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JOHN S. KEMPER  
VICE-PRESIDENT  
ENGINEERING AND RESEARCH

AUG 23 1984

Dr. Thomas E. Murley, Director  
United States Nuclear Regulatory Commission  
Office of Inspection and Enforcement, Region I  
631 Park Avenue  
King of Prussia, PA 19406

Subject: Significant Deficiency Report No. 148  
Design Calculation Discrepancy on Woolley Doors

Attachments: Letter: W.J. Woolley Company to the USNRC,  
Dated 07/05/84

File: QUAL 2-10-2 (SDR #148)

Dear Dr. Murley:

The attached letter has brought to our attention a discrepancy in the design calculations made by the W. J. Woolley Company for doors specified to meet tornado-generated missile criteria. This discrepancy has previously been reported to the USNRC by the W. J. Woolley Company under the provisions of 10CFR21. M

We consider the deficiency described in the attachment as a significant deficiency per 10CFR50.55(e) and are hereby notifying you, as required.

We believe that the W. J. Woolley Company report submitted under the provisions of 10CFR21 provides the information required for 10CFR50.55(e) reporting. Therefore, we anticipate that this letter will be our only report to you on this subject.

We are currently performing a reanalysis of the missile doors in question to determine if they meet all FSAR requirements.

Sincerely,

WSS/drd08218404  
Attachment

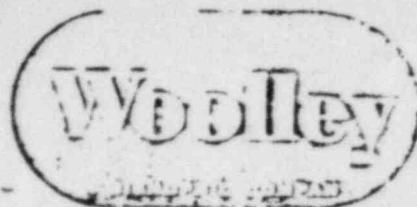
Copy to: Director of Inspection and Enforcement  
United States Nuclear Regulatory Commission  
Washington, DC 20555

S. K. Chaudhary, Resident NRC Inspector (Limerick)  
J. Wiggins, Resident NRC Inspector (Limerick)

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July 5, 1984



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Mr. J. G. Keppler, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Office of Inspection and Enforcement  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

In accordance with the requirements of 10CFR21, I am forwarding herewith a copy of Summary of Computational Errors For Missile Doors, dated July 5, 1984. The discovery of these errors and potential safety impact was reported by phone to your Mr. R. C. Kanop on June 29, 1984.

The attached summary provides a description of the discovery and evaluation of the calculational errors and the possible impact upon the design and functional requirements for missile shield doors for the Limerick and Shearon Harris nuclear power plants.

The missile protection doors, as defined in the attached summary, have been designed, fabricated, delivered and partially erected for the referenced nuclear power plants. Neither of the referenced power plants are presently in operation, and therefore, these errors do not presently present a possible safety hazard to the public.

An update of the evaluation of the calculational errors will be submitted on or before August 1, 1984.

If there are any questions, please contact me at our new location, 4413 Kings Run Drive, Cincinnati, Ohio 45232, telephone 513/ 641-0500.

Very truly yours,

Dwaine A. Godfrey  
Vice President

hw  
enclosures:  
2 copies W/Summary

bcc: E. Rountree  
T. Utech

~~T. Beckman~~

✓ 10 7-9-84

cc: CEK

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W.J. Woolley Co.

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Summary of Calculational Errors For Missile Shield Doors

By W. J. Woolley Company

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July 5, 1984

On June 25, 1984 a difference in the preliminary designed thickness requirements for missile shield doors for an on going project was discovered to be greater than similar missile shield doors for previous projects designed by another engineering group. This difference was reported to Mr. Dwaine Godfrey, Vice President. Mr. Godfrey reported this difference to the President of the Company and requested an engineering evaluation to determine if possible engineering errors existed. A review meeting was scheduled on June 27. During this meeting, it was concluded that apparent engineering errors were made on the previous designs and was duplicated on subsequent designs. An immediate review of the design and the affected doors and plants was initiated. The results of this review were reported by phone to Mr. R. C. Kanop of the NRC Regional Office, Chicago on June 29, 1984.

The errors are associated with calculating the plastic moment resistance of a uniform rectangular plate. The plastic moment resistance is then used to verify that the calculated ductility ratio is within the specified limit. A preliminary review reveals that the corrected plastic moment capacity results in a ductility ratio greater than the specified limits for some of the missile shield doors. Further redesign will be required to determine the extent of exceeding the specified design allowables.

The nuclear power plants and the related missile shield doors are summarized as follows:

I. - Limerick Generating Station, Units 1 and 2

Missile Shield Doors identification numbers  
193, 195, 196, 205, 289, 293, 294

II. - Shearon Harris Nuclear Station

Missile Shield Doors identification numbers  
57, 90, 92, 232, 250, 312, 321, 462, 463

5, 7

The completion of the design review, redesign and corrective measures, if required, will be dependent upon establishing appropriate modifications for those missile shield doors that fail to comply with the allowable design limits. A summary update will be submitted on or before August 1, 1984.

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Missile Shield doors are provided usually at openings on safety related structures and prevent the ingress of postulated missiles generated by a tornado. Such a missile is postulated to be a telephone pole, steel pipe, steel rod, lumber or automobile. The specifics are defined in the design requirements and Safety Analysis Report.

Neither of the above referenced plants are in operation and these design errors presently do not present a safety hazard to the general public.

hw