



THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

P.O. BOX 5000 - CLEVELAND, OHIO 44101 - TELEPHONE (216) 622-9800 - ILLUMINATING BLDG. - 55 PUBLIC SQUARE

Serving The Best Location in the Nation

MURRAY R. EDELMAN

VICE PRESIDENT
NUCLEAR

March 7, 1985

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

RE: Perry Nuclear Power Plant
Docket Nos. 50-440; 50-441
Drywell Airlock Door Seals
[RDC 86(83)]

Dear Mr. Keppler:

This letter serves as our final report pursuant to 10CFR50.55(e) concerning Drywell Airlock Door Seals furnished under Procurement Specification 669 by Newport News Industrial Corporation, Newport News, Virginia. Mr. P. Pelke was first notified on October 20, 1983, by Mr. E. Riley of The Cleveland Electric Illuminating Company (CEI) that this problem was being evaluated per Deviation Analysis Report 147. Our interim report was filed with your office on November 17, 1984.

This report includes a description of the deficiency, an analysis of safety implication, and information concerning corrective action.

Description of Deficiency

On October 18, 1983, Newport News Industrial Corporation notified CEI that the inflatable seals supplied through W. J. Woolley Company utilized in the drywell airlocks were potentially inadequate to withstand the drywell environmental temperature of 330° during a Perry Nuclear Power Plant design basis accident. The inflatable seals were installed around the perimeter of the doors for sealing against differential pressure. These seals were purchased from seal manufacturers who supply test data on the material to qualify it for various environmental conditions. The W. J. Woolley Company performs additional environmental qualification (EQ) tests to qualify the seals for their intended function by testing them in their final configuration. During EQ testing, a seal was subjected to a temperature of 465°F which weakened the seal and caused it to stretch, resulting in a rupture. The 465°F temperature was the bounding test temperature required to qualify the seals for use at the Midland Nuclear Station.

8503260225 850307
PDR ADOCK 05000440
S PDR

FE27
MAR 11 1985 1/0

This condition was reported to the NRC by W. J. Woolley Company pursuant to 10CFR21 in their letter dated September 19, 1983. Please note that since the time of this notification, the W. J. Woolley Company is now a part of the Enerfab Corporation.

Analysis of Safety Implications

Had this problem gone undetected, the potential would exist for a rupture of the inflatable seals under accident conditions. Calculations have been performed assuming this occurrence, and although the rupture and deflation of the seals would allow a certain amount of air leakage from the drywell area into the containment atmosphere, the leakage area and volume of bypass leakage from this source would not exceed the allowable standards. It cannot be shown at this time, however, that this bypass, in conjunction with all other potential sources, would not result in a violation of allowable standards.

Corrective Action

As a result of the seal failure during EQ testing, the W. J. Woolley Company and Presray Corporation, fabricators of the seals, designed a new inflatable seal with fabric reinforcement around the entire pressure bulb, in addition to redesigning the neck contour of the seal in the area where the top portion of the seal meets the base flange of the seal.

When the new inflatable seal design was complete, prototype seals were manufactured by Presray for the purpose of subjecting this new design to another qualification testing program.

With the cancellation of the Midland Nuclear Station, the W. J. Woolley Company revised its testing parameters to envelope the worst case conditions of the existing plants to which they have supplied inflatable seal air locks. In general, these testing parameters attempted to envelope standard BWR drywell environmental conditions because of their relatively high temperature applications (330°F).

The results of these revised EQ tests were evaluated and found to be acceptable to qualify the seals for use at the Perry Nuclear Power Plant, with one minor exception. The plant air used to inflate the airlock seals supplies air at a pressure of 90 psig to 120 psig. During accident conditions, the increased drywell temperature will result in a pressure increase within the seals to a level beyond that to which the seals have been tested and qualified.

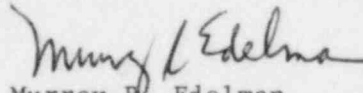
To assure that the internal seal pressure does not exceed the qualification envelope during accident conditions, air pressure supplied to the seal inflation system will be limited to 60 psig. This will be accomplished by the installation of pressure regulating devices in the air supply line to the seal inflation system.

March 7, 1985

Design change documents to affect the installation of these devices are being initiated at this time, and the installation of the Unit 1 hardware is expected to be complete by April 30, 1985. The Unit 2 modification will be completed consistent with the Unit 2 construction schedule.

If you have any questions, please do not hesitate to call.

Sincerely,



Murray R. Edelman
Vice President
Nuclear Group

MRE:ca

cc: Mr. J. A. Grobe
USNRC, Site Office (SBB50)

Mr. D. E. Keating
USNRC, Site Office (SBB50)

Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

U.S. Nuclear Regulatory Commission
c/o Document Management Branch
Washington, D.C. 20555

Records Center, SEE-IN
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339