



Carolina Power & Light Company
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AUG 15 1996

SERIAL: BSEP 96-0292

U. S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
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
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
SEISMIC ADEQUACY OF MECHANICAL AND ELECTRICAL EQUIPMENT
GENERIC LETTER 87-02
TAC NOS. M69433 AND M69434

Gentlemen:

By letter dated May 16, 1996, the Nuclear Regulatory Commission staff requested that Carolina Power & Light Company (CP&L) provide written responses to a request for additional information relating to CP&L's September 15, 1995 submittal (Serial: BSEP 95-0485) regarding Generic Letter 87-02, "Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors, USI A-46." Enclosure 1 provides CP&L's response to the questions contained in the May 16, 1996 NRC staff request.

Please refer any questions regarding this submittal to Mr. Mark Turkal at (910) 457-3066.

Sincerely,

William Levis
Director — Site Operations
Brunswick Nuclear Plant

270096

WRM/wrm


Enclosures

1. Response to NRC Request for Additional Information dated May 16, 1996
2. Regulatory Commitments

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William Levis, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, and agents of Carolina Power & Light Company.


Notary (Seal)

My commission expires: *August 12, 2001*

cc: U. S. Nuclear Regulatory Commission
ATTN.: Mr. Stewart D. Ebner, Regional Administrator
101 Marietta Street, N.W., Suite 2900
Atlanta, GA 30323-0199

Mr. C. A. Patterson
NRC Senior Resident Inspector - Brunswick Units 1 and 2:

U.S. Nuclear Regulatory Commission
ATTN.: Mr. David C. Trimble, Jr. (Mail Stop OWFN 14H22)
11555 Rockville Pike
Rockville, MD 20852-2738

The Honorable H. Wells
Chairman - North Carolina Utilities Commission
P.O. Box 29510
Raleigh, NC 27626-0510

ENCLOSURE 1

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
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NRC Question 1

Section 4.1, Safe Shutdown Requirements, of the Seismic Evaluation Report for Brunswick Steam Electric Plant, Units 1 and 2 (BSEP) states, in part, that "Operator action is permitted if necessary, to accomplish the safe shutdown function provided that sufficient manpower and time are available and proper procedures are in place." Describe how you determined that proper procedures and sufficient manpower and time were available to accomplish the safe shutdown function. Identify the field and control room simulator scenarios that were developed to verify and validate that these operator actions could be accomplished in the time frame required to facilitate safe shutdown.

Response to Question 1

The Operations organization review of the Safe Shutdown Equipment List (SSEL) was the method used to determine that proper procedures and sufficient manpower and time were available to accomplish the safe shutdown function. A desktop review was performed by an NRC licensed senior reactor operator to confirm that the safe shutdown options selected for the SSEL were compatible with approved normal and emergency operating procedures and associated operator training.

No field or control room simulator scenarios were considered to be necessary to verify and validate that the operator actions could be accomplished in the time frame required to facilitate safe shutdown. Guidance in the NRC's Supplemental Safety Evaluation Report No. 2 [SSER-2], issued by Generic Letter 87-02, Supplement No. 1, states the following:

All facilities have Emergency Operating Procedures (EOPs) which address action in the event of an accident. As stated in Section 3.2.8 of GIP-2, the staff expects that plant operators should be trained in the use of existing normal shutdown procedures or symptom-based EOPs which would be used if a safe shutdown

earthquake were to occur. The compatibility of these procedures with the USI A-46 safe shutdown equipment list should be verified by the Operations Department, and the results included in the operator training program. This will ensure that the shutdown path selected for USI A-46 (and equipment included in the SSEL) is a legitimate safe-shutdown path consistent with plant procedures and operator training.

The results of the Operations Unit review showed no incompatibility with approved procedures; therefore, the existing operator training program was deemed to be adequate. This is consistent with the SQUG response to SSER-2 (letter dated August 21, 1992 from N. P. Smith to J. G. Partlow, page 2 third paragraph) that:

...SQUG understands that appropriate changes to operator training will be made only if licensees find that changes to the plant operating procedures are necessary to achieve compatibility with the Safe Shutdown Equipment List. Training will be modified only to the extent needed to familiarize operators with these procedure changes.

NRC Question 2

State whether any of the operator actions specified in the normal and emergency procedures referenced in Section 4.5, Operations Unit Review of the Safe Shutdown Equipment List (SSEL), of the Seismic Evaluation Report require in-plant actions by the operations crew. If so, outline how potentially harsh environmental conditions were factored into the analysis. Detail the specific operator training that was provided to ensure all operating crews were knowledgeable of the SSEL and the procedural guidance expected to be used during a postulated earthquake.

