



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

APR 11 1980

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MEMORANDUM FOR: S. A. Varga, Acting Assistant Director for Light Water Reactors, DPM

FROM: R. P. Denise, Acting Assistant Director for Reactor Safety, DSS

SUBJECT: PERSONNEL AIRLOCK DOOR SEAL DESIGN, MCGUIRE, UNITS 1 AND 2

REFERENCE: Memorandum, J. C. Glynn to W. R. Butler, "IE Region IV Vendor Inspection Branch's Concern with the South Texas Units 1 & 2 Personnel Airlock Seal Design," March 19, 1980

The Office of Inspection and Enforcement (I&E), through the referenced memorandum, has informed us that inflatable door seals in lieu of the more common passive compressible seals for personnel airlocks are being used at the South Texas plant. I&E requested a statement of the MRR position on the licensing bases for this design. Inflatable seals, unlike the much more common passive compressible seals, involve the use of active components that must meet certain safety grade criteria, e.g., single active failure criteria and redundancy requirements. We have found that among the NTOL plants, McGuire is one that uses inflatable door seals. Since our prior reviews have not focused on this design, we propose to obtain additional information so that an appropriate review can be accomplished. Enclosed is a request for additional information on this subject, so that we may determine whether the design for McGuire meets our requirements.

At present, we are aware of three plants that have inflatable door seals, i.e., McGuire, South Texas, and Grand Gulf. Depending on the outcome of this review on McGuire, we may later make similar requests for information for the other plants (South Texas and Grand Gulf).

Richard P. Denise, Acting Assistant Director
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Enclosure:
As stated

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Personnel Airlock Door Seals

It has come to our attention that certain plants under construction, particularly South Texas, plan to use personnel airlocks with inflatable door seals. Inflatable door seals, unlike passive compressible door seals, involve the use of active components. These active components must meet certain safety design criteria, e.g., single active failure criteria and redundancy requirements. We understand that the McGuire plant also uses inflatable door seals; therefore, provide the following information:

1. Provide detailed drawings of the personnel airlock door seals and P&I diagrams of the compressed air systems that will maintain the pressure in the inflated seals during normal operating and accident conditions. Include diagrams of the control and indication systems involved with these seal systems.
2. Describe the operation of the seal systems during normal operating and accident conditions. Give the design requirements for the systems, including seismic and environmental qualification, quality assurance requirements, and safety-grade classification.
3. Describe the provisions for protection against single active failures in the seal systems. Discuss the consequences of loss of power, i.e., loss of offsite power, loss of all AC power, or loss of DC power. Note whether system failures are indicated and alarmed in the main control room. Discuss backup seal pressurization systems, such as compressed air or nitrogen tanks, and whether such backup systems have the capacity to assure door seal integrity for extended periods during and following an accident, assuming certain failures, e.g., loss of power.

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