

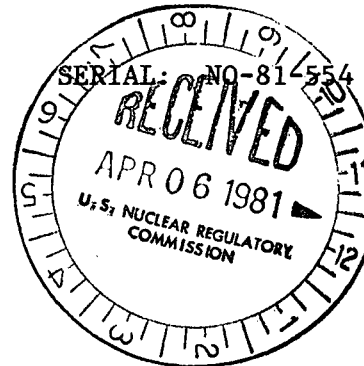


Carolina Power & Light Company

March 31, 1981

FILE: NG-3513(R)

Mr. James P. O'Reilly  
Director of Regulatory Operations  
U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, N.W., Suite 3100  
Atlanta, Georgia 30303



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U.S. NUCLEAR REGULATORY COMMISSION

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50261  
LICENSE NO. DPR23  
SUPPLEMENTAL RESPONSE TO IE BULLETIN 79-14  
SEISMIC ANALYSES FOR AS-BUILT SAFETY RELATED PIPING SYSTEMS

Dear Mr. O'Reilly:

IE Bulletin 79-14, "Seismic Analyses for As-Built Safety Related Piping Systems", was issued on July 2, 1979. It, together with its revisions and supplements, required that the seismic analyses associated with safety related piping be verified applicable to the actual configuration of the installed piping systems. This Bulletin applied to all safety related Seismic Category I piping 2½ inches in diameter or greater and to all Seismic Category I piping which was dynamically analyzed by computer. For older plants, where Seismic Category I requirements did not exist at the time of licensing, it was required that the actual configuration of safety related systems, utilizing piping 2½ inches in diameter and greater, be shown to meet original design requirements. The results of the required reverification together with descriptions of the program established at H. B. Robinson are provided in this response.

Responses to this Bulletin have been previously submitted for the H. B. Robinson Plant on August 2, 1979, September 5, 1979, and September 25, 1979. In addition, several LERs and IER responses have been submitted delineating nonconformances and responding to items of noncompliance. A complete listing of submittals is provided in Enclosure 1. In these submittals, information concerning the inspection program established, documentation used in the inspection, and the results of the initial, redundant path inspections were provided. To establish a complete record in a single document, the information presented in these early submittals, revised to reflect the up-to-date information available from the completed inspection and evaluation, is included in this report; therefore, this report will supercede all others submitted on IE Bulletin 79-14.

By letter of September 25, 1979, the preliminary results of inspections completed at that time were discussed. Based on the absence of any significant deviations and only one nonconformance being discovered, a plan to delay the required 100% inspection until the 1980 refueling outage was submitted, to which the NRC concurred. Subsequently, these inspections were performed during the 1980 refueling outage which ended in October, 1980.

The seismic analyses inspection and verification program was designed to demonstrate that all design specifications and drawings used to obtain input information for the seismic analysis of the plant's safety related systems reflect as-built conditions. To accomplish this, the program was designed to identify variances between design documents and piping system configurations and to evaluate those variances to determine the effect on the operability of the system. Additionally, the program was designed to correct all maintenance problems and nonconformances and to assure sufficient design conservatism in the piping and support/restraint design. The inspection and verification program was conducted by Carolina Power and Light Company with analytical and design services provided by Ebasco Services, Incorporated.

H. B. Robinson was licensed prior to the existence of Seismic Category I requirements. The FSAR and letters of April 6, 1970, June 5, 1970, and August 18, 1970, to the U.S. Atomic Energy Commission (AEC) classify the systems seismically and describe the methods and acceptance criteria used in the original design. These were accepted by the AEC in September, 1970. Therefore, the as-built seismic verification program developed and performed was, in accordance with IE Bulletin 79-14 requirements, designed to verify that the as-built conditions complied with the FSAR and referenced submittals. A description of the program methods, procedures, acceptance criteria and a general description of the original (FSAR and letters) requirements are presented in Enclosures 2 and 3, respectively.

