Distribution
Docket
NRC PDR
Local PDR
ORB #2 REading
KRGoller
TJCarter
OELD
OI&E (3)
DLZiemann
RMDiggs
WConverse
SVarga
DEisenhut
TBAbernathy
JRBuchanan
ACRS (16)

NOV 27 1975

Docket No. 50-313

Arkansas Power and Light Company
ATTN: Mr. J. D. Phillips
Senior Vice President
Production, Transmission,
and Engineering
Sixth and Pine Streets
Pine Bluff, Arkansas 71601

Gentlemen:

We are reviewing the Arkansas Nuclear One, Unit 1 Emergency Core Cooling System reevaluation submittals dated April 21, July 9, August 8, August 22, and September 9, 1975, as well as topical report BAW-10103, "ECCS Analysis of B&W's 177-FA Lowered-Loop NSSS," and have concluded that the additional information described in the enclosure is needed to continue our review.

To enable us to maintain our review schedule, please provide the requested information by December 30, 1975.

Sincerely,

Original Signed by:
Dennis L. Ziemann
Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Reactor Licensing

Enclosure:
Request for Additional
Information

PR

OFFICE ➤	RL:ORB #2	RL:ORB #2				
SURNAME ➤	WConverse:ro	DLZiemann		8004250 493		P
DATE ➤	11/25/75	11/27/75				

cc w/enclosure:
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House, Holms & Jewell
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Mr. William Cavanaugh, III
Production Department
Post Office Box 551
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Arkansas Polytechnic College
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ARKANSAS POWER AND LIGHT COMPANY

ARKANSAS NUCLEAR ONE, UNIT 1

DOCKET NO. 50-313

REQUEST FOR ADDITIONAL INFORMATION

1. It is the staff's position that Mode 1 should not be attempted as the primary method to control boron concentration in the core during long-term cooling. The possibility of gas or steam entrainment in the decay heat suction nozzle can result in severe damage to the decay heat removal pump. Long-term heat removal requirements can exist for long durations (days or months) after the accident and continuous operation of one train of the decay heat removal system is required. In the event of a equipment malfunction in this train, no method is available to remove the decay heat if the other train has been previously damaged. Therefore, implementation of Mode 1 should ot be attempted since this action could result in the decrease of required safety equipment. To verify that gravity draining for boron dilution for Mode 2 is possible, provide the elevations of the piping and other components in the decay heat drop line from the hot leg nozzles through each of the trains to the reactor building sump.

2. With regard to the single failure analysis, the analyses did not consider the failure of any one of the four valves in the decay heat drop line and the resulting effect to ECCS performance. Expand your single failure analyses to include spurious signals and the resulting consequences for all EMO valves in the ECCS. Confirm that post-LOCA long-term cooling requirements were considered (i.e., systems needed to limit boric acid concentration in the reactor vessel).

3. For a core flooding tank (CFT) line break and an inadvertent closure of a valve in the unaffected low pressure injection line, the LPI-to-LPI crossover would be rendered ineffective. Station Technical Specifications must require that power be disconnected and breakers locked open to LPI motor-operated valves downstream of the LPI-to-LPI crossover (valves normally open) and that a periodic test be performed to warn of abnormal leakage of the check valves in the LPI injection lines inside containment. These changes provide further assurance that abundant core cooling is available for a CFT line break and minimize the potential for a LOCA outside containment. Discuss the above concerns and submit the required Technical Specification change if necessary.

4. It is noted that motor-operated valves CV1407 and CV1408 on drawing M-232, Rev. 11, from the BWST are shown normally closed. It appears that, assuming sufficient static head were available, the potential for a water hammer when ECC is injected into a dry line would be reduced considerably if these valves were normally left open. Discuss this concern and indicate your position in this matter.

5. The operating methods to control boric acid concentration in the core during long-term cooling require operator action in areas where radiation dose levels may be excessive. Since operator actions may be delayed due to inaccessibility to manual valves, provide analyses of the boron concentration in the core as a function of time assuming the maximum possible time delay to implement the required systems.

6. With regard to the partial loop analysis·

   a. Discuss the consequences of a break in an active cold leg of the fully active loop.

   b. Two pump operation will not be permitted unless an analysis is provided to support this mode of operation. Compare a break in the inactive cold leg to a break in the active cold leg.

   c. Indicate and justify the worst-case pump status assumed at the time of the LOCA (tripped vs. powered).

   d. Provide assurance that the PCT versus Break Size curve in BAW-10103 would not be significantly altered by either mode of partial loop operation.