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

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

SUPPLEMENTAL SAFETY EVALUATION REPORT FOR

APPENDIX R TO 10 CFR PART 50, ITEMS III.G.3 AND III.L

AUXILIARY SYSTEMS BRANCH

1.0 INTRODUCTION

Subsequent to the issuance of our supplemental safety evaluation report (SSER) dated August 8, 1984, regarding Appendix R to 10 CFR Part 50, Items III.G.3 and III.L (alternate and/or dedicated shutdown capability following a fire event in the plant) for H. B. Robinson Unit 2 (HBR2), the licensee provided a letter dated November 30, 1984 based on their earlier meeting with us on November 16, 1984. In the above submittal, the licensee identified several implementation changes and enhancements to the alternate shutdown capability at HBR2. Additional clarifications and changes were identified by the licensee in telephone conferences with us in July and August 1985.

In the August 8, 1984 SSER, we identified an open item relating to the fire induced spurious opening of the high/low pressure interface valves. Specifically, we were concerned that the licensee's then proposed methodology for isolation of the letdown line, reactor head vent, pressurizer head vent and the pressurizer power operated relief valves (PORVs) did not provide reasonable assurance that potential fire induced spurious operations of these valves would be prevented in a timely manner. Subsequently, based on a meeting with us on March 27, 1985, relating to the above issue, the licensee provided a submittal dated June 18, 1985, wherein they addressed the above concern. Additionally, in telephone conversations with us in July 1985 and August 1985, the licensee provided requested clarifications on this issue. The June 18, 1985 submittal delineated additional minor changes to the alternate shutdown capability.

The following is our evaluation of the above information. This evaluation addresses only the resolution of the open item regarding fire-induced opening of the high/low pressure interface valves and changes to the previously reviewed alternate shutdown capability.

2.0 EVALUATION

2.1 Spurious Operations Involving High/Low Pressure Interface Valves

In the submittal dated June 18, 1985 and clarifications provided in the telephone conversations in July and August 1985, the licensee identified the operator actions that will be performed to protect against fire-induced potential spurious opening of the high/low pressure interface valves. These manual operations are given below:

A. Letdown System Isolation Valves 460A And B

The air operated letdown isolation valves are actuated by dc powered solenoid valves. Since these isolation valves fail closed on loss of power, their closure is ensured by deenergizing the solenoids. The deenergization is accomplished by tripping the associated breaker located in the battery room.

B. Reactor Head Vent And Pressurizer Head Vent Solenoid Valves (567 through 572

The three reactor head vent valves and three pressurizer head vent valves are dc solenoid-operated. The valves fail closed on loss of power, and therefore, deenergization of the associated solenoids ensures their closure. The reactor head vent discharge line to the containment or quench tank contains solenoid valve 572 or 571 respectively in series with upstream solenoid valves 567 and 568 which are in parallel. The pressurizer head vent discharge line uses the same solenoid valve 572 or 571 in series with upstream valves 569 and 570 which are in parallel. Early in the fire scenario, the solenoids associated with all six of these valves (567 through 572) will be deenergized by tripping the associated breakers located in the battery room, thus ensuring their closure.

C. Pressurizer PORVs (455C and 456)

The air operated PORVs are actuated by dc powered solenoids valves. The PORVs fail closed on loss of power. Since the PORVs are not required to achieve hot shutdown, their spurious opening due to a fire event will be prevented by deenergizing the associated solenoids by tripping breakers located in the battery room early in the fire scenario. This will ensure their closure. The licensee will provide added assurance against spurious opening by deenergizing the majority of the station power sources in the PORV cable area early in the fire scenario thereby further reducing the chance of creating a hot short.

We find the above manual operations for ensuring prevention of fire induced spurious operations of the applicable high/low pressure interface valves acceptable.

2.2 Changes From Previous Submittals And/Or August 8, 1984 SSER

The August 8, 1984 SSER described the alternate safe shutdown capability at HBR2 based on the licensee's earlier submittals dated February 6, 1984 and June 6, 1984. By letters dated November 30, 1984 and June 18, 1985 and in a telephone conference with us in August 1985, the licensee identified a number of changes and enhancements to the alternate safe shutdown capability at HBR2. These are as follows:

1. The residual heat removal (RHR) system post-fire manual actions will now include repairs as needed to both the RHR heat exchanger bypass flow control valve (identified in the August 8, 1984 SSER) and the RHR heat exchanger outlet flow control valve (not identified in the above SSER). This cold shutdown repair will include connecting a regulated nitrogen supply to provide remote operation of these RHR system valves.