The program included inspection and evaluation of piping in systems which are listed in Enclosure 4. These systems were subdivided into individual calculations associated with portions of the systems. A list of these calculations, identifying the portion of the system, method of analysis, date of original analysis and applicable references are listed in Enclosure 5. Piping associated with each calculation was inspected and verified. A total of 92 calculations were inspected and evaluated. All piping of 2½ inches diameter and larger in the FSAR defined as Seismic Class I in safety related systems was inspected and verifications performed. In addition, Seismic Class I piping in safety related portions of systems less than 2½ inches in diameter and statically analyzed by computer methods was also inspected and evaluated. Results of the inspection and verification program and an explanation of necessary corrective actions taken are provided in Enclosure 6.

A summary of the inspection and evaluation program is provided in Enclosure 7. This enclosure identifies the lines inspected and evaluated, the type of stress review performed, the structural reviews completed, deviations found and nonconformances reported, the number of structural modifications performed, status of verification of piping material and valve weights and status of design record update program. Some of the items associated with the individual calculations (isometrics) have a designation indicating incomplete. Each item which is incomplete is explained in the notes to the enclosure. The note provides the date to which full closeout of the individual item can realistically be achieved.

There are four (4) open (incomplete) items listed which require explanation 1) valve weight verification/documentation, 2) design document/drawing update 3) restraint weld verification, and 4) incomplete restraint modification required to restore design conservatism only.

- 1) Valve weights: a complete review of existing documentation has been completed to verify proper weights were used in the analyses. Additionally, valves in all systems inspected were field checked, when possible, to determine manufacturer, operator type, and tag number. As a minimum, tag number was obtained. This information was used to compare to existing drawings and other QA documentation to correctly verify valve location and weight. In some cases, specifically those valves in systems analyzed by the simplified (chart) method, valve weight was not included in the QA documentation. The methods to perform the analyses and to obtain valve weight under this condition are described in Enclosures 3 and 7. In all cases, valve weights used have or will be verified and documented, by the vendor if possible, as a correct or conservative weight. Valve weights will be properly incorporated into the plant design documentation for future use.
- 2) Design drawings and documentation: These items will be revised as a part of our continuing drawing update program which has been established to incorporate all such changes into as-built drawings. These include such items as updating valve lists, stress isometrics, and restraint details.
- 3) Restraint weld verification: The inspection program developed did not include inspection of the existing restraint welds. Restraint configuration, material, and clearances were verified. The data on the original installation was considered adequate for verification of welds. Additionally, based on conservative engineering judgement, the weld was not considered to be the limiting yield point in the restraint designs. However, to verify existing documentation and fully close this part of the Bulletin, a number of restraints on various systems will be randomly selected and inspected to verify the original documentation. This will be completed during our next planned outage currently scheduled to begin May 9, 1981.

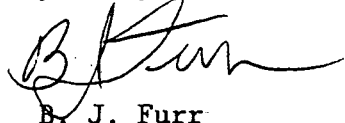
- 4) Incomplete modifications: A total of 10 modifications remain to be completed. These modifications are required to restore conservatism of design and are not required to prevent failure of the restraints under seismic loadings.

Previous reviews of present plant procedures controlling maintenance and modification of safety related components have indicated that adequate controls exist to provide assurance that proper seismic evaluation is provided when applicable; however, reviews have indicated that certain permanent procedure revisions could provide more efficient and effective procedures. A description of procedure changes is under development and the approximate dates for implementation are provided in Enclosure 8.

Upon completion of the above described open items, the program developed to comply with the requirements of IE Bulletin 79-14 will be totally complete. No additional actions, other than those described, are planned.

If you have questions concerning this submittal, please contact me.

Very truly yours,



B. J. Furr

Vice President

Nuclear Operations Department

MFP/gbm

Enclosures

cc: Mr. N. C. Moseley  
Mr. V. Stello