

December 30, 1988

Docket No. 50-320

Mr. M. B. Roche  
Vice President/Director, TMI-2  
GPU Nuclear Corporation  
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Dear Mr. Roche:

Subject: Three Mile Island Nuclear Station, Unit 2 - Use of  
Polar Crane Auxiliary Hook for Defueling (TAC 71131)

The Nuclear Regulatory Commission staff has reviewed your October 20, 1988, submittal pertaining to the use of the polar crane auxiliary hook for defueling-related activities. As stated in the enclosed Safety Evaluation issued by the staff, we conclude that the proposed activities can be accomplished without significant risk to the health and safety of the public provided that they are in accordance with the limitations stated in your submittals and in the staff's Safety Evaluation.

The use of the polar crane to aid in defueling falls within the scope of activities previously considered in the "Programmatic Environmental Impact Statement." We, therefore, approve the use of the polar crane auxiliary hook for defueling-related activities subject to the limitations discussed above.

Sincerely,

original signed by

John F. Stolz, Director  
Project Directorate I-4  
Division of Reactor Projects I/II  
Office of Nuclear Reactor Regulation

Enclosure:  
As stated

cc w/enclosure:  
See next page

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

USE OF POLAR CRANE AUXILIARY HOOK FOR DEFUELING

GPU NUCLEAR CORPORATION

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 2

DOCKET NO. 50-320

INTRODUCTION

GPU Nuclear Corporation (GPUN, the licensee) submitted by letter dated October 20, 1988 (reference 1) a proposal expanding the use of the polar crane (PC) auxiliary hook in defueling activities. General use of the PC during the TMI-2 cleanup was approved in reference 2. Limited use of the PC auxiliary hook below the defueling work platform (DWP) was approved in reference 3. The limitations included using slow speed only (4 inches/minute) and having additional standby personnel at electrical disconnects. The current GPUN proposal would use redundant overload sensors to allow use of the auxiliary hook in all speeds while the hook or loads are below the DWP.

EVALUATION

GPUN's load handling program incorporates the elements referenced in Generic Letter No. 81-07 and NUREG 0612, "Control of Heavy Loads at Nuclear Power Plants." These elements include the following.

1. Definition of safe load paths.
2. Development of load handling procedures.
3. Periodic inspection and testing of cranes.
4. Qualifications, training and specified conduct of operators.
5. Special lifting devices should satisfy the guidelines of American National Standards Institute (ANSI) N14.66.
6. Lifting devices that are not specifically designed should be installed and used in accordance with the guidelines of ANSI B30.9.
7. Design of cranes to ANSI B30.2 or Crane Manufacturers Association of America (CMAA) 70.

The specific safety concern with using the PC auxiliary hook under the DWP is the potential for a load or empty hook hang-up. The PC auxiliary hook has the capability to tilt or lift the DWP.

The licensee has proposed to place redundant load sensors on the PC auxiliary hook. They would limit a sensed load to 10,000 pounds. If this load were exceeded, the sensors would trip, defeating all motion by the PC auxiliary hook, except down motion. This would allow the load to be lowered to a safe position and the sensors would reset. The 10,000-pound limit on lifting force would preclude tilting or lifting the 50,000-pound shielded work platform with a safety margin greater than two.

The licensee will perform annual maintenance and surveillance testing on the overload sensors. In discussions with the NRC staff, the licensee has agreed to perform the first two surveillance and maintenance activities on a quarterly basis. The licensee will evaluate the quarterly data and data from the reactor building service crane and verify that setpoint drift will be within acceptable limits prior to switching to annual maintenance and surveillance.

### CONCLUSION

The staff has reviewed and evaluated the proposed expanded use of the PC auxiliary hook. The staff concluded that the proposed activities can be accomplished without significant risk to the health and safety of the public, provided that they are in accordance with the limitations for this safety evaluation. This activity falls within the scope of activities previously considered in the "Programmatic Environmental Impact Statement."

### REFERENCES

1. GPUN letter, 4410-86-L-0165/0332P, dated October 20, 1988, B. Roche to NRC, Use of Polar Crane Auxiliary Hook for Defueling
2. NRC letter, NRC/TMI 85-090, Revision 2, dated November 15, 1985, W. D. Travers to F. R. Standerfer, Heavy Load Handling Inside Containment
3. NRC letter, NRC/TMI 87-082, dated November 16, 1987, W. D. Travers to F. R. Standerfer, Use of Polar Crane Auxiliary Hook for Defueling

Principal Contributor: Lee H. Thonus

Dated: December 30, 1988