

He then proposed the NRC

"develop accident consequence mitigation strategies beyond the evacuation of populations 10-25 miles downwind. . . . I would urge the NRC to give high priority to the initiation of a policy study on consequence mitigation strategies including people from the NRC, FDA, states, (California has already had a task force study the subject), and outside technical critics of the status quo."

I believe this is a sound proposal and request your support.

Attachment

cc: EDO ✓
NRR
I&E
SD
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NUREG/CR-1131
SAND78-0454

Examination of Offsite Radiological Emergency Protective Measures for Nuclear Reactor Accidents Involving Core Melt

Prepared by D. C. Aldrich, P. McGrath, N. C. Rasmussen

Sandia Laboratory

Prepared for
U. S. Nuclear Regulatory
Commission