

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-249/82-08

Docket No. 50-249

License No. DPR-25

Licensee: Commonwealth Edison Company
P. O. Box 767
Chicago, IL 60690

Facility Name: Dresden Nuclear Power Station, Unit 3

Inspection At: Morris, Illinois

Inspection Conducted: April 20, 22-25 and May 10 and 21, 1982

Inspectors: *I. Jackiw*
I. Jackiw (4/22, 23, 25)

6-28-82

F. Maura
F. Maura (4/20, 22-25, 5/21)

6-28-82

D. Robinson
D. Robinson (4/24 and 5/10)

6-28-82

Approved by: *I. Jackiw*
I. N. Jackiw, Chief
Test Program Section

6-28-82

Inspection Summary

Inspection on April 20, 22-25, and May 10 and 21, 1982 (Report No. 50-249/82-08)

Areas Inspected: Routine, announced inspection of the containment integrated leakage rate tests. The inspection involved 70 inspector-hours onsite by three NRC inspectors including 33 inspector-hours during offshifts.

Results: Three apparent items of noncompliance were identified (failure to perform calculations in accordance with 10 CFR 50 Appendix J during the initial phase of the test - Paragraph 2.c; failure to have records for latest calibration of flowmeter - Paragraph 2.b; and failure to follow valve checklist procedure - Paragraph 2.d).

DETAILS

1. Persons Contacted

- **D. Scott, Station Superintendent
- R. Regan, Assistant Station Superintendent
- **D. Farrer, Assistant Station Superintendent
- M. Wright, Operating Engineer, Unit 3
- **J. Brunner, Technical Staff Supervisor
- **R. Ryback, Systems Group Leader, Technical Staff
- **S. Rhee, Technical Staff Engineer
- **E. Wilner, QA Supervisor
- *F. Anousch, Engineer, CECO HQ

The inspectors also interviewed other licensee employees including members of the technical and operating staff.

*Denotes those attending the exit interviews of April 23, 1982.

**Denotes those attending the exit interviews of April 23 and May 21, 1982.

2. Dresden Unit 3 Containment Integrated Leak Rate Test

a. Procedure Review

The inspectors reviewed procedure DTS 1600-7, Revision 4, "Unit 2/3 Integrated Primary Containment Leak Rate Test" against 10 CFR 50, Appendix J, ANSI N45.4-1972, and ANSI N18.7-1976 and it was determined that the procedure required the conduct of a 24 hour test using the mass plot analysis method of ANSI/ANS 56.8-1981 although it was the licensee's intent to perform a short duration test. The inspectors informed the licensee that in order to perform a test of less than 24 hours duration, they would have to comply with Bechtel Topical Report BN-TOP-1 which in turn requires that the data analysis be based on "total time" calculations instead of mass calculations.

Another problem noted was the magnitude of the planned induced leakage flow rate. The procedure called for a leak of the same magnitude as the 24 hour calculated leak rate. Appendix J thru ANSI N45.4-1972 requires that the induced leak rate be approximately equivalent to L_a . The new ANSI/ANS 56.8 calls for the induced leak rate to be between 0.75 and 1.25 L_a . Following discussions between NRR, the licensee, and the inspector, it was agreed to require an induced leak rate of at least 0.66 L_a for this test since the licensee was limited by the size of the flowmeter available. However, the licensee has been informed that he must obtain a higher range flowmeter for future CILRT's. This is considered an open item (249/82-08-01) pending the inspectors' review of the next ILRT at the Dresden site.

b. Instrumentation

The inspectors reviewed the calibration data associated with performing the CILRT. All the instruments to be used in the test had been calibrated as required. There were 30 RTD's, 10 dewcells, 2 pressure gauges and 1 flowmeter. On April 24, 1982, during the performance of the test, the inspectors noted that the voltage vs. flow relationship for the flowmeter calibration which he had previously reviewed (calibration data supplied by the licensee) was different than the numbers being used by the licensee. For example, the available calibration records indicated that 9scfm = 4.69V, and 10 scfm = 4.90V. The "new" calibration figures were 9scfm = 4.63 V and 10 scfm = 4.74 V. Upon questioning, the licensee stated that a more recent calibration had been performed, but that he had not received the calibration documentation from Volumetrics and that was why the inspectors were not given the data. However, the licensee had copied the results of the latest calibration for his use. Failure to have calibration records for the flowmeter used during the verification phase of the CILRT is considered to be a violation of 10 CFR 50, Appendix B, Criterion XII and XVII and is an item of noncompliance (249/82-08-02).

