

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

July 8, 1983

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Denton:

In the Matter of the)	Docket Nos. 50-259
Tennessee Valley Authority)	50-260
		50-296

By letter from D. B. Vassallo to H. G. Parris dated May 11, 1983, we received the NRC request for additional information regarding NUREG-0737, Item II.K.3.28, Qualification of ADS Accumulators. Enclosed is our response for Browns Ferry Nuclear Plant.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills

L. M. Mills, Manager
Nuclear Licensing

Subscribed and sworn to before
me this 8th day of July 1983.

Bryant M. Lowery
Notary Public
My Commission Expires 4/8/86

Enclosure

cc (Enclosure):

U.S. Nuclear Regulatory Commission
Region II
ATTN: James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 2900
Atlanta, Georgia 30303

Mr. R. J. Clark
Browns Ferry Project Manager
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
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ENCLOSURE

Response to Request for Additional Information on Qualification of ADS Accumulator Systems Browns Ferry Nuclear Plant, Units 1, 2, and 3

In a letter from L. M. Mills to H. R. Denton, NRC, dated December 30, 1981, we discussed the two separate concerns of NUREG-0737, item II.K.3.28, namely, short-term and long-term operability requirements of the ADS valves and accumulators.

In addition to that discussion, the following is in direct response to the request for additional information.

1. Assuming an ambient drywell pressure of 35 psig (i.e., 70 percent of the drywell design pressure) for one hour, analytic and test results indicate that the ADS valves are conservatively capable of two actuations each. For an ambient drywell pressure of 0 psig, test results indicate that the ADS valves are conservatively capable of at least three more actuations each. These values consider leakage, seismic events, and a harsh environment.
2. Presuming that both the drywell air and control air systems are completely lost at a maximum assumed accumulator leakage rate, sufficient pressure for ADS actuation at an ambient drywell pressure of 35 psig could be maintained for at least 2.5 hours using only accumulators. For normal containment pressures, the capabilities could be maintained for at least six hours.

The accumulators meet the FSAR requirement to provide the capability for a minimum of five valve operations.

3. Each of the six relief valves provided for automatic depressurization is equipped with a 1-gallon air accumulator and check valve arrangement. These accumulators are provided to ensure that the valves can be held open following failure of the air supply to the accumulators, and they are sized to contain sufficient air for a minimum of five valve operations. The first and second actuations are assumed to occur with drywell pressure at 35 psig and subsequent actuations with the drywell at 0 psig. Accumulators are not required for the relief valves not used for automatic depressurization. The relief valves which are a part of the ADS normally receive their motive air from the drywell control air system. The air pressure in the accumulators is continuously monitored by a pressure switch which annunciates in the control room on low air pressure (70 psig). The drywell control air system is also continuously monitored for low air pressure by means of a pressure switch located in the system downstream of the receivers and which annunciates in the control room. A manual transfer can also be made to the plant control air system as another backup for control air.

4. The accumulator leakage criteria of 10 psi/hr is sufficient to ensure that the ADS valves will have the capability to actuate as described by the FSAR for design basis events with a total loss of normal supply air to the valves.
5. The ADS accumulators and associated components were procured and installed to seismic category 1 standards; therefore, the leakage is not expected to increase as a result of a seismic event.

In addition, the components were procured to withstand design basis conditions in the drywell and therefore no increase in leakage is expected.

6. Based upon the seismic and environmental procurement requirements for the ADS accumulators and associated components as described in No. 5 above, no increase in leakage is expected for seismic events or a harsh environment.
7. No credit is taken for nonsafety-related equipment and instrumentation in using the allowable leakage criteria.
8. The ADS accumulator leak test is performed once per operating cycle. Each accumulator is charged to normal operating pressure (90 psig), the supply air source is isolated and vented, and the accumulator pressure decay is observed. The allowable leakage criteria is less than 10 psi during the first hour.
9. The ADS accumulator system has an individual pressure instrument associated with each accumulator which initiates a common alarm in the control room on low pressure. Once per operating cycle, the pressure switches are calibrated using a standard pressure source. Instructions include verification that the alarm functions when the switches are activated.
10. The ADS accumulator system, associated equipment, and control circuitry were procured and installed as seismic category 1 components.
11. The electrical and mechanical components in the ADS accumulator system, associated equipment, and control circuitry are environmentally qualified for conditions associated with normal operation, maintenance, testing, and postulated accidents as analyzed in the FSAR.
12. The ADS valves, accumulators, associated equipment, and instrumentation are capable of performing their function as described in the FSAR during and following an accident situation while taking no credit for nonsafety-related equipment and instrumentation.