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SEP 29 1980

Mrs. Janine R. Ullom
519 North Houcks Road
Harrisburg, Pennsylvania 17109

Dear Mrs. Ullom:

Your letter to President Carter about the effects of the accident at the Three Mile Island nuclear station and about venting krypton-85 from the reactor building of Unit 2 was referred to me for response.

The small dose of radiation that people in the area received during and shortly after the March 28, 1979, accident at TMI came from radioactive gases that escaped from the auxiliary building. The average dose of radioactivity the population within 50 miles of TMI received was approximately 4 millirems. The maximum exposure to any individual was less than 100 millirems, which is less than the yearly dose each person receives as a result of natural background radiation. Doses at these levels result in less than one health effect over the lifetime of all people in this area. Natural background radiation people in the Harrisburg area receive is approximately 125 millirems. To put these doses into perspective, note that a traveler flying round trip by jet from New York to Los Angeles receives 5 millirems of cosmic radiation.

A team of investigators from the Nuclear Regulatory Commission, the Environmental Protection Agency, and the Department of Health, Education and Welfare calculated the doses to the people living within 50 miles of the Three Mile Island site and estimated the number of new cancers that would result from the exposure to the radioactivity that leaked out of the plant. The team reported their work in a report entitled, "Population Dose and Health Impact of the Accident at the Three Mile Island Nuclear Station" (NUREG-0558). They concluded that the offsite collective dose associated with radioactive material released from March 28, 1979, to April 7, 1979, represents minimal risks (that is, a very small number of additional health effects to the offsite population). Enclosed for your information is the summary of NUREG-0558.

The radioactive materials that were released were primarily radioactive gases. The radioactivity was almost entirely from xenon, which is a chemically inactive gas. As the gases leaked out, the winds diluted them. To determine whether food grown in the area was contaminated, the Department of Energy measured the amounts of radioactivity present in the samples of soil, water, air, and vegetation.

Based on these samples and on other information, it was concluded that the principal isotopes in the escaped gases were xenon-133 and xenon-135. Although radioactive iodine was found in samples of some milk, the concentration was less than 1% of the concentration permitted by NRC regulations. Other food samples

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were tested by the U.S. Food and Drug Administration, and none of the 377 food samples tested contained reactor-produced radioactivity.

Although it is generally agreed that epidemiologic studies of the resident population of Harrisburg could not detect any excess morbidity or mortality due to radiation exposure from the accident at TMI, the Center for Disease Control and the Pennsylvania Department of Health (with assistance from the NRC) have conducted a census of the population residing within 5 miles of Three Mile Island for the purpose of providing an adequate registry for potential future studies of health effects. The Department of Health of the Commonwealth of Pennsylvania also is planning to update the population registry every 5 years over the next 3 decades. In addition, the Health Department and several Pennsylvania universities are planning or already are conducting studies of health effects, including pregnancy outcome, congenital and postnatal thyroid diseases, mental health, and cytogenetic abnormalities.

Although it is unlikely that these studies will be able to unravel the complex etiology of these health effects, the NRC is monitoring the studies and assisting where possible through its Radiological Health Standards Branch.

Regarding your comment that "the conspiracy of lies of the nuclear industry coupled with the wanton neglect of the NRC deprived all of us of the knowledge that should have been ours," information about the accident made available to the public was confusing for a number of reasons. Some problems were attributable to the sources of information, some to the way in which information was made available to the press, and some to how the press reported the information it obtained. NRC's information was not always complete nor, in some instances, wholly accurate.

We recognize the importance of making complete and accurate information available to the public. Consequently, we have made specific plans for providing information to the public for such potentially serious accidents as occurred at Three Mile Island. These plans include making the availability of public information part of NRC's and the utilities' emergency response planning. Under this policy, the utilities must provide offsite locations for newscenters. We also plan to appoint a senior NRC official responsible for coordinating NRC information activities during an emergency. By centralizing the gathering and dissemination of NRC's information, we will provide the public with relevant and timely information.

