



**GULF STATES UTILITIES COMPANY**

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RBG-20,580

File No. G9.5

G9.19.2

G9.20.6.22

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Mr. Denton:

River Bend Station-Unit 1  
Docket No. 50-458

The attached information addresses a request for additional information and clarification in a letter from A. Schwencer to William J. Cahill, Jr. dated February 22, 1985. Verbal clarification was provided on March 11, 1985 during a conference call between Gulf States Utilities Company (GSU) and Mr. Mark Mclean of Batelle Pacific Northwest Laboratories. The information herein provides GSU's justification for current River Bend Station Emergency Action Levels listed in Table 13.3-1 of the Emergency Plan with one revision to Site Area Emergency Initiating Condition No. 7.

Sincerely,

J. E. Booker  
Manager-Engineering,  
Nuclear Fuels & Licensing  
River Bend Nuclear Group

<sup>RJK</sup>  
JEB/RJK/kt

Attachments

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## ALERT

Initiating Condition 3 (Steam line break with MSIV leakage). The plan addresses a steam line break inside containment with MSIV leakage. The plan should provide appropriate EALs for steam line breaks both inside and outside of containment with MSIV leakage. Generic EALs for this initiating condition are "high steam line flow and low reactor water level" to indicate a steamline break inside containment. Generic EALs for MSIV leakage are "Shift Supervisor's opinion that MSIVs are malfunctioning or continuing steam flow with evidence that the steam line break is outside containment." Radiation or temperature instrumentation in the steam tunnel or turbine building can indicate breaks outside containment.

Response

The plan does provide appropriate EALs for steam line breaks both inside and outside (see Site Area Emergency Initiating Condition No. 3) of containment with MSIV leakage or a main steam line break. The RBS main steam isolation valves (MSIVs) are designed with a main steam positive leakage control system (MS-PLCS) which prevents the release of fission products, in the event of leakage, through the closed MSIVs as described in the RBS Final Safety Analysis Report (FSAR) Section 6.7. The RBS Alert Initiating Condition No. 3 meets the intent of NUREG-0654 Alert Initiating Condition No. 4.

## SITE AREA EMERGENCY

Initiating Condition 1 (Inability to maintain reactor water level). The new initiating condition and EAL response is inadequate. The initiating condition "inability to maintain reactor water level" should be changed to "known LOCA greater than makeup pump capacity." This will better meet the intent of NUREG-0654. An adequate EAL set is "high drywell radiation, temperature or pressure, or low low low (Level-1) reactor water level."

Response

The terminology used in NUREG-0654 applies directly to Pressurized Water Reactors which have makeup pumps. For RBS, water level in the reactor vessel is maintained by several systems during normal and emergency conditions (i.e. Feedwater, RHR, RCIC, HPCS, LPCI, LPCS, etc.) Using NUREG-0654 terminology, the operator would be confused as to which makeup system was being referenced. To comply with the intent of NUREG-0654, Appendix 1, Site Area Emergency Initiating Condition No. 1, a conservative initiating condition was developed, "inability to maintain reactor water level." This applies directly to the RBS reactor vessel level inventory makeup systems.

The RBS EAL set provides "high drywell pressure, low water level - Level-1 and inability to restore reactor water level." The addition of high drywell radiation would not be beneficial since fission products would not be present with water level indication at Level-1 (approximately 17 inches above top of active fuel - see FSAR Figure 5.1-3b). The RBS EAL on "inability to restore reactor water level", is added to the EAL set to provide the operator with discrete directions if the makeup systems are not capable of restoring/maintaining reactor water level. Indication is available in the main control room for the operator to monitor reactor water level after the makeup systems are initiated. The operator will have positive indication within a short period as to whether or not reactor water level is being restored or maintained. During the January 16, 1985 RBS Emergency Planning Evaluated Exercise, conservatisms were observed as to when the plant conditions met those specified in the EAL set. Therefore, GSU believes the EAL set meets the intent of NUREG-0654 Site Area Emergency Initiating Condition No. 1.

Initiating Condition 6 (Loss of functions needed for hot shutdown). The NUREG-0654 initiating condition "complete loss of any function needed for plant hot shutdown," addresses the loss of capability to bring the reactor from full power to hot shutdown. The initiating condition "loss of functions needed to bring the reactor from hot shutdown to cold shutdown" should be changed to meet this intent. To prepare an adequate EAL response, the EAL set could be altered to read "EAL No. 1 and any one of the three parts of EAL No. 2," and add EALs that indicate the reactor has not scrammed. An example initiating condition of these EALs is "inability to scram and inoperable standby liquid control system."