c. Witness of Test

The inspectors witnessed portions of the CILRT on April 24-25, 1982 and verified that the licensee had met the stabilization criteria prior to commencement of the CILRT. At approximately five hours into the test, the inspector questioned the licensee regarding the calculations being done by the process computer in that the results, at the 95% confidence level, appeared to be based on the mass equations instead of the required "total time" method of BN-TOP-1, Revision 1. In addition, the results of two data sets from the printout column titled, "Measured Leak Rate, %/day, Total" did not agree with independent calculations done using the equations of BN-TOP-1. During the procedure review on April 20, 1982, the licensee had been made aware of the requirement to calculate the leakage rate based on the total time method of BN-TOP-1, Rev. 1. The licensee initially insisted the total time method was being utilized, but once it was verified that the computers had not been programmed to do a total time calculation per BN-TOP-1, plans to start the verification phase were terminated and the licensee decided to proceed with hand calculations. At approximately 17 hours into the test, the licensee decided to complete a 24 hour ILRT. The decision freed the licensee from the requirements of BN-TOP-1. The licensee's attempt to perform a short term duration test while ignoring the requirements established for short test data reduction are considered to be a violation of 10 CFR 50 Appendix J, and is an item of noncompliance (249/82-08-03).

d. Valve Lineups

During containment pressurization, the inspectors verified that the valve lineups were conducted and documented in accordance with the approved test procedure except as noted below:

- (1) Core Spray valve, MO-3-1402-25A, was used during the test to maintain reactor water level within prescribed limits on April 23-24, 1982. The procedure specified that this valve be closed during the CILRT. No change was made to the procedure to permit the operation of this valve during the test.
- (2) Isolation valves, SO-3-2301-29 and SO-3-2301-30, were found closed contrary to procedure requirements. The valves had apparently closed on a containment high pressure signal. After the inspectors identified the error, a change to the procedure was made to allow the valves to remain closed.

Technical Specification 6.2.A states that detailed written procedures addressing surveillance and testing requirements shall be prepared, approved, and adhered to. Contrary to the above, core spray valve, MO-3-1402-25A and isolation valves, SO-3-2351-29 and SO-3-2301-30, were found in positions other than those specified by the procedure. This is considered an item of noncompliance (249/82-08-04).

e. CILRT Valve Lineup Penalties

Valve configurations noted below deviated from the normal CILRT valve lineup requirement. As a result, the local leak rate test results are added as a penalty to have at the 95% UCL.

Penetration Leakage (Scf/hr.)

X113, RWCU 2.73
X138, SBLC 0.96
X11A/X11B Shutdown Cooling 1.30
X311A/X3aaB LPCI Torus Spray 0.75
X310A/X310B LPCI Test Lines 5.16
X116B LPCI Injection Line 2.79

Total Type C Leakage Penalty 13.69

Expressed in % La, 0.0167 La
where La = 821.86 scf/hr. = 1.6 weight %/day

f. CILRT Data Evaluations

The 24 hr. CILRT was performed on April 24-25, 1982. The inspectors independently monitored leak rate data to ensure the licensee's calculations were in accordance with the approved method for the chosen test duration. Following completion of the test, independent calculations were performed by the inspectors and acceptable agreement between the inspectors' and licensee's results was obtained as noted below. (Units are in weight %/day.)

<u>Measurement</u>	<u>Licensee</u>	<u>Inspector</u>
Leakage rate measured, Lam	0.539	0.534
Lam at upper 95% confidence level	0.547	0.557
Lam at upper 95% confidence level adjusted to reflect penalties (see Paragraph 2.e.)	0.574	0.584

Appendix J acceptance criterion at the upper 95% confidence level = $0.75 L_a = 0.75 (1.6 \text{ weight \% / day}) = 1.2 \text{ weight \% / day}$.

g. Supplemental Test Evaluation

After the satisfactory completion of the 24 hour ILRT on April 25, 1982, a known leakage rate of $9.5 \text{ scfm} = 1.110 \text{ weight \% / day}$ was induced. The inspectors monitored and evaluated the leak rate data generated by the licensee. Following completion of the supplemental phase of the CILRT independent calculations were performed by the inspectors and acceptable agreement with the licensee results were obtained as noted below. (Units are in weight %/day.)

<u>Measurement</u>	<u>Licensee</u>	<u>Inspector</u>
Measured leakage (Lc) rate during supplemental phase	1.611 ± 0.024	1.660 ± 0.047
Induced leakage rate, Lo	1.110	1.110
$L_c - (L_a + L_o)$	-0.038 ± 0.025	0.016 ± 0.052

Appendix J Acceptance Criteria: $-0.400 \leq [L_c - (L_a + L_o)] \leq +0.400$

h. Containment "As Found" Condition

The inspectors reviewed the licensee's summary report of the containment penetrations local leak rate tests performed prior

to the ILRT. Based on the licensee's results of the "as found" minus "as left" penetration thru leakage, the containment "as found" leakage rate was 0.848 weight %/day. The Appendix J acceptance criteria is ≤ 1.2 weight %/day.

3. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) on April 23 and May 21, 1982. The inspectors summarized the scope and findings of the inspection. The calculational method to be used during short duration testing (BN-TOP-1) and the magnitude of the superimposed leak rate ($<.66La$) were discussed during the April 23 meeting to ensure licensee's understanding prior to the test performance. The licensee acknowledged the statements by the inspectors with respect to the items of noncompliance (Paragraphs 2.b., 2.c., and 2.d.)