UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 36 TO FACILITY OPERATING LICENSE NO. DPR-50

METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER AND LIGHT COMPANY
PENNSYLVANIA ELECTRIC COMPANY

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-289

Introduction

By letter dated October 28, 1977, Metropolitan Edison Company (Met Ed), requested amendment of the Appendix A Technical Specifications appended to Facility Operating License No. DPR-50 for Three Mile Island Nuclear Station, Unit No. 1 (TMI-1). The amendment would revise the definition of containment integrity given in the Technical Specifications to permit one door of either the personnel hatch or emergency hatch to be open during reactor operation for a period of up to 24 hours to allow maintenance, repair, or modification, provided the other door of the hatch is leak tested and found to meet the local leak rate criteria for door seals within 24 hours prior to the maintenance, repair, or modification.

Background

On September 20, 1977, Met Ed discovered that both doors of the personnel access hatch (airlock) to the containment had been left open for approximately 10 minutes. This condition was a violation of the facility's Technical Specifications. A contributing reason for the occurrence of this condition was deterioration of the mechanical interlock system which was designed to prevent such occurrences.

In order to correct this condition, Met Ed has committed to modify the door hardware to reduce the probability of future deterioration. These modifications will be made in two phases: Phase I is a minor modification (modification of the latching bar interlock arm) which will correct the present deterioration; Phase II is a more complex modification involving

the strut bearing, that is designed to reduce the probability of future deterioration of the interlock system. Met Ed has proposed to implement the Phase II modification during the 1978 refueling outage.

As for the Phase I modification, Met Ed is prepared to make this change at this time. The TMI-1 Technical Specifications, as presently written, do not permit one of the doors to be open during reactor operation except for passage of personnel. Because of this requirement and because each door must be open during a portion of the time it is being repaired, Met Ed cannot effect the Phase I modification without shutting down the reactor. Met Ed, however, does not believe that safety considerations require shutdown of the reactor to effect these repairs, and to support his position cites Section 4.4.1.2.4b of the TMI-1 Technical Specifications which allows reactor operation for up to 48 hours while repairing localized excessive leakage. Accordingly, Met Ed has requested that the definition of containment integrity given in the TMI-1 Technical Specifications be modified to allow one door of a personnel or emergency hatch to be open for up to 48 hours provided the other door is tested and found to meet the local leak rate criteria for door seals prior to maintenance.

Evaluation

As noted above, Met Ed supports the request for revision of the TMI-1 Technical Specifications with respect to the definition of containment integrity, by noting that the Technical Specifications presently allow reactor operation for up to 48 hours while excessive localized leakage of a containment penetration is being repaired. Met Ed, however, is not requesting an analogous provision which would allow them to make repairs to the containment hatch doors while there was excessive leakage of the door seals. Rather, they are only asking for permission to keep one of the doors open for repair, maintenance, or modification after they have closed the other door of the hatch and demonstrated that the seals on the other door meet their leakage rate criteria. In other words, in this case leakage is within specification for the exception period, rather than out of specification.

It is noted that Met Ed's request would provide the flexibility of operation normally granted in facility licenses currently being issued to new plants. That is, current licenses normally grant permission for an airlock to be inoperable for up to 24 hours during reactor operation, provided one door is maintained closed. This type of provision is common to many redundant safety systems. Basically, it permits short-term inoperability of one of the redundant units during repair or maintenance, provided the other unit remains operable. Such provisions are judged acceptable if the redundant unit alone is capable of performing the intended safety function.

We find that such is the case with Met Ed's proposed revision to the TMI-1 Technical Specifications. That is, either door is capable of providing the intended safety function provided it is closed and has an acceptable leakage rate.

We have discussed with Met Ed the fact that they have requested a 48 hour exception period while the exception period normally granted is 24 hours. They agreed that the necessary Phase I repairs should be capable of being completed in 24 hours and agreed to modification of their proposed revision accordingly. Certain clarifying editorial changes in the proposed revision were also discussed with and agreed to by Met Ed.

Because the event which prompted the proposed revision of the Technical Specifications arose as a result of deterioration of an interlock system, we are adding a Technical Specification provision which will require periodic testing of interlock operability and appropriate corrective action if the interlock is found to not be operable. This addition has also been discussed with and agreed to by Met Ed.

Based on the foregoing, we find that Met Ed's proposed revision would not increase the probability or consequences of an accident or malfunction considered in the Final Safety Analysis Report (FSAR) because at least one of the hatch doors will still be required to be closed at all times and, further, will have been demonstrated to meet the door seal leakage criteria within 24 hours prior to the exception period. Further, the proposed revision will permit improvement of a condition which has allowed a significant malfunction in the past, without requiring a costly temporary shutdown of the facility.

We find that the proposed revision will not create a new type of accident not considered in the FSAR because, as is presently the case, at least one door will always be required to be closed and the modification to the door mechanism will help improve the assurance that this is the case.

We further find that the proposed revision will not decrease the margin of safety as stated in the basis for any technical specification because it will still be required that at least one door be closed and it will additionally be required that the leak tightness of its seals be verified within 24 hours prior to the exception period.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: January 7, 1978