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Mr. & Mrs. C. Wray
234 Haddon Avenue
Collingswood, New Jersey 08108

Dear Mr. & Mrs. Wray:

Your letter to the Commission concerning the release of radioactive material from the Three Mile Island nuclear station and urging the facility's permanent shutdown has been referred to me for response. I regret that this answer has been delayed for so long.

Except for releases to the Susquehanna River of liquids containing only low or nondetectable levels of radioactivity, the release of contaminated water is not currently permitted. The Commission has authorized use of the EPICOR-II water treatment system for processing the waste water stored in tanks in the auxiliary building. We do not currently permit the discharge of water processed by the EPICOR-II system. The disposal of the water processed by EPICOR-II will be addressed in the programmatic environmental impact statement (PEIS) being prepared on the decontamination and disposal of radioactive wastes at Three Mile Island. Copies of the PEIS will be made available for public comment. Metropolitan Edison has not yet submitted a proposal on the disposal method of the decontaminated water.

As a result of releases containing only low or nondetectable levels of radioactivity, the levels of radioactivity in the Susquehanna are indistinguishable from existing background levels at public water supply intakes from the river. These levels have been confirmed by independent measurements made by the NRC, the Environmental Protection Agency, and the Commonwealth of Pennsylvania.

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, 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 public health and safety, and on the environment. Based on its evaluation, NRC issued an environmental assessment (NUREG-0562 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.

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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, the Commission discussed rationale for its decision. Actual venting operations began on June 28, 1980, and were completed on July 11, 1980. Copies of both Commission issuances are also enclosed.

For more than four decades, the effect of radiation on men and animals has been thoroughly studied. Numerous major biological research programs (including studies of genetic effects) have been completed and others are in progress, all of which have been well documented. While the relationship between ionizing radiation dose and adverse biological effects among humans is not precisely known for all levels of radiation, the principal uncertainty exists at very low dose levels where natural sources of radiation and the variations in these sources are comparable to other doses. The most important biological effects that radiation can cause are cancer, hereditary diseases, miscarriages, and abnormalities that may occur to a fetus. These effects are identical to those that occur among humans from other causes. It is this last point in combination with other complicating factors--such as magnitude and variations (1) in normal incidence of diseases, (2) in doses from natural radiation sources, (3) in radiation doses from man-made sources other than the nuclear industry, and (4) in exposures to nonnuclear cancer-producing agents--that is responsible for much of the uncertainty in the dose-risk relationship at low dose levels.

In lieu of precise knowledge of the relationship between low-level radiation and biological effects, radiation experts assume that ionizing radiation has an effect on the human body that remains directly proportional to the dose, even at very low levels, and that there is therefore no threshold below which radiation can be ignored. They therefore assume that any dose of radiation, no matter how low, may be harmful.

Several federal agencies, principally the Environmental Protection Agency, the Occupational Safety and Health Administration, and the Nuclear Regulatory

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Commission, are responsible for regulating exposures from radiation or radioactive material. In all cases, the staffs of these agencies set regulations to limit radiation exposures to those well below nationally and internationally accepted levels of radiation protection.

With regard to your comments concerning the possible future operation of TMI-1, the Commission has ordered that a public hearing be conducted to determine whether the facility should be operated and, if so, under what conditions the restart would take place. Prior to start of the hearings, the NRC staff will conduct a review of technical information concerning the restart of Unit 1. As part of this review, the NRC staff will conduct meetings with the licensee in the presence of the public, and the public will be given the opportunity to raise questions and to make statements. During the hearing, the technical issues that are appropriate to assure the public health and safety will also be addressed. In addition, the Atomic Safety and Licensing Board has indicated that NRC should consider the psychological impact of future operation on the nearby communities. A copy of the Commission Order that outlines the issues to be considered is also enclosed for your information.

As for Unit 2, the licensee has not yet submitted to the NRC a proposal for overall plant recovery, although the licensee is conducting feasibility studies. It is not possible at this time to determine when such proposals for recovery may be submitted or how much time will be needed for the required reviews and approvals in connection with Unit 2's recovery. I would note, however, that the licensee's authority to operate Unit 2, except for those actions necessary to keep the reactor shut down, was suspended by Order of July 20, 1979.

We 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.

Sincerely,

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

- Enclosures:
1. NUREG-0662, vols. 1 & 2
 2. Order for Temporary Modification of License of June 12, 1980
 3. Memorandum and Order of June 12, 1980
 4. Order and Notice of Hearing of August 9, 1979

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