

DUKE POWER COMPANY  
McGuire Nuclear Station

Report Number: SD 369-370/79-06

Report Date: August 31, 1979

Facility: McGuire Nuclear Station - Units 1 and 2

Identification of Deficiency: Improper Drilling of Holes for Mounting  
Personnel Air Lock Door Seals

Description of Deficiency:

The design of McGuire Nuclear Station features an upper and lower personnel air lock per unit. The general arrangement of the personnel air locks is the same for all locks and is shown on attached drawing 30700. Details A and B of this drawing show cross sectional views of the door to seal connection. Two inflatable seals extend around the periphery of each door and are retained by hold-down clamps which bolt through the seal into the door. Drawing 30730 shows details of the bolt holes and hold-down clamps.

In order to finalize the pressure testing of the personnel air locks, Duke Power Company found it necessary to replace the original door seals. It was then discovered that several of the center bolt holes for the small seal were drilled completely through the door plate (see Attachment #3, Nomenclature for Air Lock Door Seals). Other deficiencies were also noted in bolt hole thread depth and bolt hole perpendicularity to the door plate.

The four personnel air locks for the McGuire Nuclear Station were designed by W. J. Woolley Company of River Forest, Illinois. This company also supervised the fabrication of the locks by their subcontractor, Progressive Fabricators of St. Louis, MO. The inflatable door seals were manufactured by the Presray Corporation.

This deficiency was reported to NRC Region II as a reportable item under 10CFR 50.55(e) on August 3 and August 9, 1979.

Analysis of Safety Implications:

The use of two seals on each personnel air lock door provides a redundant means of assuring containment integrity. The center bolt holes of the small seal which are drilled through the door plate provide a leak path into the annulus area (air gap between the two seals) thereby effectively bypassing the large seal. Therefore a single failure (i.e., loss of the small seal) could result in leakage outside the containment under postulated accident conditions.

Corrective Action:

A meeting was held at McGuire Nuclear Station on August 20, 1979, between Duke Power Company and W. J. Woolley Company to discuss the deficiencies and corrective actions. The following plan of action was developed:

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1. All bolt holes will be inspected for penetration depth, thread condition, thread depth, and perpendicularity (see Attachment 4, Air Lock Bolt Hole Inspection form),
2. W. J. Woolley Company is in the process of developing a detailed procedure for repairing the deficient bolt holes.

On November 30, 1979, Duke Power Company will submit another report which further describes the corrective actions taken.

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