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October 13, 1987
NRC/TMI 87-079

Docket No. 50-320

Mr. F. R. Standerfer
Vice President/Director, TMI-2
GPU Nuclear Corporation
P. O. Box 480
Middletown, PA 17057

Dear Mr. Standerfer:

Subject: Pressurizer Defueling Safety Evaluation Report (M64209)

References: a. GPUN letter 4410-87-L-0108, F. R. Standerfer to U. S. Nuclear Regulatory Commission, Document Control Desk, Pressurizer Defueling Safety Evaluation Report, Dated July 21, 1987

b. Letter NRC/TMI 85-055, W. D. Travers to F. R. Standerfer, Defueling Water Cleanup System, dated August 6, 1985

Reference (a) submitted, for NRC staff review and approval, your proposal for defueling of the pressurizer. The proposed process involves lowering a submersible pump into the pressurizer to vacuum the debris. The proposed defueling system utilizes train 'B' of the Defueling Water Cleanup System (DWCS) to remove the fuel fines pumped from the pressurizer as the water is routed through a knock-out canister and returned to the reactor vessel. An option exists to route the water through the DWCS train 'B' filters to assist in maintaining water clarity.

We have reviewed your safety analysis and have evaluated the proposed activities for potential adverse safety consequences due to inadvertent criticality, RCS boron dilution and spills of radioactive liquids.

The actual amount of fissile material which may be contained in the pressurizer has been determined to be 25 kg at the upper bound of the analyses. However, additional information has indicated that the amount of fuel in the pressurizer may be substantially less, perhaps as low as 0.9 kg. Therefore it is reasonable to assume that the total inventory of fissile material in the pressurizer is less than the 70 kg needed to achieve a critical mass. In addition, the presence of borated water in the pressurizer, RCS, and DWCS provides additional margins of safety to assure subcriticality. The system proposed for defueling of the pressurizer is a closed loop system and no other water sources are introduced as possible boron dilution paths.

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The staff has concluded that if the RCS chemistry is maintained within the previously approved limits, there is reasonable assurance that defueling the pressurizer in the manner proposed will not cause an inadvertent criticality.

The effects of liquid spills due to pipe or hose breaks were previously evaluated. We have concluded that the potential for and the consequences of such line breaks during defueling of the pressurizer are bounded by analyses previously approved by reference (b).

We concur with your analysis that the proposed activities do not pose a significant risk to the health and safety of the public or the occupational work force, nor do they exceed the scope of activities and associated environmental impacts considered in the staff's Programmatic Environmental Impact Statement. The proposal does not present the possibility of any accident not previously analyzed nor does it change the consequences of, or likelihood of any previously analyzed accident. Margins of safety as previously analyzed are not reduced.

We therefore approve your proposal for removing fissile material from the pressurizer as described in reference (a).

Sincerely,

ORIGINAL SIGNED BY,
William D. Travers

William D. Travers, Director
TMI-2 Cleanup Project Directorate

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