2. The licensee will utilize a portable temperature monitoring device to periodically monitor only the RHR heat exchanger inlet temperature in lieu of the RHR heat exchanger inlet and outlet temperatures as previously indicated in the August 8, 1984 SSER.

3. In the event, the instrument air supply to the charging pump flow controller is lost due to a fire, the reactor coolant makeup flow will be manually controlled by adjusting the flow control bypass valve (CVC-309A) and/or starting and stopping the charging pump, rather than manually controlling the charging pump speed locally as stated in the August 8, 1984 SSER.

4. The required shutdown equipment cables located in Fire Zone 13 (Auxiliary Building Hallway) will be rerouted independent of this zone rather than providing fire barrier modifications to protect cables as previously indicated in the August 8, 1984 SSER.

5. The August 8, 1984 SSER states that in addition to the turbine building, four other fire zones, the two diesel rooms (Fire Zones 1 and 2), the safety-injection pump room (Fire Zone 3) and the motor-driven auxiliary feedwater pump room (Fire Zone 7) meet the separation/fire protection requirements of Section III.G.2 of Appendix R. In their November 30, 1984 submittal, the licensee, however, stated that since alternate shutdown capability independent of these zones is available, they meet the requirements of Section III.G.3. Therefore, further fire protection for the boundary penetrations and seals for these zones per III.G.2 fire protection requirements are not necessary. Further, in their telephone conversation with us in August 1985, the licensee stated that alternate shutdown will be utilized for a fire in the turbine building since it cannot be demonstrated that one of the redundant trains of normal shutdown cables in the area will be free of fire damage. The August 8, 1984 SSER additionally identified three fire zones, the component cooling water pump room (Fire Zone 5), service water pump area (Fire Zone SWP), and RHR pump pit (Fire Zone 27) for which the licensee requested exemptions from Section III.G.2 requirements.

By letters dated November 25, 1983 and October 25, 1984, these exemptions were granted. By their November 30, 1984 submittal, the licensee stated that alternate safe shutdown capability per Section III.G.3 is also required for other shutdown functions in the event of fire in Fire Zones 5 or SWP and that this is available. The above submittal further stated that for Fire Zone 27, repairs in accordance with the alternate shutdown requirements of Section III.G.3 will be utilized to assume certain shutdown functions. Based on the above, the licensee indicated that all 25 fire zones at HBR2 will meet Section III.G.3 alternate shutdown requirements.

We have reviewed the changes and/or enhancements to the alternate safe shutdown capability at HBR2 described above and find then acceptable.

In discussion with the licensee it was noted that the August 8, 1984 SSER did not include the utilization of the RHR system for decay heat removal for achieving cold shutdown under Section 3.1.2, "Evaluation-Heat Removal", though the SSER correctly included it in Section 2.1, "Systems Required for Alternate Shutdown". This clarification is provided based on those discussions.

In their June 18, 1985 submittal, the licensee also identified other changes to their February 6, 1984 submittal. Chief among them are, 1) a description of the alternate train B shutdown methodology which utilizes a reduced set of normal shutdown equipment operated from the control room for fires in certain fire zones, 2) deletion of manual isolation/depressurization of instrument air as a means of terminating spurious operations, 3) substitution of specific HBR2 operating procedures the by the HBR2 Emergency Operating Procedures Network, 4) substitution of the Service water system cooling water supply to the steam-driven AFW pump oil cooler by the cooling water supply from the discharge of the pump itself, and 5) revision of the list of the components controlled from the dedicated shutdown panels.

We have reviewed the above changes and find them acceptable.

3.0 CONCLUSION

Based on the above, we conclude that the licensee has demonstrated the capability to achieve and maintain safe shutdown conditions at HBR2 following a fire in any plant area. Our acceptance is based on the licensee's utilization of the alternate/dedicated shutdown systems including pre-fire tagouts, timely manual operations, and post-fire repairs. We conclude, therefore, that the HBR2 alternate/dedicated shutdown capability meets the requirements of Appendix R to 10 CFR 50, Sections III.G.3 and III.L.

Dated: November 21, 1985