



GPU Nuclear Corporation
 Post Office Box 480
 Route 441 South
 Middletown, Pennsylvania 17057-0191
 717 944-7621
 TELEX 84-2388
 Writer's Direct Dial Number:

(717) 948-8461

September 27, 1988
 4410-88-L-0134/0412P

US Nuclear Regulatory Commission
 ATTN: Document Control Desk
 Washington, DC 20555

Dear Sirs:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
 Operating License No. DPR-73
 Docket No. 50-320
 Request for Exemption

GPU Nuclear requests an exemption from the seismic design requirements of General Design Criterion 2 for the TMI-2 Reactor Building floors and D-rings and all systems within the TMI-2 Reactor Building, excluding the Reactor Vessel. This request is submitted in accordance with the provisions of 10 CFR 50.12(a) for specific exemptions. The attached justification has been provided as a basis for this exemption request. Prior to the performance of any work that has the potential to degrade the seismic adequacy of the aforementioned structures, GPU Nuclear shall perform a 10 CFR 50.59 evaluation to demonstrate that no unreviewed safety question exists.

Per the requirements of 10 CFR 170, an application fee of \$150.00 is enclosed.

Sincerely,

F. R. Standerfer
 F. R. Standerfer
 Director, TMI-2

EDS/emf

Attachment 881006027R 880727
 PDR ADOCK 05000320
 F PNU

Enclosed: GPU Nuclear Corp. Check No. 017165

cc: R. J. Conte - Senior Resident Inspector, TMI
 W. T. Russell - Regional Administrator, Region 1
 J. F. Stolz - Director, Plant Directorate IV
 L. H. Thonus - Project Manager, TMI Site

A001
 w/ check #150
 #017165

REQUEST FOR SPECIFIC EXEMPTION FROM
GENERAL DESIGN CRITERION 2

10 CFR 50.12, "Specific Exemption," provides the basis for the Commission to grant an exemption from the requirements of 10 CFR Part 50. The following provides justification for granting such an exemption to 10 CFR Part 50, Appendix A, General Design Criteria (GDC) 2, "Design Basis Protection Against Natural Phenomena."

GDC 2 states that "structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety function." The natural phenomenon applicable to the TMI-2 Reactor Building floors and D-rings and the systems within the TMI-2 Reactor Building is an earthquake.

10 CFR Part 100, Appendix A, "Seismic and Geological Siting Criteria for Nuclear Power Plants," states that its purpose is to set forth the principal seismic considerations which guide the Commission in its evaluation of the suitability of the plant design bases established in consideration of the seismic and geologic characteristics. The structures, systems, and components which are designed to remain functional for the "Safe Shutdown Earthquake" are those necessary to assure:

1. The integrity of the reactor coolant pressure boundary;
2. The capability to shutdown the reactor and maintain it in a safe shutdown condition; or
3. The capability to prevent or mitigate the consequences of accidents which could result in potential off-site exposures comparable to the guideline exposures of this part.

The Safety Evaluation Report (SER) for Removal of the TMI-2 Reactor Vessel Head (Reference 1) provides the following information regarding the first of the above three (3) criteria. The design purpose of the reactor coolant pressure boundary (RCPB) is to protect the health and safety of the public from design basis accidents with the plant at power. However, with the TMI-2 Reactor Vessel head removed, the RCPB cannot be restored to any assured pressure rating. In addition, for the duration of the recovery operations, the reactor will be maintained in its current shutdown condition. Therefore, with the vessel head removed, the sole safety function of the RCPB is to maintain a sufficient volume of adequately borated water for decay heat removal and maintenance of subcriticality of the core. This is accomplished by the Reactor Vessel. Since this request for exemption excludes the Reactor Vessel, the above stated safety function will be maintained.

The second criterion is addressed by the analysis contained in the SER for Defueling of the TMI-2 Reactor Vessel (Reference 2). The discussion in Section 4.2, "Criticality Control," attests that the current safe shutdown

condition of the TMI-2 reactor will be maintained throughout the recovery operations. Since the Reactor Vessel is capable of providing criticality control, Criterion 2 applicability is limited to the Reactor Vessel and is satisfied in that regard.

Adherence to the third criterion is addressed by the failure analysis provided in the November 5, 1984, letter from the NRC to GPU Nuclear (Reference 3). This letter depicts a postulated scenario wherein a seismic event causes the failure of Reactor Building penetration(s) and a leak in the Reactor Coolant System (RCS). The leak in the RCS is assumed to continue until the water drains to the level of the Reactor Vessel nozzles. The resultant off-site doses for the postulated RCS leak scenario are less than 10% of 10 CFR 20 limits and well within the exposure guidelines of 10 CFR 100. This scenario comprises the worst case RCPB leak and is, thus, limiting.

Thus, the safety functions of the systems within the Reactor Building, excluding the Reactor Vessel, are no longer required to remain functional during an earthquake and GDC 2 applicability is limited to the Reactor Vessel. Prior to the performance of any work that has the potential to degrade the seismic adequacy of the TMI-2 Reactor Building floors and D-rings, GPU Nuclear shall perform a 10 CFR 50.59 evaluation to demonstrate that no unreviewed safety question exists.

Consistent with the above discussion, the following portions of 10 CFR 50.12 apply:

10 CFR 50.12 - Specific exemption

(a)(1): Exemptions will be granted which are:

"Authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security."

This request for exemption is authorized by law, will not present an undue risk to the public health and safety as indicated above, and has no impact on the common defense and security.

(a)(2) "The Commission will not consider granting an exemption unless special circumstances are present."

10 CFR 50.12 proceeds to define "special circumstances;" the applicable portion is item (ii):

"Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule."

Since the safety functions of the systems within the Reactor Building, excluding the Reactor Vessel, are no longer required, application of GDC 2 is only applicable to the Reactor Vessel.

Therefore, GPU Nuclear requests that the TMI-2 Reactor Building floors and D-rings and systems within the TMI-2 Reactor Building, excluding the Reactor Vessel, be exempt from the requirements of 10 CFR Part, 50, Appendix A, GDC 2.

REFERENCES

1. SA 4350-3221-84-1, "Safety Evaluation Report for Removal of the TMI-2 Reactor Vessel Head."
2. SA 4350-3262-85-1, "Safety Evaluation Report for Defueling of the TMI-2 Reactor Vessel."
3. NRC Letter dated November 5, 1984, from B. J. Snyder to F. R. Standerfer, "TMI Program Office Failure Analysis for Penetrations Modified During the Recovery Period in Support of 10 CFR 50, Appendix A, Criteria 2, 50, and 51 Exemptions."