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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: Ex-Vessel Defueling Safety Analysis

References: (a) Letter 4410-86-L-0191, F. Standerfer to W. Travers, Ex-Vessel Defueling Safety Analysis, dated November 26, 1986
(b) Letter NRC/TMI 85-055, W. Travers to F. 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 spray line. The proposed process involves supplying filtered borated flushing water from the Defueling Water Cleanup System (DWCS) train 'B' via a hose to the pressurizer spray line. Fuel debris in the spray line and bypass line will be flushed into the pressurizer vessel or the RCS cold leg loop 2A for future removal. 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 amount of fissile material expected to be contained in the pressurizer spray line is small (less than 0.1 kg) when compared to the fissile material which may already exist in the pressurizer vessel or the RCS cold leg. This total quantity in either location is much less than the 70 kg needed to achieve a critical mass. In addition, the presence of borated water in the pressurizer provides additional margins of safety to assure subcriticality. Using highly borated water from the DWCS to flush the system will have a tendency to increase the boron concentration in the pressurizer vessel as well as induce a mixing action. The staff has concluded that if the RCS chemistry is maintained within the previously approved limits and the DWCS is operated within the constraints specified in reference (b), there is reasonable assurance that the pressurizer spray line flush program will not cause an inadvertent criticality.

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Dilution of the boron concentration in the RCS could result if the process hose was inadvertently connected to a non-borated water source. The staff has determined that the implementation of appropriate administrative and procedural controls over connection of process hoses and aligning of valves will provide adequate protection against inadvertent boron dilution in the RCS.

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

We concur with your analysis that the proposed activities do not pose a 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 flushing of the pressurizer spray line as described in reference (a). This approval is contingent upon our review of the associated procedures subject to Technical Specification 6.8.2.

Sincerely,

ORIGINAL SIGNED BY:
William D. Travers

William D. Travers
Director
TMI-2 Cleanup Project Directorate

cc: T. F. Demitt
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