

Nuclear

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June 2, 1986

TMI-2 Cleanup Project Directorate
Attn: Dr. W. D. Travers
Director
US Nuclear Regulatory Commission
c/o Three Mile Island Nuclear Station
Middletown, PA 17057

Dear Dr. Travers:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Testing of Core Region Defueling Techniques

The purpose of this letter is to request your concurrence with the GPU Nuclear proposal to proceed with limited core region defueling in the Southwest quadrant of the TMI-2 core. The duration of this program is a period of approximately two weeks which is presently available prior to commencement of core stratification sample activities. GPU Nuclear proposes to use this period to test bulk defueling tools. The tools to be tested during this period include a heavy duty spade bucket, a heavy duty tong tool and a hydraulic chisel; the vacuum system also will be operated.

The proposed activities include use of the above tools to attack the surface of the core. Use of the light duty tong tool and the light duty spade bucket were previously approved via Revision 4 of the Early Defueling Safety Evaluation Report (SER) (Reference 1). Limited use of the hydraulic impact chisel was addressed in Reference 2 which also was approved by the NRC. Portions of the proposed activities are beyond the approved scope of References 1 and 2 but are bounded by Revision 10 of the Defueling SER (Reference 3) which was submitted to the NRC for approval on May 15, 1986. The purpose of this letter is to demonstrate that the performance of the proposed activities not bounded by an approved SER will not jeopardize the health and safety of the public.

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GPU Nuclear review of the proposed activity has concluded that the potential exists for certain events to occur which were not evaluated in the previously approved SERs. These events are:

- o The break up of the postulated hard crust region of the core.
- o The removal of partial fuel assemblies.
- o The grabbing and pulling on incore instrument strings.

The most significant safety impact which could result from the above listed events involve the potential effect on incore instrument strings and associated incore instrument nozzles and welds.

Reference 3 provided the results of an analysis which determined that the minimum strength of an incore instrument nozzle weld is approximately 5400 pounds in tension or compression. Additionally, Reference 3 stated that tests had been performed and it was determined that the breaking strength of an incore instrument string was approximately 4000 pounds force.

Thus, it is expected that an instrument string will fail before its associated nozzle weld. However, because the analysis of the incore instrument nozzle weld has not been reviewed and approved by the NRC, GPU Nuclear proposes to impose a net uplift force limit of approximately 2000 pounds, in excess of the specific tool weight, on the tools to be tested in order to provide a significant margin of safety for the incore instrument nozzle weld. The proposed uplift force limit equates to approximately 50% of the force required to cause an incore instrument string failure and approximately 37% of the minimum calculated incore weld strength. Thus, the maintenance of integrity of the incore instrument nozzle welds is assured.

Other possible effects of the proposed activity, such as krypton releases and collapse of the hard crust region, were evaluated in References 1 and 2, respectively. These references have received NRC approval.

The proposed activities do not create the possibility of accident of a different type nor increase the consequences of a previously evaluated accident or malfunction. In addition, by assuring that loads imparted to incore nozzle welds remain below those minimum loads necessary to cause an incore nozzle weld failure, the proposed activity neither increases the probability of an accident which previously has been evaluated nor reduces the margin of safety as defined in the basis for any Technical Specification. Thus, the proposed activities do not constitute an unreviewed safety question and can be performed without jeopardizing the health and safety of the public.

Dr. Travers

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Per the requirements of 10 CFR 170, an application fee of \$150.00 is enclosed.

Sincerely,

A handwritten signature in dark ink, appearing to read 'F. R. Standerfer', with a long horizontal flourish extending to the right.

F. R. Standerfer
Vice President/Director, TMI-2

FRS/RBS/eml

Enclosure: GPU Nuclear Corp. Check No. 00023767

REFERENCES

1. GPU Nuclear letter 4410-85-L-0200 dated October 10, 1985, Early Defueling Safety Evaluation Report, Revision 4.
2. GPU Nuclear letter 4410-86-L-0021 dated January 22, 1986, Hydraulic Impact Chisel.
3. GPU Nuclear letter 4410-86-L-0049 dated May 15, 1986, Defueling Safety Evaluation Report, Revision 10.