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June 05, 1997

6710-97-2235

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Gentlemen:

Subject: Three Mile Island Nuclear Station Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Request for Additional Information - Request for Exemption
from 10 CFR 70.24(a)

By letter dated February 7, 1997, as supplemented March 26, 1997, GPUN requested an exemption from the requirements of 10 CFR 70.24(a), "Criticality Accident Requirements." Based on NRC review of our submittal, a request for additional information (RAI) was issued by the NRC in a letter dated May 27, 1997. The enclosure contains our response under oath to the RAI.

If you have any questions or require any additional information, please contact Adam Miller at (717) 948-8128.

Sincerely,

James W. Langenbach
Vice President and Director, TMI

Enclosure
AWM

cc: Region I Administrator, w/enclosure
TMI-1 Senior Project Manager, w/enclosure
TMI Senior Resident Inspector, w/enclosure
File 97035



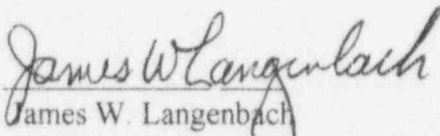
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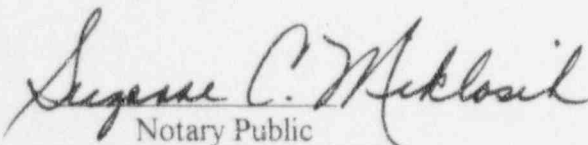
Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289

This letter is submitted in response to an NRC request concerning an exemption request from the requirements of 10 CFR 70.24, in a letter dated May 27, 1997. All statements contained in this response have been reviewed, and all such statements made and matters set forth therein are true and correct to the best of my knowledge.


James W. Langenbach
Vice President and Director, TMI

Signed and sworn before me this

5th day of June, 1997.


Notary Public

Notarial Seal
Suzanne C. Miklosik, Notary Public
Londonderry Twp., Dauphin County
My Commission Expires Nov. 22, 1999

Member, Pennsylvania Association of Notaries

Enclosure

Response to NRC Request for Additional Information TMI-1 Criticality Accident Monitor Exemption Request

Below are listed the eight criteria, specified in the NRC letter dated May 27, 1997, for granting exemptions from 10 CFR 70.24. Following each criterion is a response stating how the criterion is met or why meeting the criterion is not necessary.

1. Plant procedures do not permit more than 1 PWR fuel assembly or 3 BWR fuel assemblies to be in storage or transit between their associated shipping cask or storage rack at one time.

Response

During refueling operations, transfer of fuel assemblies between the Reactor Building (RB) and the Spent Fuel Pool (SFP) via the Fuel Transfer System is controlled by approved fuel handling procedures. Parallel movement activities can occur such that assemblies are being transferred at the same time that the fuel handling bridge is moving an assembly to/from a storage rack location. Although fuel assemblies can be moving between the RB and SFP while the Fuel Handling Bridge is moving fuel within the storage racks, only one assembly at a time can be raised/lowered in a rack location since there is only one fuel mast on the bridge in the SFP. In addition, during fuel receipt operations, fuel may be moved in the SFP while an assembly is lifted from its shipping container and inspected in the Truck Bay, and then transported to the SFP operating floor, elevation 348 feet. All of these operations are bounded by the fuel handling accident of a dropped assembly on top of stored assemblies (reference TMI Technical Specification Amendment No. 170).

2. The requirement is met that k -effective not exceed 0.95, at a 95% probability, 95% confidence level with the fresh fuel storage racks filled with fuel of the maximum permissible U-235 enrichment and flooded with pure water.

Response

The requirement of k -eff $<$ 0.95 in new fuel storage when flooded with unborated water is met as stated in Tech. Spec. 5.4.1.

3. The requirement is met that k-effective not exceed 0.98, at a 95% probability, 95% confidence level with the fresh fuel storage racks filled with fuel of the maximum permissible U-235 enrichment and flooded with moderator at the (low) density corresponding to optimum moderation.

Response

The requirement of $k\text{-eff} < 0.98$ in new fuel storage when flooded with optimum low moderator density condition is met as stated in Tech. Spec. 5.4.1.

4. The requirement is met that k-effective not exceed 0.95, at a 95% probability, 95% confidence level with the spent fuel storage racks filled with fuel of the maximum permissible U-235 enrichment and flooded with pure water.

Response

The requirement of $k\text{-eff} < 0.95$ in spent fuel storage when filled with maximum 5.0% U-235 and flooded with pure water is met as stated in Tech. Spec. 5.4.1. During fuel movements, a minimum of 600 ppm boron is required in the Spent Fuel Pool to ensure $k\text{-eff} < 0.95$ based on the analyzed fuel handling accident.

5. The quantity of forms of special nuclear material, other than nuclear fuel, such as sources or detectors, that are stored onsite in one area, is less than that necessary for a critical mass.

Response

Special Nuclear Material (SNM) is reported in the semi-annual material status reports as required. The quantity of SNM in onsite detectors is less than 40 grams, which is less than necessary for a critical mass. For the special case of TMI-2, SNM quantities have been addressed previously in the May 27, 1988 Amendment 30 to the TMI-2 License, and the June 15, 1992 approval of 10 CFR 70.24 exemption for TMI-2. Sources are controlled onsite by procedures, which assign source custodians, track inventory, record movement and storage, and ensure required testing. The amount of source material is less than 30 grams, much less than required to produce a critical mass.

6. Radiation monitors, as required by GDC 63, are provided in fuel storage and handling areas to detect excessive radiation levels and to initiate appropriate safety actions.

Response

Radiological Controls Procedure 6610-ADM-4410.01, "Fuel Receipt and Handling," provides radiation monitoring requirements for handling new fuel prior to being placed into the spent fuel pool. Any handling of fuel in the spent fuel pools is monitored by Technical Specification required radiation monitors on the fuel handling bridges. These required radiation monitors have alarm response procedures which provide instructions to the operators upon receipt of alarms.

7. The maximum nominal U-235 enrichment is 5 wt%.

Response

Maximum enrichment is 5.0 % U-235 as stated in Tech. Specs. 5.4.1 and 5.4.2.

8. Training is provided to the appropriate personnel for safely handling fresh fuel.

Response

Training of Fuel Handling Bridge operators is provided through the Operator Training program. Training of Maintenance personnel consists of crane operation certification, rigging and handling, and signaling for safe load handling. In addition, all individuals who have access to radiologically controlled areas must complete initial training, and annual refresher training thereafter, which includes proper response to area radiation monitor alarms.