

DEC 23 1971

Peter A. Morris, Director, Division of Reactor Licensing

DUKE POWER COMPANY, OCONEE NUCLEAR STATION, UNIT 1 DOCKET NO. 50-269

In response to your Technical Assistance Request dated December 7, 1971, the Materials Engineering Branch, DRS, has reviewed the report, "Integrated Leak Rate Test of the Reactor Containment Building" dated October 29, 1971 and the R. T. Carlson, Division of Compliance memo, November 17, 1971. Our findings and basis for acceptability for the Oconee Unit 1 integrated leak rate test are enclosed.

DKT # 50-269

Original signed by
E. G. Case

Edson G. Case, Director
Division of Reactor Standards

- cc:
- S. Hansuer, DR
- R. Boyd, DRL
- R. DeYoung, DRL
- D. Skovholt, DRL
- R. Maccary, DRS
- S. Pawlicki, DRS
- R. Duncan, DRS
- A. Schwencer, DRL

CRESS OFFICE ▶	<i>DRS:DIR</i>	DRS:AD/E	DRS:MTEB	DRS:MTEB		
MCard 223-928	EGCase:ds: <i>jm</i>	<i>R. Maccary</i>	<i>S. Pawlicki</i>	<i>R. Duncan</i>		<i>Memo</i>
SURNAME ▶						
DATE ▶	<i>12/21/71</i>	<i>12/23/71</i>	<i>12/23/71</i>	<i>12/27/71</i>		

8001070 560 A

OCONEE NUCLEAR STATION-UNIT 1

DOCKET NO. 50-269

REVIEW OF CONTAINMENT INTEGRATED

LEAK RATE TEST

MATERIALS ENGINEERING, DRS

1. We have reviewed the test procedure deficiencies noted in the R. T. Carlson memo dated November 17, 1971. We have determined that the deficiencies are minor and it is our recommendation that the Containment Leak Rate Test be accepted.
2. We have reviewed the Oconee - Unit 1, "Integrated Leak Rate Test of the Reactor Containment Building, October 29, 1971", and conclude that the Oconee Unit 1 containment exhibited essentially zero leakage characteristics based on the data presented.

The basis for our recommendations and conclusions are as follows:

1. Review of the information in the R. T. Carlson, Division of Compliance memo.
 - A. The emergency lock was not tested at the time of the integrated leak test due to mechanical difficulties with the closing mechanism. This is stated on page 5-1 in the Leak Rate Test Report. The lock door was clamped shut for the test. Later the emergency lock closing mechanism was repaired and the lock tested at peak pressure with the following result:

Emergency Lock - 0.00875 #/hr. (This amount of leakage is insignificant.)

Clamping of the emergency lock door because of failure of the closing mechanism is a permissible procedure since the emergency lock can be individually tested to determine its leak rate at a later time and the leakage added to the total integrated leak rate.
 - B. The quench tank return line (Penetration 38) was not tested at the time of the integrated leak test due to excessive leakage in two check valves. This is stated on page 5-1 in the Leak Rate Test Report. A manual valve was closed in the line for the integrated

leak test. Since the integrated test the penetration has been tested with the following result:

Penetration 38 = 0.024 #/HR (This amount of leakage is insignificant.)

Closing of a manual valve in a line with known leaking isolation valves that cannot be readily repaired is a permissible procedure since the penetration can be individually tested to determine its leak rate after repair and the leakage added to the total integrated leakage rate.

- C. We do not feel that the turbine stop valves should be considered as part of the containment boundary and included in the containment test.
- D. In the Containment Leak Rate Test procedure, sections 7.3 through 7.5, it is stated that the isolation valves are closed, but not that closure was accomplished by the normal mode of actuation. There is no evidence available to substantiate that any other mode of actuation was used. We recommend that in all future test procedures, the mode of closure by normal means be stated. Since these valves are to be tested every refueling we feel that no additional testing is needed at this time.

We conclude that the test procedure deficiencies are minor and do not warrant rejection of the Oconee Unit 1, Containment Leak Rate Test. It is recommended that the leak rates of Penetration 38 and the emergency lock be added to the integrated test leak rate for the purpose of calculating the allowable leak rate, L_t , for future periodic leak rate tests.

- 2. We have reviewed the Duke Power Company Integrated Leak Rate Test Report, dated October 27, 1971 with the following results:

	PRESSURE-PSIG	MEASURED LEAKAGE	ALLOWABLE LEAKAGE
STEP 1	29.5	0.0147 w/o	-
STEP 2	59	0.0474 w/o	0.25 w/o in 24 hours

The test sequence used, performing the half-pressure test prior to the full pressure test, follows the recommendations of Appendix J.

The integrated leak rate tests were performed for ten hours rather than 24 hours as recommended in Appendix J. The applicant bases the validity of the ten hour test on the close correlation of the Oconee data to that of four previous tests; Palisades, Point Beach 1 and 2, and Turkey Point 3. A review of the graphs of the linear least squares fit with the calculations for leakage based on the "total time" method show that the leakage versus time curves are converging in less than ten hours on the leak rates shown in the above table. The applicant performed verification tests at each pressure step to verify his instrumentation. At 29.5 psig the difference between the measured induced leakage and the calculated leakage was +11%; at 59 psig the difference was +3%. These tests indicate a sensitive and acceptable instrumentation system. The instrument error band is given as ± 0.0256 w/o in 24 hours.

We conclude that the Oconee Unit 1 containment exhibited essentially zero leakage characteristics based on the data presented in the report, "Integrated Leak Rate Test of the Reactor Containment Building - October 29, 1971."