



ARKANSAS POWER & LIGHT COMPANY  
POST OFFICE BOX 551 LITTLE ROCK, ARKANSAS 72203 (501) 371-4000

November 30, 1982

ØCAN118225

Director of Nuclear Reactor Regulation  
ATTN: Mr. J. F. Stolz, Chief  
Operating Reactors Branch #4  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

Director of Nuclear Reactor Regulation  
ATTN: Mr. Robert A. Clark, Chief  
Operating Reactors Branch #3  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

SUBJECT: Arkansas Nuclear One - Units 1 & 2  
Docket Nos. 50-313 and 50-368  
License Nos. DPR-51 and NPF-6  
Item II.D.1 - Safety and Relief  
Valve Testing

Gentlemen:

NUREG 0737 Item II.D.1 required testing of pressurizer safety and relief valves to establish their operability under expected operating conditions for design-basis transients and accidents.

The required testing was conducted by the Electric Power Research Institute and the applicability of the data to Arkansas Nuclear One Units 1 and 2 was discussed in our letters of July 28, 1982, (1CANØ78211 and 2CANØ78211). As discussed in those letters, an evaluation of the plant specific discharge piping was scheduled for completion by November 1982. Attachment 1 contains a description of the analysis performed and a summary of the results.

As discussed in the attachment, the analysis resulted in higher than code allowable piping stresses and support loads. However, our preliminary review of these results indicates the piping and valves will remain operable

A046

8212070284 821130  
PDR ADOCK 05000313  
P PDR

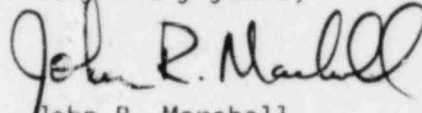
Mr. J. F. Stolz  
Mr. Robert A. Clark

-2-

November 30, 1982

under the analyzed conditions. We are continuing with a more detailed review and will keep you informed of any change in the operability of the system and our plans for any needed corrective action.

Very truly yours,



John R. Marshall  
Manager, Licensing

JRM:DH:sc

## ATTACHMENT 1

### Summary of Analysis of Pressurizer Safety and Relief Valve Piping

As required by NUREG 0737 Item II.D.1, an analysis of the pressurizer safety and relief valve discharge piping under dynamic conditions was performed by a contractor to AP&L. The analyses were performed using the RELAP5 Mod 1 Cycle 14 computer code. The following inlet conditions were used for the analysis.

#### ANO-1

1. Saturated Steam @ 2500 psig
2. Subcooled Water @ 2500 psig and 400°F

#### ANO-2

1. Saturated steam @ 2500 psig

This analysis indicated the worst case loading conditions occurred when the pressure waves produced by a "simultaneous" opening of the safety valves meet at a common point in the piping system. The openings of the safety valves were timed such that this condition occurred.

The analysis results indicated several potential problem areas. Each of these areas is discussed below.

The analysis indicated higher than optimum backpressures for the present safety valve ring settings. AP&L has reviewed the ring settings for ANO-2 and determined that, based on EPRI data, the current ring settings are acceptable. For ANO-1 the issue of safety valve ring settings has been previously addressed via our letters of July 28, 1982 (1CANØ78211 and 2CANØ78211).

The analysis also indicated an increase in support loads. For ANO-2 we have completed a review of individual pipe supports and determined the supports to be operable with the new loads. A review of the capability of the ANO-1 supports to withstand the newly calculated loads is currently underway. It is expected that the review can be completed and any needed corrective action initiated during the current refueling outage.

The initial analysis also indicated that piping stresses exceeded the allowable values per ANSI B31.1, 1967. A subsequent review was undertaken to determine the operability of the piping. On ANO-2, six points exceeded code allowable, the highest stress point being equal to 23937 psi. This is well below the yield strength of the piping material (ASTM SA-312) and we have concluded the piping will remain operable. In addition, our review of the analysis indicates that several pipe supports, added during recent modifications, were not taken into account. The inclusion of these supports in the analysis would significantly lower the piping stresses.

The ANO-1 piping exceeded the allowable stress values in twenty locations, the highest being 25256 psi. This stress is well below yield for the piping material (ASTM A-312) and our review indicates the piping will remain operable under the analyzed conditions.

It should be pointed out that neither of these piping systems was designed to withstand this type of loading condition. The original design considered deadweight, thermal, and seismic for ANO-1, and deadweight and thermal for ANO-2. With the addition of the Temperature Overpressure Protection system, a seismic analysis, as well as a "static-fluid-flow" analysis was performed for ANO-2. At this time, we foresee no modifications to the ANO-2 piping system.

We are continuing to evaluate the need for corrective action on ANO-1.