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August 19, 1979

Dear Mr. Chalk:

This letter is in response to the request made by the Commission for information with regard to the question of whether or not the accident at Three Mile Island Unit 2 (TMI-2) was an "extraordinary nuclear occurrence" (ENOC).

It is my considered opinion that any finding or declaration by the Commission regarding an ENOC would not be in the public interest and would be premature. I suggest the Commission refrain from making this important decision, not judicially reviewable, until the following conditions have been met:

1. The Commission's regulations (10 CFR 140.84 and 140.85) as amended was to reflect the meaning and meaning of the relevant statute, Section 11(d) of the Atomic Energy Act of 1954, as amended, and the regulations are supplemented with a workable definition of radiation injury.
2. All of the monitoring data relevant to the TMI-2 accident are made available to the scientific community, in a usable form, for independent review and analysis.
3. It can be concluded that the TMI-2 accident,

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which began on March 28, 1979, has ended. The accident should be considered terminated when releases of radioactive materials from TMI-2 as a result of the accident are terminated.

The justification, in this suggestion, is offered
below.

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The definition of an ENO as it appears in the statute, does not support the "two prong" tests as set forth in the Commission's rules. In fact, the statute states clearly that one aspect of an ENO is a substantial release of radioactive materials offsite. By comparison, Part 140.84 sets forth levels of damage as expressed in terms of units of exposure to persons offsite and levels of ground contamination, neither of which is a measure of offsite release of radioactive materials.

Criterion II, the second prong of the Commission's rule (10 CFR 140.85) merely establishes a higher level of damages to be suffered before an ENO is to be declared. To add further (and wholly unnecessary) confusion, Criterion II requires that five or more ^{persons must} die or show "objective clinical evidence" of radiation injury in order to qualify as damaged persons. The Commission's rules are silent with regard to exactly what constitutes "objective clinical evidence" of radiation damage or injury. Indeed, all responsible authorities on radiation effects consider all exposure to radiation to be harmful.

In addition, the Commission should consider the effect of the role the Commission itself in preventing the finding of "objective clinical evidence" of radiation injury to members of the public. Here the Commission, through repeated public announcements, has assured the public that offsite doses to individuals were less than 100 mrem and that the total population exposure was about 3500 person-rem. It then becomes virtually impossible to show "objective clinical evidence" of radiation injury because any radiation-induced damages can be attributed to some other cause by medical practitioners because of the Commission's own public relations statements. Thus the Commission has prejudiced the rights of the affected members of the public to even obtain "objective clinical evidence" of whether radiation injury may have been suffered.

The Commission's rules are such that both "prong" or criteria must be met before an ENO can be declared. It is difficult to postulate an accident in which Criterion II could be met without Criterion I also having been met. As a result, Criterion I is unnecessary.

The Commission's rules should therefore be immediately amended to accurately reflect the wording of the ENO definition in the statute and the problems encountered in a real nuclear accident. The rules should also contain either a workable definition of what constitutes radiation injury to both an individual ~~and~~ those individuals affected by a reactor accident or an explanation of specifically what evidence must be collected to qualify as "objective clinical evidence" of radiation injury.

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The Commission has yet to make publicly available all of the radiation monitoring data from the TMI-2 accident. To date, only a limited quantity has been made public in the form of a report of the Ad Hoc Population Dose Assessment Group,² the purpose of which is clearly more oriented toward public relations than a scientific, objective estimation of the consequences of the TMI-2 accident. No later data has yet been released, even though such data have specifically been requested from the Commission.³

From the data in the one report which has been released, herein called the Ad Hoc report, I have estimated population exposures for the March 28, through April 7, 1979, time period for the TMI-2 accident.³¹ This estimate is more than an order of magnitude higher than the 3500 person-rem given in the Ad Hoc report, and should not be considered an upper limit for such exposure. My estimate of 63,000 person-rem lies somewhere between the lowest possible estimate contained in the Ad Hoc report and an upper bound value. Again, it must be emphasized that these estimates refer to the March 28 through April 7, 1979, time period and consider exposures to individuals within fifty miles of TMI-2.

An estimate of 13 million curies of Xenon-133 released during the March 28 through April 5, 1979, period was obtained from an internal memorandum of the Commission.⁴¹ By extrapolating postulated accidents, gaseous releases, and subsequent exposures discussed in Chapter 15 of the Final Safety Analysis Report for TMI-2,

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estimates of individual exposures can be made. For the individual at the exclusion zone boundary, the extrapolated dose due to Xenon-133 would be about 170 rem, whole body. For an individual who spends 30 days at the low population zone boundary, the dose due to Xenon-133 would be about 27 rem, whole body. By comparison, the value given in the Acheson report for the maximum exposure to any individual is 0.083 rem, whole body.

It is clear to the many residents of central Pennsylvania that the TMI-2 accident is far from being concluded. There is still talk about additional release of gases from TMI-2 in the form of Krypton-85. Whether or not it is released in such a manner as to permit evasive action by those persons who feel they have already been involuntarily exposed to more than enough radioactive materials remains to be seen.

In addition to the upcoming gaseous releases from the ongoing TMI-2 accident, there remains the problem of the approximately one million gallons of water at TMI-2 which is contaminated with varying levels of fission products. How much of these materials get into the Susquehanna River and are ingested remains to be seen. Also, the exposure to individuals from dust contaminated with fission products from the clean-up of TMI-2 also remains to be seen.

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The Commission, in its "Background document" attachment to the July 20, 1978, ENO announcement,

callously attributes financial damages only to those individuals who were evacuated as a result of the recommendation of Governor Thornburgh. Actually, tens of thousands of Pennsylvanians, ^(led from their homes) for the weeks following the accident, and even some for periods not yet ended. The Commission's rules, in particular, part 140.85 contain no justification whatever for the narrow definition of financial damage the Commission has suggested. As the rule itself reads, all costs incurred by all who fled their homes should be considered financial damages, including any costs of future evasive actions taken to "reduce or avoid exposure to radioactive materials." (10CFR140.85 (3)(6)(4).)

For the above reasons it seems clear that a finding that an ENO has or has not occurred at TMI-2 is premature at the present time.

Yours sincerely

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References

1. "Population Dose and Health Aspect of the Accident at the Three Mile Island Nuclear Station" Report of the Ad Hoc Population Dose Assessment Group, May 10, 1979. USFDA, HEW.
2. "Supplemental Petition to the Director of Nuclear Reactor Regulation for Emergency Action", filed May 16, 1979, by Dr. Channing Kefford, on behalf of the Environmental Coalition on Nuclear Power.
3. Report of Dr. Channing Kefford in the Salem Nuclear Power Plant Spent Fuel Pool Expansion Proceedings, August, 1979, on behalf of Lower Alloway Creek Township.
4. "Preliminary Estimates of Radioactivity Released from Three Mile Island." Memorandum of Luke H. Barrett, April 12, 1979.

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