Response

The RBS Initiating Condition No. 6 is worded such that a loss of "all" functions listed in the EAL set are required to inhibit the operator from going to cold shutdown from hot shutdown (i.e. when rods are fully inserted RBS is considered to be in at least hot shutdown or mode 3 per RBS Technical Specifications). A loss of only one function listed in the EAL set would not inhibit the operator from going to cold shutdown from hot shutdown.

The RBS Alert Initiating Condition No. 8 addresses a failure to scram the reactor (i.e. all rods have not been fully inserted after a scram signal).

The addition of the logic "inoperable standby liquid control system", is addressed in the next response to RBS Site Area Emergency Initiating Condition No. 7.

Initiating Condition 7 (Transient requiring operation of shutdown system with failure to scram). Failure to scram in the sense used here, where power generation continues, also requires the loss of the standby liquid control system. An EAL should be added that indicates this loss.

Response

An EAL has been added to RBS Site Area Emergency Initiating Condition No. 7 that indicates a loss of the standby liquid control system (see Enclosure 1). This addition will be included in a future FASR amendment.

GENERAL EMERGENCY

Initiating Condition 4 (Other plant conditions). The plan lists the four examples BWR sequences (Initiating Conditions 6a, 6b, 6c and 6d of NUREG-0654 Appendix 1) under this initiating condition. Essentially there have been no changes made to the EAL set reviewed in the EAL review letter dated May 25, 1984. The comments discussed in the in the above letter are still applicable for this present review, and are repeated below.

Initiating Condition 6a, 6b, 6c, and 6d (BWR Accident Sequences). The licensee listed one EAL set for all four BWR sequences. This EAL set is interpreted as follows:

"LOCA and Low Reactor Water level, and Loss of all offsite and onsite AC power, and Loss of all vital onsite DC power, and No Suppression pool cooling initiated for 30 minutes, or Loss of all onsite DC power for 10 hours."

This EAL set indicates some of the conditions for each BWR sequence, but it does not completely address each one. The generality of the EAL set does not allow for explicit and unique characterization of some of the conditions found in these sequences. It is suggested that an EAL set be prepared for each example BWR sequence listed in NUREG-0654, Appendix 1. Some recommended generic EALs for each sequence are given below.

#### General Reponse

GSU has reviewed the EAL sets which cover RBS General Emergency Initiating Conditions 4a, b, c and d. The EAL sets were written to conservatively address the intent of those EALs listed in NUREG-0818. In addition, the EAL set is not cumbersome and repetitive. By using the existing format, the EAL sets are more user friendly from a human factors standpoint.

RBS PSAR

TABLE 13.3-1 (Cont)

SITE AREA EMERGENCY  
IMPLEMENT ETP-2-004

<u>Initiating Condition</u>	<u>Emergency Action Level</u>	<u>Licensee Action</u>	<u>Offsite Response</u>	
			<u>Agency</u>	<u>Action</u>
	<u>AND</u>			
	Condition exists for more than 15 min			
5. Loss of all vital onsite 125 V dc power for more than 15 min	Less than 104 V on 1ENB*SWG01A and 1ENB*SWG01B distribution buses	Same as for Site Area Emergency condition 1	Same as for Site Area Emergency condition 1	
	<u>AND</u>			
	Condition exists for more than 15 min			
6. Loss of functions needed to bring the reactor from hot shutdown to cold shutdown	1. Inability to depressurize the reactor <del>OR</del> <u>AND</u> 2. Main condenser cooling is inoperable	Same as for Site Area Emergency condition 1	Same as for Site Area Emergency condition 1	
	<u>AND</u>			
	PHR Divisions A and B are inoperable			
	<u>AND</u>			
	PCIC is inoperable			
7. Transient requiring operation of shutdown system with failure to scram (continued power generation but no core damage)	Observation of transient and initiation of shutdown systems	Same as for Site Area Emergency condition 1	Same as for Site Area Emergency condition 1	
	<u>AND</u>			
	Neutron Monitoring System does not indicate reactor subcritical following valid scram initiation signal			
	<u>AND</u>			

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ENCLOSURE 1