

NRC pdr



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

FEB 13 1979

MEMORANDUM FOR: R. Reid, Chief, Operating Reactors Branch #4, DOR  
J. Stolz, Chief, Light Water Reactors #1, DPM

FROM: G. Lainas, Chief, Plant Systems Branch, DOR

SUBJECT: ARKANSAS NUCLEAR ONE

Consistent with our previous discussions, enclosed are specific questions that should be addressed by the licensee in his forthcoming presentation.

Basically, we would like AP&L to explain their basis for concluding that the electrical design of ANO is acceptable in its present configuration and, similarly, for the situation if the systems were to be modified as they described conceptually in their January 19, 1979 letter. In the presentation we would also like AP&L to cover the specific questions enclosed.

A handwritten signature in dark ink, appearing to be "G. Lainas".

G. Lainas, Chief  
Plant Systems Branch  
Division of Operating Reactors

cc w/enclosure:  
V. Stello  
D. Eisenhut  
R. Vollmer  
G. Lainas  
F. Rosa  
D. Tondi  
L. Engle  
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QUESTIONS FOR AP&L

1. Show by calculational analysis, for the postulated occurrence of a LOCA, the minimum voltages (and duration) that would occur on each 4160V and 480V ESF bus at ANO-1 and ANO-2, paying special attention to the voltage transients during the starting of each ESF load. State all assumptions, describe the calculational scheme, and evaluate the significance of the calculational results.
2. Repeat Question #1 with the assumption that ST-1 is not available and all ANO-1 loads are automatically transferred to ST-2.
3. Repeat Question 1 with the assumption that ST-3 is not available and all ANO-2 loads are automatically transferred to ST-2.
4. Justify, in terms of human factors engineering concepts, the desire that NRC allow credit for manual operator actions to overcome the design inadequacy of ST-2 to accommodate its function.
5. An interlock between ANO-1, ANO-2, and ST-2 has been proposed.
  - (a) Can the operation/maloperation/failure of any part of the interlock (including each sensor) cause both ANO-1 and ANO-2 loads to be applied to ST-2.
  - (b) Can the operation/maloperation/failure of any part of the interlock (including each sensor) prevent the manual loading of ANO-1 or ANO-2 ESF loads onto ST-2.
6. What is the equivalent undervoltage setpoint at the 4160V buses coordinated with your proposed setpoint at a value of 92% of rated voltage on the 480V buses.

7. Describe how the proposed undervoltage sensor on the 480V ESF buses will detect all faults of the station service transformer or the 480V system and any unacceptable voltage degradation on the 4160V ESF system.