

January 15, 2001

5928-00-20349

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

Dear Sir or Madam:

**SUBJECT: THREE MILE ISLAND, UNIT 1 (TMI UNIT 1)  
OPERATING LICENSE NO. DPR-50  
DOCKET NO. 50-289  
LICENSE AMENDMENT REQUEST NO. 302  
FUEL ASSEMBLY U<sup>235</sup> LOADING CRITERIA**

In accordance with 10 CFR 50.4 (b)(1), enclosed is License Amendment Request No. 302.

The purpose of this License Amendment Request is to revise the TMI Unit 1 Technical Specifications Design Features Section 5.4.2(f), Spent Fuel Storage, to remove the existing Technical Specification fuel assembly U<sup>235</sup> loading criterion for fuel assemblies stored in the spent fuel storage pool. The Updated Final Safety Analysis Report (UFSAR) is being revised to explicitly state that changes to fuel designs that increase reactivity (including U<sup>235</sup> loading) must be evaluated for any impact on safety. This U<sup>235</sup> loading criterion does not represent a limiting design condition for any supporting design basis analyses applicable to the TMI Unit 1 spent fuel storage requirements. TMI Unit 1 spent fuel pool storage requirements are governed by the fuel assembly maximum allowed initial enrichment, soluble boron requirements, allowable enrichment vs. burnup, rack spacing, rack location and sub-criticality requirements for normal and postulated accident conditions. Also, it is noted that this criterion is not a parameter specified in the NRC Standard Technical Specifications, Babcock & Wilcox Plants, NUREG-1430, Revision 1, April 1995.

AmerGen requests that this license amendment application be approved by April 1, 2001, to support Cycle 14 core design analysis and reload report finalization. The TMI Unit 1 Cycle 14 core reload design utilizes the Framatome Cogema Fuels (FCF) MK-B12 fuel design that includes a redesigned fuel pellet with a larger diameter and a higher UO<sub>2</sub> density. This fuel pellet design change is evaluated in accordance with the criteria defined in NRC approved Framatome Topical Report BAW-10179 P-A, "Safety Criteria and Methodology for Acceptable Cycle Reload Analyses."

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Using the standards in 10 CFR 50.92, AmerGen has concluded that this proposed change does not constitute a significant hazards consideration, as described in the enclosed analysis performed in accordance with 10 CFR 50.91(a)(1). Pursuant to 10 CFR 50.91(b)(1), a copy of this License Amendment Request is provided to the designated official of the Commonwealth of Pennsylvania, Bureau of Radiation Protection, as well as the chief executives of the township and county in which the facility is located.

If any additional information is needed, please contact David J. Distel at (610) 765-5517.

Very truly yours,



Mark E. Warner  
Vice President - TMI Unit 1

MEW/djd/vvg

Enclosures: 1) Safety Evaluation and No Significant Hazards Consideration  
2) Affected TMI Unit 1 Technical Specification Pages

cc: H. J. Miller, Administrator, USNRC Region I  
T. G. Colburn, USNRC Senior Project Manager, TMI Unit 1  
J. D. Orr, USNRC Senior Resident Inspector, TMI Unit 1  
D. Allard, Director, Bureau of Radiation Protection -  
PA Department of Environmental Resources  
Chairman, Board of County Commissioners of Dauphin County  
Chairman, Board of Supervisors of Londonderry Township  
File No. 00121



**ENCLOSURE 1**

**TMI Unit 1 License Amendment Request No. 302**

**Safety Evaluation and No Significant Hazards Consideration**

**I. License Amendment Request No. 302**

AmerGen Energy Company, LLC (AmerGen) requests that the following changed replacement page be inserted into the existing Technical Specification:

Revised Technical Specification page: 5-7

A marked up page showing the requested change is provided in Enclosure 2.

**II. Reason for Change**

The purpose of this License Amendment Request is to revise the TMI Unit 1 Technical Specification Design Features Section 5.4.2(f), Spent Fuel Storage, to remove the existing Technical Specification fuel assembly  $U^{235}$  loading criterion for fuel assemblies stored in the spent fuel storage pool. The TMI Unit 1 Updated Final Safety Analysis Report (UFSAR) is being revised to explicitly state that changes to fuel designs that increase reactivity (including  $U^{235}$  loading) must be evaluated for any impact on safety. The specific fuel assembly  $U^{235}$  loading value is a cycle specific value based on the approved fuel assembly designs utilized for each core reload. The TMI Unit 1 Cycle 14 core reload design utilizes the MK-B12 fuel design that includes a redesigned fuel pellet with a larger diameter and a higher  $UO_2$  density. This fuel pellet design change is evaluated in accordance with the criteria defined in NRC approved Framatome Topical Report BAW-10179 P-A, "Safety Criteria and Methodology for Acceptable Cycle Reload Analyses."

The fuel assembly  $U^{235}$  loading criterion does not represent a limiting condition for any supporting design basis analyses applicable to the TMI Unit 1 fuel storage requirements. This change is consistent with the NRC Standard Technical Specifications, Babcock & Wilcox Plants, NUREG-1430, Revision 1, April 1995.

**III. Safety Evaluation Justifying Change**

The proposed change removes the fuel assembly  $U^{235}$  loading criterion from the TMI Unit 1 Technical Specification Design Features, Section 5.4.2(f). The discussion of fuel assembly  $U^{235}$  loading in the TMI Unit 1 UFSAR will ensure that changes to fuel designs that increase fuel reactivity relative to the design assumptions for fuel storage are evaluated in accordance with the requirements of 10 CFR 50.59.

