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Docket No. 50-320

Mr. Albert Manik
919 Hoffer Street
Middletown, Pennsylvania 17057

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DEPT. OF HEALTH SERVICES
MARCH

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Dear Mr. Manik:

I am writing in response to your letter regarding the accident at Three Mile Island Nuclear Station, Unit 2. The accident and its consequences have created a substantial increase in the agency's workload, which has prevented me from responding to you as promptly as I would have liked.

Regarding your concern about your health as a result of the accident, 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 off-site 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 if 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 were tasted by the U.S. Food and Drug Administration, and none of the 377 food samples tested contained reactor-produced radioactivity.

With regard to your concern about the release of contaminated water, except for releases of liquids containing only low or nondetectable levels of radioactivity to the Susquehanna River, such releases are not currently permitted. The Commission has authorized use of 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 is addressed in the Programmatic Environmental Impact Statement (PEIS) on the decontamination and disposal of radioactive waste at Three Mile Island. Enclosed for your information is a copy of the PEIS.

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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 (EPA), and the Commonwealth of Pennsylvania.

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.

We have taken a number of actions with respect to all nuclear power plants as a result of the Three Mile Island incident. Specifically, full time inspectors have been assigned to each operating plant utilizing Babcock and Wilcox (B&W) pressurized water reactors like those at Three Mile Island. In addition, all these plants were shut down and the licensees of each plant were instructed to provide us with additional information about their facilities in light of the Three Mile incident. After review of the information provided, orders were issued to the licensees that required them to make immediate plant modifications, to provide additional operator training, and to reverse certain operating procedures. Additional long-term actions were ordered to further upgrade certain plant systems, and operator training and procedures. All of these plants, except of course the Three Mile Island plant, have complied with the orders and have been permitted to resume operation.

In addition, licensees of all operating plants utilizing pressurized water reactors have been instructed to take specific actions with regard to the status of certain equipment, plant procedures, operator actions, and facility designs. Licensees of all operating plants, including those utilizing boiling water reactors, have been instructed to provide us with additional information with regard to their facilities in light of the Three Mile Island incident.

We are currently reviewing the information provided. As soon as our review is complete, orders for modifications, as appropriate, will be issued to provide additional protection to the health and safety of the public.

In addition to the actions outlined above, as a result of TMI-2, studies were initiated in the areas of emergency preparedness, operator licensing reassessment, loss of feedwater event, small-break loss of coolant accidents, and lessons learned from the incident. In a number of areas work has progressed to the point where additional licensee requirements have been recommended. A number of these recommendations have been approved and efforts have begun to implement them.

Several human errors have been identified as contributing to the mishap at Three Mile Island. Accordingly, steps have been taken to address procedure changes necessary to assist the operator on both a short and long-term basis. Immediate changes were required at all Babcock and Wilcox facilities prior to their restart after the Commission ordered them shutdown. Also, the Lessons Learned and the Bulletins and Orders Task Forces have recommended design and operating requirements implemented in the near future on all facilities in operation or under construction.

The human errors experienced at Three Mile Island stemmed in part from the incorrect interpretation of Reactor Coolant System instrumentation. Operator training had not previously addressed the system and operator response to the set of conditions experienced during the March 28, 1979, transient. As a result, all licensed operators at Babcock and Wilcox facilities received special training and a written examination on the transient. Additionally, these operators attended training sessions on the Babcock and Wilcox simulator to reinforce the operator response required during similar transient situations. All training was completed before operators could resume their duties during power operations. Long-term commitments on operator training and licensing are being developed by NRC's Operator Licensing Branch.

With regard to your questions about emergency planning, the NRC is proposing rules that would require the definition of emergency planning zones (EPZs) around nuclear facilities ("Emergency Planning," Federal Register, Vol. 44, No. 245, Dec. 19, 1979, 75167-75174). An EPZ would be defined for both the short-term "plume exposure pathway" and for the longer term "ingestion exposure pathway." The EPZs recommended are nominally 10 miles for the "plume exposure pathway" and 50 miles for the "ingestion exposure pathway."

Emergency planning will predetermine emergency responses within the EPZ as a function of population groups, environmental conditions, plant conditions, and time available to respond. For the plume exposure phase, shelter and/or evacuation are the principal immediate protection actions to be recommended for the public in the 10-mile EPZ.

The NRC/Federal Emergency Management Agency (FEMA) Steering Committee has developed criteria to upgrade all emergency plans in accordance with the proposed rules. The State/Local emergency plans will be reviewed initially by the FEMA staff for adequacy and their findings and determinations will be reviewed by the NRC staff for integration with the licensee's emergency plans and to determine overall emergency preparedness, including evacuation, effectiveness.

In the interim period, the NRC is requiring all operating reactor facilities to submit upgraded emergency plans that meet revised acceptance criteria. The revised acceptance criteria require establishment of a "plume exposure pathway" EPZ of about 10 miles.

In the event it became necessary, evacuation orders would be given by State and local authorities. If evacuation were necessary, you would be told what to do and where to go. In some situations shelter would be preferable to evacuation, and you would be informed accordingly.

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 they 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 environment. Based on its evaluation, NRC issued an Environmental Assessment (NUREG-0662 and two Addenda) for public comment on March 25, 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 their decision. Actual purging operations began on June 29, 1980, and were completed on July 11, 1980. Copies of both Commission issuances are also enclosed. The doses resulting from the purge were well within those predicted in Section 7.1 of Volume I of NRC's Final Environmental Assessment. Section 8 of the Final Environmental Assessment discusses the radiological environmental monitoring program including the Community monitoring program by citizens.

In addition to their own direct monitoring, the Department of Energy and the Commonwealth of Pennsylvania are sponsoring a Community Radiation Monitoring Program that involves 50 citizens from 12 communities in an approximate five-mile circle around TMI. The very comprehensive radiological monitoring program consists of direct and indirect measurements of exposure rates and sampling of all appropriate media at numerous locations in the offsite area within 15 miles of TMI. Exposure rate measurements are made using recording and nonrecording rate meters and thermoluminescent dosimeters. Samples are collected of air, soil, vegetation, milk, fish, aquatic plants, sediments, and water. These samples are analyzed for specific radionuclides and also for gross beta and gamma emissions. The results of all monitoring programs are reported to the Environmental Protection Agency which is responsible for coordinating offsite monitoring and for compilation and dissemination of the resulting data.

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 conducted a review of technical information concerning the restart of Unit 1. As part of this review, the NRC staff conducted meetings with the licensee in the presence of the public, and the public was given the opportunity to raise questions and to make statements. During the hearing, the technical issues which 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 which outlines the issues to be considered is enclosed for your information. The hearing began, October 15, 1980, at the Nuclear Regulatory Commission Hearing Room, 25 North Court Street, (Ground Floor), Harrisburg, Pennsylvania.

With regard to Three Mile Island 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 shutdown, was suspended by Order of July 20, 1979.

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 the Three Mile Island Station, but also at all nuclear power plants.

Sincerely,

Bernard J. Snyder, Program Director
TMI Program Office

OFFICE		Office of Nuclear Reactor Regulation		
SURNAME	Enclosures: (See attached)	TMIPQ:NRR MDuncan/prf 11/3/80	TMIPQ:NRR DBrinkman 11/3/80	TMIPQ:NRR BJSnyder 11/5/80
DATE				

Enclosures:

1. NUREG-0558 Summary
2. PEIS
3. NUREG-0662
4. 6/12/80 Comm. Orders
5. 8/9/80 Comm. Order

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SURNAME ▶						
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