

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

January 7, 1983

Director of Nuclear Reactor Regulation
Attention: Ms. E. Adensam, Chief
Licensing Branch No. 4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Ms. Adensam:

In the Matter of
Tennessee Valley Authority

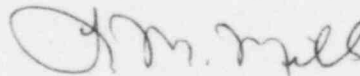
)
)

Docket Nos. 50-327
50-328

NUREG-0737, Item II.D.1, as revised by D. G. Eisenhower's September 29, 1982 letter, required documentation to be submitted for qualification of:
(a) reactor coolant systems relief and safety valves, (b) piping and supports, and (c) block valves. A response for item (a) was submitted by letter from me to you on April 1, 1982. An additional response was made from me to you on June 30, 1982 for items (b) and (c). TVA has received additional and final test data from EPRI regarding the operability of the pressurizer safety and relief valves. Enclosed is that supplemental information.

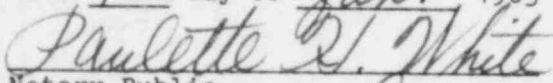
Very truly yours,

TENNESSEE VALLEY AUTHORITY



L. M. Mills, Manager
Nuclear Licensing

Sworn to and subscribed before me
this 7th day of Jan. 1983



Notary Public

My Commission Expires 9-5-84

Enclosure

cc: U.S. Nuclear Regulatory Commission (Enclosure)
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

AOAL

ENCLOSURE

SUPPLEMENTAL RESPONSE TO NUREG-0737, Item II.D.1 SEQUOYAH NUCLEAR PLANT

1.0 Introduction

In response to the requirements of NUREG-0737, Item II.D.1, in regard to the operability of the pressurizer safety and relief valves, TVA submitted a preliminary assessment on April 1, 1982 (letter from L. M. Mills to E. Adensam), and a more detailed report on June 30, 1982 (L. M. Mills to E. Adensam). Since then, TVA has received additional and final test data from EPRI. The following information is provided as supplemental evaluations of additional developments for Sequoyah Nuclear Plant units 1 and 2.

In addition to the documents listed in our June 30, 1982 response, the following reports are also applicable to SQN.

1. Application of RELAP 5/MOD 1 for Calculation of Safety and Relief Valve Discharge Piping Hydrodynamic Loads, NP2479-LD, July 1982.
2. Review of Pressurizer Safety Valve Performance as Observed in the EPRI Safety and Relief Valve Test Program, WCAP-10105, June 1982.

Document 1, along with other bound reports, was transmitted to Harold Denton of NRC by David Hoffman of Consumer Power by letter of September 30, 1982 in behalf of participating utilities in the EPRI test program. Document 2 was transmitted to Harold Denton by O. D. Kingsley of Alabama Power by letter of July 27, 1982, in behalf of participating utilities in the Westinghouse Owners Group.

2.0 Relief Valve Performance

In our June 30, 1982, response, item 2.2 described our evaluation of the EPRI testing on Masoneillon and Copes-Vulcan PORVs which are the valve types currently installed at Sequoyah. TVA has decided to replace these valves with solenoid-operated Target Rock valves. This change was done to comply with NUREG-0737, item II.B.1, "Reactor Coolant System Vents." Additionally, we believe that the cold overpressure protection system will be enhanced with a faster acting valve. The new valve will adequately serve both functions.

The new PORV, Target Rock Model #82UU-001, is the same type valve as the Target Rock Model 80X-006 tested by EPRI. The tests demonstrated that the valve would fully open on demand and fully close on demand. However, during the Wyle tests, test number 7-TR-7W, the valve opened on demand but did not "immediately" close on demand (12-second delay was encountered). This test was a water seal simulation test (approximately 110°F water followed by 650°F water). The valve was disassembled and inspected after testing with no damage observed which might affect the ability of the valve to open or close on demand. The production model

will be modified to incorporate minor changes to improve performance and eliminate delay in response to the test results generated by the EPRI tests.

3.0 Safety Valve Performance

The Westinghouse Owners Group instituted a program to review the EPRI test data and to report on the acceptability of safety valve performance. These results were discussed in WCAP-10105. It is concluded from the Westinghouse report that the Crosby 6M6 safety valves installed in Sequoyah should perform adequately with the resolution of the piping/support concern.

4.0 Piping/Support Evaluation

As indicated in item 3.0 of our June 30, 1982 response, a further evaluation of safety/relief valve discharge piping support loads was necessary, and if design modifications were required, a schedule for implementation would be provided.

Through the application of RELAP 4/MOD 5 and conservative assumption on the impact of the water slug, evaluations to date indicate that changes to the support loads, due to subcooled water slug flow, will probably involve several major support modifications. To eliminate this concern, TVA plans to drain the safety valve loop seals and maintain its power-operated relief valve loop seals with the new Target Rock valves. Qualification of the piping/support system will be verified through the application of RELAP 4 MOD 1. This thermal hydraulic code will more accurately simulate the actual plant conditions. We should note that draining the safety valve loop seals will eliminate the concern for high pressure oscillations in the inlet piping and will improve valve performance by reducing the amount of possible valve fluttering and/or chattering.

Draining the loop seals will require replacing the disc and nozzle of the existing valves. The scoping of this modification is currently being evaluated to determine the magnitude of this modification. When the design is completed, this item will be added to the integrated schedule and a revised integrated schedule will be submitted to the NRC, as appropriate, with a scheduled work date.