

PDR
LPDR
TERA
TMIS R/F
TMI R/F
LBarrett
BJSnyder
AFasano
RConte
LChandler
ACRS
OLynch
RWeller
HDenton
IE (3)
Service List (43)
WDircks
RBrowning

DEC 23 1981



Mr. John J. Barton
Acting Director of TMI-2
Metropolitan Edison Company
P.O. Box 480
Middletown, PA 17057

Dear Mr. Barton:

We have conducted an environmental and safety review of your proposal to perform a decontamination experiment in the reactor building. In our review, we have compared the proposed experimental decontamination activity and its potential environmental impacts with the evaluation of reactor building decontamination activities contained in the PEIS. We find both the scope and the expected impacts associated with your proposed experiment to be within the scope of activities already assessed in the PEIS. We also conclude that adequate protection is being provided for public and worker health and safety.

Based on our evaluation, we find your proposal to conduct the decontamination experiment acceptable subject to our approval of the procedures to implement the experiment. The rationale for our approval and a discussion of our evaluation is attached.

Sincerely,

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

Enclosure: As stated

cc: W. Bixby, DOE
H. Feinroth, DOE

8201180361 811223
PDR ADOCK 05000320
P PDR

OFFICE	TMIPD:NRR	TMIPD:NRR	PLD	PD:TMIPD:NRR		
SURNAME	R Lo;bg	O Lynch	LCHANDLER	B J Snyder		
DATE	12/22/81	12/22/81	12/22/81	12/21/81		

RATIONALE FOR APPROVAL
OF DECONTAMINATION EXPERIMENT

On November 21, 1979, the Nuclear Regulatory Commission announced its decision to prepare a programmatic environmental impact statement (PEIS) on the decontamination and disposition of radioactive wastes resulting from the March 28, 1979, accident at Three Mile Island Nuclear Station, Unit 2. The final PEIS was issued in March 1981. In the Commission's Policy Statement on Cleanup of Three Mile Island Plant issued on April 28, 1981, the Commission states that "under the Policy Statement, the NRC staff may act on each major cleanup activity if the activity and associated environmental impacts fall within the scope of those already assessed in the PEIS." In keeping with this policy, the NRC staff has performed an evaluation of the expected environmental impacts of the licensee's proposal to perform a decontamination experiment in the reactor building and compared those impacts with the environmental impact of those reactor building decontamination activities in the PEIS.

On October 30, 1981, the licensee submitted a proposal delineating the scope and purpose of a major decontamination experiment of the TMI Unit 2 reactor building. The licensee indicates the primary purpose of the decontamination experiment is to carry out experimental activities aimed at reducing the radiation levels attributed to surface contamination. The principal areas to be decontaminated during the experiment will include major equipment and floor surfaces on the 305' and 347' elevations of the reactor building and the horizontal surfaces and rails of the polar crane. In addition, the experiment is expected to cover gross decontamination of the missile shields, the top of

D-Ring, the refueling canal and equipment within the refueling canal. A water spray or flush, using water pressures ranging from 60 psig to below 10,000 psig and temperatures from ambient to 140°F, will be the primary technique tested. As a result, it is expected to reduce dose rates in the reactor building. Water previously processed through the SOS and the EPICOR-II System will be used for flush and spray water for the experiment. After spraying, this water will be collected in the reactor building sump via the built in drainage system, and will be processed with the remaining sump water by the SOS/EPICOR-II systems.

The staff has conducted an environmental and safety review of the proposed experiment which does not involve a licensing action. Based on the review, the staff has the following findings and conclusions:

1. The experiment should generate information needed to evaluate the effectiveness of the various decontamination techniques. The areas designated for experiment involve areas where most near term cleanup activities will be performed. As a result, the experiment is expected to reduce radiation levels and subsequent doses to radiation workers in the reactor building and will represent a first step in major surface decontamination activities in the reactor building. The proposed decontamination experiment is within the scope of activities discussed in the PEIS (Chapter 5) pertaining to the gross decontamination of the reactor building.

2. Average airborne radioactivity concentrations in the reactor building during the decontamination experiment are not expected to be significantly different from those average concentrations existing prior to performing the experiment. This is based on the measurements of airborne radioactivity made during previous decontamination tests (i.e., during the reactor building entry of May 14, 1981) which involved similar activities as those proposed in the decontamination experiment, although on a smaller scale. Those measurements provide an indication of the relative magnitudes of airborne radioactivity concentrations prior to, during and after the decontamination tests. Measurements by personnel breathing air samplers indicate that the average airborne particulate concentrations during and after the decontamination tests decreased by a factor of over 10 when compared with the concentrations prior to the tests, for the immediate areas where tests similar to the decontamination experiment were conducted. With these considerations, the staff has evaluated the offsite environmental impacts resulting from the ventilation of the reactor building atmosphere during the experiment. The expected offsite releases and radiation doses to the public resulting from the experiment are within the scope of the impacts assessed in the PEIS. Specifically, the rate of radioactivity releases in airborne effluents is expected to be well within the technical specification limits of TMI-2 as discussed in Appendix R of the PEIS.
3. The occupational dose expected to be incurred during the experiment is 60 - 180 man-rem. This is based on measured radiation levels in the reactor building, estimated cumulative occupancy time by personnel performing the experiment (man-hours), as well as personnel dose data obtained from previous entries into the reactor building. This estimated occupational dose is a small fraction of the occupational dose discussed

in the PEIS for activities related to reactor building decontamination. The corresponding potential health effects are, therefore, also well within the scope of those provided in the PEIS.

4. The staff has reviewed the proposed plans and engineering features aimed at reducing occupational exposures and releases to the environment expected to be in place during the experiment and found them to be suitable for providing adequate assurance that the experiment will be conducted consistent with the principle of maintaining radiation doses as low as reasonably achievable (ALARA).
5. The activities associated with the decontamination experiment will not affect the safe condition of the reactor coolant system or the fuel. Radiation monitors, including the airborne effluents monitor, will be operational to assure that the reactor building ventilation can be secured and the experiment terminated prior to exceeding technical specification limits for offsite releases of airborne radioactivity.
6. Low level solid wastes, such as disposable protective clothing and compactable trash, in the order of 200 to 300 cubic feet will be generated. Water used during the experiment will be collected in the reactor building sump and reprocessed by the Submerged Demineralizer System and EPICOR-II System for reuse or storage onsite. Volume of wastes from the SDS and EPICOR-II Systems generated as a result of the experiment will be less than one spent ion-exchange vessel from each system. As such, these solid wastes are a small fraction of the wastes estimated in the PEIS generated as a result of reactor building decontamination activities.

Based on the above evaluation and findings, the staff concludes that the decontamination experiment, as proposed, is safe and is expected to result in environmental impacts within the scope of those activities discussed in the PEIS. Therefore, the experiment is acceptable and can be conducted with adequate assurance for the protection of the public health and safety subject to the staff's approval of the licensee's implementation procedures.