



**Commonwealth Edison**

One First National Plaza, Chicago, Illinois  
Address Reply to: Post Office Box 767  
Chicago, Illinois 60690

BBS Ltr. #700-75

Dresden Nuclear Power Station  
R. R. #1  
Morris, Illinois 60450  
October 17, 1975

Mr. James G. Keppler, Regional Director  
Directorate of Regulatory Operation-Region III  
U. S. Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

10-28-75

SUBJECT: REPORT OF ABNORMAL OCCURRENCE PER SECTION 6.6.A OF THE TECHNICAL SPECIFICATIONS  
THROUGH-WALL CRACK IN DRYWELL/TORUS NITROGEN PURGE LINE 2-1604-18"

- References: 1) Regulatory Guide 1.16 Rev. 1 Appendix A
- 2) Notification of Region III of U. S. Nuclear Regulatory Commission  
Telephone: P. Johnson, 1530 hours on October 7, 1975
- 3) Drawing Number M-25

Report Number: 50-237/75-48

Report Date: October 17, 1975

Occurrence Date: October 7, 1975

Facility: Dresden Nuclear Power Station, Morris, Illinois 60450

IDENTIFICATION OF OCCURRENCE

A through-wall crack was discovered in the Unit-2 drywell/torus nitrogen purge line 1604-18".

CONDITIONS PRIOR TO OCCURRENCE

Unit-2 was in the run mode at a power level of 2135 MWt and 700 MWe.

DESCRIPTION OF OCCURRENCE

On October 7, 1975 at approximately 1500 hours, a local leak-rate test was being conducted on the volume bounded by air-operated valves 1601-21, -22, -55, -56, and manual valve 8502-501. The local leak-rate test had been initiated upon discovery of a cracked seat on valve 1601-22. The test failed, and the subsequent inspection revealed a through-wall crack on line 1604-18".

8303310627 770610  
PDR ADCK 05000237  
S PDR

12099

October 17, 1975

The crack occurred at the tee connection of lines 8503-8" and 1604-18". It extended 180° around the 8" connection on the 18" line, crossing the welded intersection and extending approximately 7" along the 8" line.

#### DESIGNATION OF APPARENT CAUSE OF OCCURRENCE

It is believed that the crack occurred during the drywell inerting process on October 1, 1975. The heating steam boilers, which vaporize the liquid nitrogen before admission to the drywell, failed temporarily. Because of a previous heating steam boiler alarm which had not been cleared, the boilers were inoperable for approximately 15 minutes before the problem became evident. During this interval liquid nitrogen passed through the vaporizer and the nitrogen inerting line into line 1604-18". The impingement of liquid nitrogen on the tee connection of the two lines caused rapid and uneven contraction, resulting in through-wall cracking.

#### ANALYSIS OF OCCURRENCE

The failure of line 1604-18" to pass the local leak-rate test constituted a breach of primary containment. However, no abnormal makeup of nitrogen was required during unit operation, indicating that leakage was minimal. Secondary containment was in effect, and the pressure suppression system as well as all emergency core cooling systems remained operable.

#### CORRECTIVE ACTION

The immediate corrective action was initiation of an orderly unit shutdown at 100 MWe an hour. An extensive magnetic particle examination of the pertinent lines was completed on October 8, 1975. A twenty-inch section of line 1604-18" containing the tee connection was replaced between valves 1601-21&-22. The manual bypass line 8502-3" around valve 1601-55 was not reconnected, and valve 8502-501 was blind-flanged. Valve 1601-21 was replaced with a spare, and valve 1601-22 was removed and replaced with a blind flange.

Following the initial repairs, a local leak-rate test indicated damage on the 1601-56 valve. The valve was replaced with the 1601-22 valve from Unit-3. The Unit-3 nitrogen purge line was subsequently blind-flanged at the 1601-22 valve location. On October 12, 1975, the new welds were radiographed and a successful local leak-rate test was completed.

A thermocouple and strip chart recorder were installed on the vaporizer discharge to facilitate rapid isolation of the vaporizer in the event of a similar failure. A special operating procedure for start-up has been written, adding precautionary measures to the existing inerting procedure. The new procedure requires:

- 1) that all heating steam boiler alarms are cleared before inerting;
- 2) that personnel must monitor the temperature recorder during inerting; and
- 3) that line temperature will be maintained above an established limit.

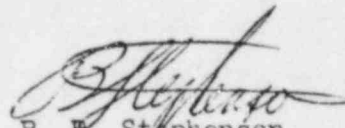
October 17, 1975

Engineering is presently evaluating a modification to install an isolation valve in the vaporizer discharge line which would close automatically on low temperature.

FAILURE DATA

On September 24, 1975, a crack was discovered in the Unit-3 8505-18" torus/drywell nitrogen purge line (see report no. 50-249/74-29).

The 18" torus/drywell nitrogen purge line is seamless, A106 Grade B, 3/8" wall steel piping. The 20" section was replaced with SA53, Grade B steel piping of 3/8" wall thickness.

  
B. E. Stephenson  
Superintendent

BBS:smp

File/NRC