With regard to your concern about the purging of the radioactive krypton gas from the reactor building of TMI Unit 2, Metropolitan Edison Company submitted to NRC a "Safety Analysis and Environmental Report" (November 13, 1979) in which it evaluated alternative methods for the disposal of the krypton gases, such as purging and cryogenic processing, and selective absorption. NRC also evaluated alternative methods for disposal of the krypton gas to determine what effect decontamination would have on workers, on the public health and safety, and on the

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environment. Based on its evaluation, NRC issued an environmental assessment (NUREG-0662 and two addenda) for public comment on March 26, 1980, and received approximately 800 comments. These comments were considered in the staff's preparation of the "Final Environmental Assessment for Decontamination of the Three Mile Island Unit 2 Reactor Building Atmosphere" (NUREG-0662), vols. 1 and 2, copies of which are enclosed for your information.

From this process have emerged the following NRC staff conclusions:

- The potential physical health impact on the public of using any of the proposed strategies for removing the krypton-85 is negligible.
- The potential psychological impact is likely to grow the longer it takes to reach a decision, get started, and complete the process.
- The purging method is the quickest and the safest for the workers on Three Mile Island to accomplish.
- Overall, no significant environmental impact would result from use of any of the alternatives discussed in the assessment.

On June 12, 1980, the Commission issued an Order for Temporary Modification of License, authorizing controlled purging of the krypton-85 from the reactor building atmosphere. In a separate Memorandum and Order, also issued on June 12, 1980, the Commission discussed rationale for its decision. Actual purging operations began on June 28, 1980, and were completed on July 11, 1980. The doses resulting from the purge were well within those predicted in section 7.1 of volume 1 of NRC's final environmental assessment. Copies of both Commission issuances are also enclosed.

Regarding your comment that "we have exhausted all legal and public means at our disposal," public hearings will be held before the Commission decides whether TMI Unit 1 should be operated. It is too soon to determine the status of TMI-2 because the licensee has not yet submitted to the NRC a proposal for overall plant recovery. However, NRC has sought public participation in cleanup activities for TMI-2 by soliciting written comments on the draft environmental impact statement for removing krypton-85 from the reactor building of Unit 2. In addition, a public meeting was held in the Liberty Fire Hall in Middletown on March 19, 1980, to discuss the proposed venting of the krypton-85. Four public meetings were held to discuss the scope of information included in the Programmatic Environmental Impact Statement (PEIS) prepared on all cleanup activities at TMI-2, and NRC is soliciting public comments on the PEIS. A copy of the PEIS is enclosed for your review and comments.

With regard to your comment that "nuclear power is not necessary to the future of our world," the former Atomic Energy Commission (AEC) had a Congressional mandate to develop and promote nuclear energy. When the AEC was abolished in

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the NRC was created by Congress for the sole purpose of regulating the commercial production of nuclear energy. NRC's primary responsibility consists of the licensing, inspection, and enforcement of regulations for nuclear power plants in the interest of public health and safety and for the protection of the environment. Changes in NRC's regulatory responsibilities can stem from the public's will and the resulting Congressional action.

Your letter mentions the "small and subtle changes" that have occurred in the TMI area over the past year. The social and economic effects that could occur as a result of cleanup activities at TMI are addressed in sections 3.1.6 and 10.6.1 of the PEIS.

I appreciate your concerns and assure you that every effort is being made to ensure the continued protection of the health and safety of the public, not only at Three Mile Island, but also at all nuclear power plants.

Sincerely,

Bernard J. Snyder, Program Director
Three Mile Island Program Office
Office of Nuclear Reactor Regulation

- Enclosures:
1. Summary of NUREG-0558
 2. NUREG-0662, vols. 1 & 2
 3. Order for Temporary Modification of License of June 12, 1980
 4. Memorandum and Order of June 12, 1980
 5. PEIS

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