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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50-261/LICENSE NO. DPR-23  
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION DATED  
DECEMBER 26, 1995, REGARDING SEISMIC QUALIFICATION OF  
MECHANICAL AND ELECTRICAL EQUIPMENT

Gentlemen:

By letter dated June 30, 1995, we submitted a summary report for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2 related to Generic Letter 87-02, "Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors, USI A-46." By letter dated December 26, 1995, NRC requested that additional information was needed in order to complete the review of our submittal and was to be submitted within 30 days. Based on a receipt date of January 4, 1996, the enclosed response to the request for additional information is due to be submitted by February 5, 1996.

Questions regarding this matter may be referred to me at (803) 857-1802.

Very truly yours,

R. M. Krich  
Manager - Regulatory Affairs

JSK/klb

Enclosure

c: Mr. S. D. Ebnetter, Regional Administrator, USNRC, Region II  
Ms. B. L. Mozafari, USNRC Project Manager, HBRSEP  
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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION DATED  
DECEMBER 26, 1995, REGARDING SEISMIC QUALIFICATION OF  
MECHANICAL AND ELECTRICAL EQUIPMENT

Question 1

Section 4.2, "Operation Unit Review of SSEL [safe-shutdown equipment list]," of the Relay Evaluation Report states in part that, "CP&L determined that the best approach was the first method which required an experienced representative from the Operations Unit to perform a thorough review of the normal and operating procedures and compare the equipment identified in the procedures to the equipment identified in the SSEL." Describe the rationale which resulted in determining that desktop review (the first method) was considered more desirable than the use of the simulator or through walkdown of the control room.

Response 1

As stated in the Seismic Evaluation Report, the Generic Implementation Procedure (GIP) suggests three methods for review of the Safe Shutdown Equipment List (SSEL) by the Operations Unit. We decided that the first suggested method was the best for the following reasons.

An experienced, licensed operator, would be knowledgeable of all the procedures, normal and emergency, as well as the physical conditions existing at the plant including access paths, proximity of equipment, and other considerations. In our case, the Manager, Operations Procedures, best met these criteria and was selected to perform the review. Performing the compatibility review with a simulator exercise or a limited Control Room (CR) walkdown would not have addressed these considerations. In addition, as a qualified operator, the reviewer would have performed simulator exercises and CR walkdowns as part of his license training. Since these exercises include response to loss of off-site power events, the licensed operator would know whether equipment cited in the SSEL is compatible with successful shutdown of the plant under these conditions. In summary, we determined that the desk top review was the best approach because it was the most comprehensive.

Question 2

"Section 4.2, "Operations Unit Review of SSEL," does not discuss if operator training is currently adequate or has been verified to be adequate to direct the plant to the safe shutdown paths using only equipment on the SSEL. Describe the training which was developed and performed to verify that the operating crews, using existing normal and operating procedures, could safely shut down the plant using only equipment on the SSEL."

Response 2

Section 4.2 of the Relay Evaluation Report describes the method selected for the SSEL/procedures compatibility review, the objectives and criteria for the review, and the results. The reviewer concluded that the selected shutdown options were consistent with approved normal and emergency operating procedures. Since licensed operators are qualified by examination to execute the approved procedures, it follows that their current training is adequate to allow safe shutdown using the SSEL equipment. We never intended that operators be specifically trained to use only SSEL equipment to bring the plant to safe shutdown. This would defeat the purpose of symptom-based procedures that direct the operators along certain paths to maintain critical safety functions and to bring the plant to a safe, stable condition using available equipment. The compatibility review verified that the plant could be brought to a safe, stable condition, i.e., hot standby, using only equipment on the SSEL. However, since the SSEL equipment was contained in the approved procedures, no additional training or verification was judged to be necessary. This conclusion is consistent with the guidance given in the NRC's Supplemental Safety Evaluation Report (SSER) - 2, dated May 22, 1992, which states on page 11, item 2 under "Evaluation and Conclusion," the following.

"All facilities have Emergency Operating Procedures (EOPs) which address actions 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."

Since the results of the review showed no incompatibility between the SSEL and approved procedures, the existing training program on those procedures was deemed to be adequate. This is also consistent with the Seismic Qualification Utility Group (SQUG) response to SSER-2 (i.e., letter dated August 21, 1992, from N. P. Smith to J. G. Partlow, page 2, third paragraph) which states as follows.

"... 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."

Question 3

"Section 2.2.3.3., "Consequences Review Results," describes, in part, "14 relays were screened based on chatter with corresponding operator actions." Explain how these operator actions were verified and validated to ensure that under the postulated conditions of a design basis earthquake they could be adequately performed. Identify any field and control room simulator scenarios that were developed to verify and validate that the operator actions could be accomplished in the time frame required to facilitate safe shutdown. Describe how potentially harsh environmental conditions were factored into these analyses."

Response 3

As described in Section 5.5.2 of the Relay Evaluation Report, the relays in question affect the service water pumps, the emergency diesel generators (EDGs) and the battery chargers. The report describes the potential effects of relay chatter for each of these components. For the service water pumps and the EDGs, relay chatter could cause a pump trip or separation of the EDG from the emergency bus, respectively. Both of these events are addressed by existing procedures that can be performed from the CR, and the operators would be able to cope with the effects of chatter by these relays. Since approved procedures that cover these events already exist, no additional validation or verification for these actions was judged to be necessary. Since all actions to respond to the potential effects of chatter by these relays could be accomplished within a Seismic Category I structure, potentially harsh environmental conditions need not be factored into these analyses.

In the case of the battery chargers, by design, any loss of off-site power causes the battery chargers to separate from the DC bus. The EOPs direct the operators to restore the battery chargers to service within 30 minutes of the event using Operating Procedure (OP) - 601, "DC Supply System." Thus, for a seismic event that results in a loss of off-site power, chatter of the subject relays is not pertinent because the battery charger is temporarily lost. The battery charger will be restored to service as directed by the EOPs. If a seismic event that does not result in loss of off-site power, but relay chatter causes the battery chargers to disconnect from the bus, a low voltage alarm will be annunciated in the CR. Existing procedures direct the operators to restore the battery chargers to service using OP-601. There is sufficient time to restore the chargers to service, adequate alarms to diagnose the need, and applicable procedures. Local actions will be required in the Battery Room which is located below the CR. There is a Reactor Auxiliary Building (RAB) pathway which allows this restoration to be accomplished. The RAB is seismically qualified. Since the procedures exist and are covered in the normal training, no additional validation or verification for these operator actions was judged to be necessary.

Since all actions to respond to the potential effects of chatter by these relays could be accomplished within Class I structures, potentially harsh environmental conditions have been adequately considered.

Question 4

“For the operator actions specified in (3), above, describe modifications to existing operating procedures or development of new procedures (normal, abnormal and emergency) that were required and the methods used to verify and validate that these procedures are appropriate to the circumstances.”

Response 4

Based on the assessment that adequate time, diagnostic information, and procedures exist to respond to the potential effects of relay chatter, there were no modifications made to existing operating procedures or development of new procedures.