



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO MASONRY WALL DESIGN, IE BULLETIN 80-11

CAROLINA POWER & LIGHT COMPANY

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2

DOCKET NOS. 50-325/324

Introduction and Background

IE Bulletin 80-11 regarding Masonry Wall Design was issued on May 8, 1980. The Carolina Power & Light Company (CP&L) responded with letters dated July 7, November 5 and 25, and December 9, 1980. In response to requests for additional information, dated August 2, 1982 and February 21, 1984, responses dated July 29, 1983 and April 27, 1984 were submitted. A final response dated December 21, 1984 was received and reviewed after the Technical Evaluation Report (TER) Attachment 1 was completed and therefore is not included in the reference list on page 18 of that report.

The findings reported in this Safety Evaluation (SE) are based on the attached TER, prepared by Franklin Research Center (FRC) as a contractor to NRC, and the NRC review of the December 21, 1984 submittal. This TER contains the details of construction techniques used, technical information reviewed, acceptance criteria, and technical findings with respect to masonry wall construction at the Brunswick units. The staff has reviewed this TER, concurs with its technical findings and it is hereby incorporated into this SE. It is noted that on page 3 of the April 27, 1984 response (RAI 5b) that the NRC position paper on the energy balance technique is referenced. In view of the CP&L decision not to use this technique, this position paper was not needed.

The staff summary and evaluation of the major technical conclusions are included in this SE.

Evaluation and Conclusion

There were 87 masonry walls identified at the Brunswick units. The licensee qualified sixty of these safety-related walls by using the working stress approach which is in compliance with the staff acceptance criteria. The licensee planned to modify ten walls, which were originally qualified by nonlinear techniques, by providing steel pilasters, steel grating to restrain walls, and steel angles installed at their boundaries. These modifications would render these ten walls in compliance with the staff acceptance criteria.

The December 21, 1984 submittal, received after the TER was completed, indicated the results of the evaluation of the additional 17 walls referred to in the TER. That submittal also indicated that a field inspection determined that two of the 87 walls were "Nonsafety Related" rather than "Safety Related." One of the latter walls was listed among the ten walls to be upgraded and one was among the last 17 to be evaluated. Five among the 17 walls were found to be within allowable limits and the remaining 11 will require additional reinforcement to bring them within allowable limits. That makes a total of 20 walls requiring modification.

In summary, there was a final total of 85 safety-related masonry walls identified at the Brunswick plant. Sixty-five were found to be within acceptable limits and 20 will require modification. The design fix for nine of the 20 walls is completed, the design fixes for the remaining 11 are scheduled to be completed in July 1985. The schedule for the actual modifications will be in the 5-year plan currently under review.

Based on the above findings, the staff concludes that, Items 2(b) and 3 of IE Bulletin 80-11 have been fully implemented at the Brunswick units and that there is reasonable assurance that the safety-related masonry walls at the Brunswick units will withstand the specified design load conditions without impairment of (a) wall integrity or (b) the performance of required safety functions.

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Dated: January 30, 1985