



GPU Nuclear Corporation
Post Office Box 480
Route 441 South
Middletown, Pennsylvania 17057-0191
717 944-7621
TELEX 84-2386
Writer's Direct Dial Number:

February 13, 1992

C311-92-2018

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

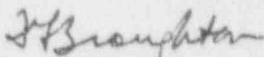
Dear Sir:

Subject: Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Response to Request for Additional Information
Regarding Spent Fuel Pool Rerack

Enclosed is the GPU Nuclear response to a request for additional information contained in the NRC's letter dated January 15, 1992 regarding rerack of the spent fuel pool.

If any additional information is required please advise.

Sincerely,


T. G. Broughton
Vice President and Director, TMI-1

TGB/DJD/amk

Enclosure: TMI-1 Response to NRC Request for Additional
Information Regarding Spent Fuel Pool Reracking

cc: TMI-1 Senior Resident Inspector
Region I Administrator
TMI-1 NRC Project Manager

9202200027 920213
PDR ADOCK 05000289
P PDR

31192016LTR

ENCLOSURE

TMI-1 Response to NRC Request for Additional Information
Regarding Spent Fuel Pool Rerack

Question 1.m

The proposal to rerack the spent fuel pool appears to violate the design bases upon which the spent fuel cooling system has been established. The proposal shows maximum bulk pool temperatures of 158.35°F for an offload of 80 assemblies with 1 train operating, and maximum bulk pool temperatures of 156.05 and 154.56°F for full core offloads while the corresponding temperatures shown in the design basis are 135°F and 147°F, respectively.

Justify this change in your design basis or describe any modifications planned for the spent fuel pool heat generation load and/or cooling process as to comply with your design basis.

RESPONSE

The current design basis of the TMI-1 Spent Fuel Pool Cooling (SFPC) System remains unchanged by the proposed reracking of the pool. As stated in the TMI-1 FSAR Section 9.4.1, the design basis stipulates that with 521 fuel assemblies in the Spent Fuel Pool (occupying 521 of the 752 storage locations provided by the original storage racks) and with only one Spent Fuel Pool Cooler in operation, the temperature of the pool will be 135°F. Additionally, for an inventory of 574 spent fuel assemblies and a full core off-load of 177 assemblies (751 total assemblies - full original storage racks), the pool temperature will be 147°F when both Spent Fuel Pool Coolers are in operation. The cooling capacity required to achieve these conditions constitutes the design basis of the TMI-1 Spent Fuel Pool Cooling System. This cooling capacity remains undiminished as a result of the proposed reracking of the Spent Fuel Pool. However, the proposed reracking increases the maximum number of storage locations in Pool "A" from 256 to 1,494, thus raising the total number of storage spaces from 752 to 1,990. The pool water temperatures reported in the licensing submittal are based on far larger inventories than those capable of being achieved using the original storage racks. The scenario resulting in a maximum bulk pool temperature of 158.35°F, for example, assumes 1,840 assemblies in the Spent Fuel Pool with only one Spent Fuel Pool Cooler in operation. With both coolers in operation and a full core off-load of 177 assemblies (instead of a normal discharge of 80 assemblies) for a total inventory of 1,937 assemblies, the maximum bulk pool temperature will be 156.05°F. Both of these temperatures are well below the boiling point and the design temperature of the Spent Fuel Pool Cooling System (250°F) and confirm that the SFCS remains capable of providing sufficient cooling for the increased heat load. As noted in Holtec Report HI-89407, Table 5.5.2 (previously submitted) the revised minimum time-to-boil for the worst case is 10.26 hours. This result does not effect the existing FSAR 9.4.1 design basis conclusion that in the event of simultaneous loss of both spent fuel cooling loops adequate time is available to restore one of the spent fuel cooling loops.

Also as noted in HI-89407, Section 5.5, the revised TM1-1 maximum pool bulk temperatures are less than those recently licensed at Indian Point - 2 and Diablo Canyon 1 and 2.

The increase in the inventory of stored fuel assemblies due to the proposed rerack does not have a significant impact on the existing Spent Fuel Cooling System design basis since: (1) for the normal discharge scenario (with 2 trains in operation) the maximum pool water temperature is below 150°F, (2) for the postulated full core offload case (with one cooling train in operation) the maximum water temperature is well below 212°F, and (3) adequate time is available to restore one loop of spent fuel cooling before boiling occurs in the event of loss of both SFCS loops under the worst case discharge scenario. These bulk pool temperatures are described in HI-89407, Tables 5.5.1 and 5.5.2.