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November 27, 1984

NRC/TMI 84-063

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: Initial Plenum Lift Safety Evaluation

- References: (a) Letter 4410-84-L-0014, B. K. Kanga to B. J. Snyder, dated March 9, 1984
 (b) Letter, B. J. Snyder to B. K. Kanga, dated July 17, 1984
 (c) Letter 4410-84-L-0032, B. K. Kanga to B. J. Snyder, dated June 18, 1984
 (d) Letter, B. J. Snyder to F. R. Standerfer, dated September 14, 1984
 (e) Letter 4410-84-L-0164, F. R. Standerfer to B. J. Snyder, dated November 2, 1984
 (f) Letter 4410-84-L-0212, F. R. Standerfer to B. J. Snyder, dated November 21, 1984

This letter is in response to your letter (reference e), dated November 2, 1984, in which you submitted a Safety Evaluation Report (SER) for initial plenum lifting. Your SER was reviewed by the TMIPO staff and questions arising from the review were discussed during a meeting between your staff and the NRC TMI Program Office staff on November 13, 1984. Following the meeting, all technical issues associated with the plenum jacking were resolved with the exception of questions dealing with the consequences of a postulated load drop onto the plenum following its initial lift. To resolve this concern you issued a supplement to the SER, (reference f) which provided an analysis of the effects of a load drop onto the plenum after its initial lift. Your submittals included a description of the proposed activities and addressed associated radiological and safety concerns. You concluded that the proposed operation would not compromise plant safety and that postulated accidents, including any accidental release of radioactivity, would be bounded by the safety evaluation which was performed in support of the reactor vessel head removal.

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GENERAL DESCRIPTION

The initial lift of the plenum involves the installation of four specially designed jacks to initiate the lift of the 55 ton plenum. It is anticipated that the four jacks, rated at 50 tons each, will be capable of freeing the plenum from the core support assembly and any associated binding from plenum distortions. The jacks are designed to perform a level lift of the plenum to a height of nine inches. At various stages during the lift, the load will be transferred from the hydraulically actuated lift mechanism to a mechanical follower within each jack. The plenum will remain supported on four mechanical followers for several months while additional plenum inspections and cleaning operations are undertaken. The polar crane will be used eventually (May, 1985) to complete the lift and to transfer the plenum to storage in the deep end of the refueling canal.

RADIOLOGICAL EVALUATION

Radiological consequences resulting from the initial plenum lift are bounded by evaluations performed for reactor vessel head removal (references a and b) and for preparatory activities for plenum removal (references c and d). Projected worker exposures are based on actual exposures received during completed plenum inspection operations which are similar to those contemplated for plenum jacking. As a result, the staff concludes there is a high degree of confidence that the 25 person rem of worker exposure projected by the licensee for the proposed operation is an accurate estimate.

Additionally, the licensee presented rationale to be used in determining whether respiratory protection would be required for the workers involved in the plenum jacking. It is foreseeable that based on evaluations of specific tasks, that the elimination of respirators may be in the best interest of ALARA and worker safety. Projected exposures resulting from internal body depositions will be compared to the potential savings in overall exposure by eliminating respirators and thus decreasing time spent in radiation areas by increasing worker efficiency.

The potential for creating a radiation induced hazard to the general public has been evaluated and the staff concludes that there is an extremely small likelihood that any plenum jacking related work would cause an increase in ambient radiation levels. Krypton 85 gas is the only radioisotope remaining in the core which could potentially be released from the spent fuel and escape through the reactor building purge system to the environment in any quantity. Reference (a) bounded the consequence of a krypton release by assuming that if all remaining krypton were released to the environment, a person at the site boundary could receive 12 millirem of whole body exposure. No increase in reactor building krypton concentrations was measured during plenum inspection and end-fitting removal operations. The preparatory activities included dislodging (by impaction) of partial length fuel assemblies which had adhered to the underside of the plenum. The plenum jacking procedures include steps to dislodge any full length fuel assemblies which may remain attached to the underside of the plenum after jacking. The fuel disturbances resulting from the proposed activities are similar to those already performed and little if any krypton is expected to be released. Should a krypton release occur, noble

[illegible]

November 27, 1984

proposed activities are minimal. The described activities fall well within the scope of those previously assessed in the Staffs' Programmatic Environmental Impact Statement. Accordingly, subject to our review and approval of the procedures implementing the initial lift of the plenum, we approve the scope of activities described in your plenum jacking SER.

William D. Travers
Deputy Program Director
TMI Program Office

cc: T. Demmitt
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