TMI Unit 1 fuel storage requirements are governed by the fuel assembly maximum allowed initial enrichment, soluble boron requirements, allowable enrichment vs. burnup, rack spacing, rack location and sub-criticality requirements for normal and postulated accident conditions. These parameters are controlled by the existing TMI Unit 1 Technical Specification Sections 5.4.1 and 5.4.2.

The fuel assembly  $U^{235}$  loading criterion does not represent an input parameter or limiting design condition for any supporting design basis analyses applicable to the TMI Unit 1 fuel storage requirements. Nor is this design feature an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. The fuel assembly  $U^{235}$  loading criterion does not meet the requirements for a limiting condition for operation to be included in Technical Specifications as defined in 10 CFR 50.36(c)(2)(ii). The proposed change is consistent with the NRC Standard Technical Specifications, Babcock & Wilcox Plants, NUREG-1430, Revision 1, April 1995.

Therefore, the proposed change has no effect on nuclear safety or safe plant operation.

#### **IV. No Significant Hazards Consideration**

AmerGen has determined that this License Amendment Request poses no significant hazards considerations as defined by 10 CFR 50.92.

1. The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated. The proposed change has no effect on the normal operating, design basis accident, or transient analyses applicable to TMI Unit 1 fuel storage requirements. Other existing TMI Unit 1 Technical Specification provisions ensure sub-criticality for normal and postulated accident conditions.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated. Fuel assembly  $U^{235}$  loading is not an initial condition of a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. Discussion of fuel assembly  $U^{235}$  loading in the TMI Unit 1 UFSAR ensures that changes to fuel designs that increase fuel reactivity relative to design assumptions for fuel storage are evaluated in accordance with the requirements of 10 CFR 50.59.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed change does not involve a significant reduction in a margin of safety. The proposed change does not affect existing TMI Unit 1 Technical Specification requirements controlling maximum fuel enrichment, allowable enrichment vs. burnup, soluble boron requirements, storage rack spacing, allowable rack locations for fuel assembly storage or sub-criticality requirements for normal and accident conditions. These existing Technical Specification requirements ensure that the current margin of safety is not reduced. The fuel assembly U<sup>235</sup> loading criterion does not represent an input parameter or limiting design condition for any supporting design basis analyses applicable to the TMI Unit 1 spent fuel storage requirements.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

#### **V. Information Supporting an Environmental Assessment**

An environmental assessment is not required for the proposed change since the proposed change conforms to the criteria for “actions eligible for categorical exclusion” as specified in 10 CFR 51.22(c)(9). The proposed change will have no impact on the environment. The proposed change does not involve significant hazards as discussed in the preceding section. The proposed change does not involve a significant change in the types or significant increase in the amounts of any effluents that may be released off-site. In addition, the proposed change does not involve a significant increase in individual or cumulative occupational radiation exposure.

#### **VI. Implementation**

AmerGen requests that the amendment authorizing this change become effective immediately upon issuance, to be implemented within 30 days.

**ENCLOSURE 2**

**Affected TMI Unit 1 Technical Specification Pages**

# CONTROLLED COPY

## 5.4.2 SPENT FUEL STORAGE (Reference 1)

- a. Irradiated fuel assemblies will be stored, prior to offsite shipment, in the stainless steel lined spent fuel pools, which are located in the fuel handling building.
- b. ~~Whenever there is fuel in the pool except for initial fuel loading, the spent fuel pool is filled with water borated to the concentration used in the reactor cavity and fuel transfer canal.~~
- c. Deleted.
- d. The fuel assembly storage racks provided and the number of fuel elements each will store are listed by location below:

	Spent Fuel Pool A North End of Fuel Handling Building	Spent Fuel Pool B South End of Fuel Handling Building	Dry New Fuel Storage Area Fuel Handling Building
Fuel Assys.	846 *	496	54
Cores	4.78	2.8	0.37

NOTE: \* Includes three spaces for accommodating failed fuel containers. An additional 648 storage locations can be installed to provide a total of 1494 locations or 8.44 cores.

- e. All of the fuel assembly storage racks provided are designed to Seismic Class 1 criteria to the accelerations indicated below:

	Fuel Handling Building Dry New Fuel Storage Area And Spent Fuel Pool A	Fuel Handling Building Spent Fuel Pool B
Horiz.	0.38 g	**
Vertical	0.25 g	**

NOTE: \*\* The "B" pool fuel storage racks are designed using the floor response spectra of the Fuel Handling Building.

~~DELETED~~  
f. ~~Fuel in the storage pool shall have a  $U^{235}$  loading equal to or less than 66.2 grams of  $U^{235}$  per axial centimeter of fuel assembly.~~

- g. When spent fuel assemblies are stored in the Spent Fuel Pool "A", Region II storage locations, the combination of initial enrichment and cumulative burnup for spent fuel assemblies shall be within the acceptable area of Figure 5-4.
- h. When spent fuel assemblies are stored in the Spent Fuel Pool "B", storage locations, the combination of initial enrichment and cumulative burnup for spent fuel assemblies shall be within the acceptable area of Figure 5-5.

### REFERENCES

- (1) UFSAR, Section 9.7 - "Fuel Handling System"