



Carolina Power & Light Company

SERIAL: NLS-84-309

AUG 01 1984

Director of Nuclear Reactor Regulation
Attention: Mr. D. B. 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 & 50-324/LICENSE NOS. DPR-71 & DPR-62
MARK I CONTAINMENT LONG-TERM PROGRAM
SECOND S/RV ACTUATION IN RELIEF VALVE DISCHARGE LINES

Dear Mr. Vassallo:

SUMMARY

Carolina Power & Light Company (CP&L) has reviewed your letter of June 13, 1984, requesting information concerning the analyses used in determining if setpoint logic changes were needed to reduce water clearing thrust loads associated with second safety relief valve (S/RV) actuations ("second pop"). The methodology utilized in performing the analyses for the Brunswick Plant has been approved in NUREG-0661. In addition, CP&L is not taking credit for operator action in the S/RV second pop thrust load analyses. This letter provides a brief history of the second pop issue as it has evolved at Brunswick and CP&L's plans concerning Mark I Containment Long-Term Program work for Brunswick-2.

DISCUSSION

On January 13, 1981 and January 19, 1982, the NRC issued Confirmatory Orders requiring that CP&L complete all plant modifications necessary to assure conformance with the acceptance criteria in Appendix A of NUREG-0661, prior to the start of Cycle 6, for Brunswick-2. Pursuant to this, CP&L submitted the Brunswick Plant Unique Analysis Report (PUAR) on November 11, 1982, for which the NRC issued an SER on March 19, 1984. The PUAR detailed what plant modifications would be made concerning the Mark I Torus Program.

Specifically, the PUAR mentions that second pop load cases C3.2 and C3.3 will be eliminated by lowering the main steam isolation valve (MSIV) isolation water level trip and modifying the S/RV logic (paragraph 2.2.2). Due to the complexity and the corresponding difficulty of installation, testing, and maintenance of these modifications, CP&L began analyses to determine if these second pop modifications were necessary (i.e., if the present S/RV discharge line and its supports could withstand second pop loads). Carolina Power & Light Company determined that, if warranted by the analyses, an addendum to the Brunswick PUAR would be submitted to reflect our final position on the second pop issue.

In September 1983, CP&L investigated load cases C3.2 and C3.3 by having a reflood transient analysis performed for the worst case S/RV discharge line. This analysis utilized the General Electric (GE) computer program RVRIZ to calculate the maximum water reflood height after an initial S/RV actuation.

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On November 2, 1983, GE informed the Mark I Owners' Group (including CP&L) that the GE computer program (RVFOR) used by United Engineers & Constructors, Inc. (UE&C) to calculate the design loads on the S/RV discharge lines contained inaccuracies which yielded ultra-conservative predictions of the C3.2 and C3.3 second pop loads. Subsequently, GE provided the corrected information to permit RVFOR to more accurately calculate the loads that should be used for support design in April 1984. At that time, CP&L instructed UE&C to use the maximum reflood height and the General Electric information to calculate the loads on the worst-case S/RV discharge line during a second pop event. This calculation did not take credit for either drainage time between S/RV actuations or operator action to prevent or reduce thrust loads associated with second S/RV actuations. The results obtained by UE&C were below allowable loads.

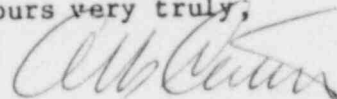
At the end of May 1984, General Electric provided information on the corrections they had made to their RVRIZ computer program used to calculate the maximum reflood height. Based on these adjustments, the calculated maximum reflood height for Brunswick has been reduced. No credit is being taken for this reduction in the thrust load analyses, however. Based on the successful evaluation of the worst case reflood height on the worst case S/RV discharge line for a second pop condition, the other analyses required to adequately address load cases C3.2 and C3.3 were initiated. United Engineers & Constructors, Inc. has completed these analyses. This effort has demonstrated that the torus, torus internal structures, and S/RV discharge lines meet the Mark I Containment Program acceptance criteria.

CONCLUSION

Carolina Power & Light Company is preparing an addendum to the Brunswick PUAR detailing the approach taken to resolve the second pop concern. The methodology employed in the new analyses is the same as that reviewed by the NRC and approved in NUREG-0661. Carolina Power & Light Company anticipates submittal of the PUAR addendum to the NRC by September 1, 1984. The Brunswick Project Manager will be kept informed of developments concerning this matter. Other Mark I Containment Long Term Program work for Brunswick-2 is proceeding as scheduled and should be completed by the end of the current refueling outage.

Should you have any questions concerning this matter, please contact Mr. Sherwood R. Zimmerman at (919) 836-6242.

Yours very truly,



A. B. Cutter - Vice President
Nuclear Engineering & Licensing

MAT/cfr (327MAT)

cc: Mr. D. O. Myers (NRC-BSEP)
Mr. J. P. O'Reilly (NRC-R11)
Mr. M. Grotenhuis (NRC)