



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

POLAR CRANE AUXILIARY HOOK OVER INCORE INSTRUMENT SEAL TABLE

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INTRODUCTION

As part of an international research effort, GPU Nuclear Corporation (GPUN), the licensee, has submitted a Safety Evaluation report for obtaining metallurgical samples from the reactor vessel (RV) lower head (reference A). The NRC staff reviewed and subsequently approved this SER (reference B). To support the metallurgical sampling program, GPUN submitted an additional SER to use the polar crane (PC) auxiliary hook above the incore instrument seal table (reference C) to withdraw incore instrument strings. This activity will take place after the defueling of the RV is complete. The verification of the defueling completion will probably not be complete.

EVALUATION

The safety concern regarding using the PC auxiliary hook over the seal table is the potential for a drop of the load block. Neither the NRC staff nor the licensee could identify a mechanism by which a potential load drop over the seal table could reconfigure any remaining fuel or cause fuel to leak from the RV.

A load drop could damage the seal table or the attached incore instrument tubes. Damage at or near the seal table would not cause a loss of reactor coolant system (RCS) water due to this elevation. If forces were transmitted through the vertical runs of tubing, buckling and possible fracture could occur at the bend on the bottom of the 4.5 gpm per instrument tube and a maximum of six instrument tubes in the impact area. This results in a maximum leakage of 27 gpm.

The licensee's safety systems to make up potential RCS losses include two pathways for gravity feed from the borated water storage tank (BWST) and two reactor building recirculation systems. A single pathway from the BWST or a single recirculation pump system can supply 200 gpm. This makeup capability far exceeds any potential leakage from a load drop.

CONCLUSIONS

The NRC staff has reviewed and evaluated the licensee's proposal to use the PC auxiliary hook over the incore instrument seal table. Based on the above evaluations, there is reasonable assurance that the health and safety of the public will not be endangered by this activity. This activity falls within the scope of activities previously considered in the NRC staff's Programmatic Environmental Impact Statement as supplemented.

REFERENCES

- a. GPUN letter 4410-89-L-0085/048P dated August 18, 1989 from M. B. Roche to NRC with attached Safety Evaluation Report to Remove Metallurgical Samples from the TMI-2 Reactor Vessel.
- b. NRC letter J. F. Stolz to M. B. Roche, GPUN dated November 27, 1989 re: Safety Evaluation to Remove Metallurgical Samples from the TMI-2 Reactor Vessel.
- c. GPUN letter, 4410-89-L-0110/0509P dated October 26, 1989 from M. B. Roche to NRC Document Control Desk, "Safety Evaluation Report for the Use of the Polar Crane Auxiliary Hook Above the Incore Instrument Seal Table to Withdraw Incore Instrument Strings."

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