Response to Question 2

The normal and emergency operating procedures used in the response to a seismic event require some in-plant actions by the operations crew. For example, local actions would be required in the reactor building to prepare the residual heat removal system for shutdown cooling. The reactor building is a seismically qualified structure; therefore, potentially harsh environmental conditions were judged not to be significant in affecting the operator actions. The seismic interactions inspections verified the seismic adequacy of structures and components that could contribute to harsh environmental conditions.

Procedural guidance that is expected to be used in responding to an earthquake is contained in procedure AOP-13, "Operations During Hurricane, Flood Conditions, Tornado, or Earthquake". Operator responses to specific equipment damage are addressed in the symptom-based emergency operating procedures and continuing operator training, which contains simulator scenarios that include seismic events. Also, AOP-13 has been used in response to actual hurricane conditions and tornado warnings.

NRC Question 3

Section 4.5 identifies changes made as a result of the operations review. Item 1 notes that the equipment associated with the automatic depressurization system (ADS) permissives was deleted from the SSEL because ADS is inhibited by direction in the emergency operating procedures (EOPs). Identify any postulated seismic scenario that could require manual depressurization, and state whether the operators would need the permissives required for ADS to manually depressurize.

Response to Question 3

As outlined in the descriptions of the SSEL safe shutdown paths in section 4.5 of the USI A-46 submittal, manual depressurization is used in the alternate safe shutdown paths for Reactor Pressure Control and Reactor Coolant Inventory Control as directed by the EOPs. The operators do not need the ADS permissives to manually depressurize the reactor.

NRC Question 4

Section 4.5 identifies changes made as a result of the operations review. Item 1 notes that more emphasis would need to be placed on the operators' monitoring of vessel level indication due to the unavailability of the demineralized water system to provide inventory to the residual heat removal suction piping prior to placing shutdown cooling in service. Although it was determined that no procedural modifications were required, describe what actions have been taken to ensure operators are aware of this condition and understand the need for added emphasis on monitoring vessel level.

Response to Question 4

The actions that are contained in the normal operating procedure for the residual heat removal system direct the operators on the necessary actions to take if the demineralized water system is unavailable. The current procedures and operating training are considered to be adequate to ensure that vessel level is monitored if the demineralized water system was unavailable prior to placing shutdown cooling into service. Monitoring vessel level is a key function that is emphasized in training. Both initial and continuing operator training include simulator scenarios on placing shutdown cooling in service.

NRC Question 5

Section 5.2.2, Operator Action Acceptable Relays, of the Relay Evaluation Report, identifies several systems which could be affected by relay or switch chatter including: high pressure core injection, nuclear service water, diesel generators (DGs), component cooling water, and loss of coolant accident interlocks. For each system, a description is provided that specifies system status indication and control, and the location of that status information and control equipment. Based on the postulated seismic event, explain how all of the indications and controls identified that are needed to determine the status of these systems and control each would be functional given a loss of offsite power.

Response to Question 5

The instrumentation discussed in Section 5.2.2 of the USI A-46 submittal is available in the Control Room and is powered either by DC power or by uninterruptible power (which is supplied by the emergency buses and DC power). Therefore, this equipment will be available during a loss of offsite power event.

NRC Question 6

Section 5.2.2 further describes that for certain trips of the DGs an operator must go to the local DG control panel or the 4kV switchgear to reset the controls. Given the postulated design basis earthquake, describe what harsh environmental conditions might exist that would inhibit the operators' ability to access these local areas. Indicate how these conditions were factored into the analysis.

Response to Question 6

Seismic verification of the Emergency Diesel Generator Control Panel and the 4kV switchgear included seismic interaction inspections. Based on the location of this equipment, the only identified harsh environmental conditions for an operator in these areas is the lack of light. However, emergency lighting and flashlights are available.

NRC Question 7

For the operator actions specified in Section 5.2.2, describe how it was determined that sufficient manpower and time were available to accomplish the safe shutdown function. Outline any field and control room simulator scenarios that were developed to verify and validate that these operator actions could be accomplished in the time frame required to facilitate safe shutdown.

Response to Question 7

The operator actions described in Section 5.2.2 are compatible with approved normal and emergency operating procedures. These actions are routinely performed in initial operator training and continuing operator training and during operation, as needed. Therefore, no additional field or simulator scenarios were considered to be necessary for validation.

ENCLOSURE 2

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LIST OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by Carolina Power & Light Company in this document. Any other actions discussed in the submittal represent intended or planned actions by Carolina Power & Light Company. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Manager-Regulatory Affairs at the Brunswick Nuclear Plant of any questions regarding this document or any associated regulatory commitments.

| Commitment | Committed date or outage |
|------------|--------------------------|
| 1. None | N/A |