



SERIAL: LAP-83-55

Carolina Power & Light Company

MAR 17 1983

Director of Nuclear Reactor Regulation  
Attention: Mr. D. S. Vassallo, Chief  
Operating Reactors Branch No. 2  
Division of Licensing  
United States Nuclear Regulatory Commission  
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-325 AND 50-324  
LICENSE NOS. DPR-71 AND DPR-62  
NUREG-0737 ITEM II.K.3.18  
ADS ACTUATION LOGIC

Dear Mr. Vassallo:

In Carolina Power & Light Company's (CP&L) letter dated April 22, 1981 (Serial No. BSEP/81-714), we stated our position that the current ADS logic was acceptable and, therefore, no plant modifications were needed. This position was based upon an evaluation performed by CP&L and by the BWR Owners' Group and submitted to you by letter dated March 31, 1981. Since that report, the BWR Owners' Group has expanded their review to address additional issues. The revised report was transmitted to you by letter dated October 28, 1982. The final BWR Owners' Group report concludes that "... the current ADS initiation logic, with implementation of the BWR Emergency Procedures Guidelines, is adequate for all design basis events which require RPV depressurization to maintain adequate core cooling."

While possible modifications are also identified which "... provide further assurances of adequate core cooling for events which do not directly produce a high drywell pressure signal ...", CP&L does not consider the benefit of sufficient significance to warrant implementation. Several of these modifications and their inherent disadvantages are discussed below.

The elimination of the high drywell pressure permissive creates the condition where a spurious low reactor water level signal can, by itself, activate the ADS logic. The reactor operator must then recognize and diagnose the problem, review and agree on the response with a senior reactor operator, and reset both ADS activation logics within 105 seconds in order to prevent a spurious blowdown. It is unreasonable to assume such a decision can be made and carried out in such a short period without being unnecessarily conservative.

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Action taken to raise the low reactor water level initiation setpoint approximately 36 inches to account for the effects of possible high drywell temperatures on reactor level instrumentation from a small break LOCA greatly increases the possibility of a low reactor water level signal occurring unnecessarily or prematurely. Without the high drywell pressure permissive to screen out these spurious or premature low reactor water level activations, the probability of an inadvertent and inappropriate ADS initiation is unacceptable. Since there is inadequate time to respond to an inadvertent ADS initiation, elimination of the high drywell pressure interlock is unacceptable as it makes an unnecessary blowdown a serious possibility.

Installation of a time delay bypass around the high drywell pressure interlock increases the time available for the operator to respond to a transient and increases the complexity of the ADS logic. While it provides about eight to ten minutes for the operator to assess the situation and take action, this is still a relatively short time period in which to make such a decision. It must be remembered that the operator's attention is focused primarily on maintaining reactor water level during a transient. Forcing him to concurrently evaluate the need for blocking automatic depressurization diverts the operator's attention from his primary concern. He must assess whether there really is a significant level problem requiring a blowdown and block a safety function while attempting to maintain reactor water level.

The present logic serves to focus the operator's attention on his main concern, reactor water level, and those actions necessary to maintain it. The decision on whether to initiate a manual depressurization is a straight-forward decision based on the actual plant conditions and the specific guidance to be provided by the Emergency Procedures Guidelines. The decision to manually blowdown is more easily made since it is in support of maintaining a safe condition. The 30 to 40 minutes available for initiating a manual depressurization provides ample of time for the necessary assessments and decisions to be made. The decision to block an automatic blowdown is more difficult to make since it requires determining that the transient which the automatic functions are responding to does not exist. Only after this decision is made can the automatic function be blocked.

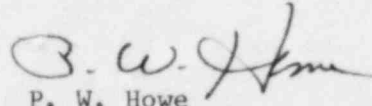
Based on the reasons discussed above, CP&L believes that the present ADS logic provides the best response capabilities considering the relative probability of the need for a blowdown in a transient without a LOCA, the problems associated with a spurious initiation signal, and the procedural guidance and response time available. Carolina Power & Light Company does not believe that sufficient benefit is realized to warrant the potential risk incurred by the elimination or modification of the existing ADS logic for Brunswick Plant and, therefore, does not plan to modify the ADS logic. This position is fully supported by the BWR Owners' Group report.

D. L. Vassallo

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If you have any questions concerning our position, please contact our staff.

Yours very truly,



P. W. Howe  
Vice President  
Brunswick Nuclear Project

JSB/WRM/kjr (6342WRM)

cc: Mr. D. O. Myers (NRC-ESEP)  
Mr. J. P. O'Reilly (NRC-R11)  
Mr. S. D. MacKay (NRC)