



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

PROPOSED CHANGES TO THE EMERGENCY PLAN

TXU ELECTRIC COMPANY

COMANCHE PEAK STEAM ELECTRIC STATION, UNITS 1 AND 2

DOCKET NOS. 50-445 and 50-446

1.0 INTRODUCTION

This safety evaluation addresses proposed changes to the Comanche Peak Steam Electric Station Emergency Plan (CPSESEP) emergency action level (EAL) scheme submitted by Texas Utilities (the licensee) in a letter dated March 30, 1999, as supplemented by a letter dated August 26, 1999.

2.0 APPLICABLE REGULATIONS AND GUIDANCE

Title 10 of the *Code of Federal Regulations*, Section 50.54 (q) states, in part: "A licensee authorized to possess and operate a nuclear power reactor shall follow and maintain in effect emergency plans which meet the standards of §50.47(b) and the requirements of Appendix E to this part..."

Title 10 of the *Code of Federal Regulations*, Section 50.47(b)(4) states, in part: "A standard emergency classification and emergency action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided..."

Section IV.B of Appendix E to 10 CFR Part 50 states, in part: "The means ...for determining ...and for continually assessing ... the release of radioactive material[s] shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on the plant conditions and instrumentation in addition to onsite and offsite monitoring. These emergency action levels shall be discussed and agreed on by the applicant and State and local governmental authorities and approved by NRC."

Regulatory Guide 1.101, Revision 2, "Emergency Planning and Preparedness for Nuclear Power Reactors," states, in part: "The criteria and recommendations contained in Revision 1 of NUREG-0654/FEMA-REP-1 are considered by the NRC staff to be acceptable methods for complying with the standards in 10 CFR 50.47 that must be met in on-site and off-site emergency response plans."

Section II.D, "Emergency Classification System," of NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," includes the following evaluation criteria:

1. An emergency classification and emergency action level scheme as set forth in Appendix 1 must be established by the licensee...
2. The initiating conditions shall include the example conditions found in Appendix 1 [of NUREG-0654] ...

### 3.0 BACKGROUND

By letter dated March 30, 1999, the licensee submitted changes to the CPSESEP EALs for NRC staff review and approval prior to implementation. The licensee indicated that the emergency classification system is described in Section 2.0, "Emergency Classification System," and Table 2.1, "Initiating Conditions for Emergency Classifications," of the CPSESEP (Revision 27). Implementing details are prescribed in Emergency Plan Implementing Procedure EPP-201, "Assessment of Emergency Action Levels, Emergency Classification and Plan Activation," Revision 10. A copy of the affected pages from the current (Revision 10) and proposed new version (identified as Revision 11) of EPP-201 as well as a change summary, justification and supporting information was provided as Enclosure 1 to the licensee's March 30, 1999 letter.

In a letter dated August 26, 1999, the licensee provided additional information concerning the proposed changes to the CPSESEP EALs.

### 4.0 EVALUATION

The NRC staff reviewed the proposed EAL changes using NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," dated October 1980, which is endorsed by Regulatory Guide 1.101, Revision 2, "Emergency Planning and Preparedness for Nuclear Power Reactors," dated October 1981, as an acceptable method by which licensees may develop site-specific emergency plans. The scope of the NRC staff's review is limited to the EAL changes. Editorial changes (e.g., changes to table of contents) to the emergency implementing procedure which contains the EALs do not require NRC staff review or approval. Each of the proposed EAL changes is discussed below.

#### 4.1 Relocation of EALs to new Charts

The licensee proposed relocating the information on Chart 4, "Main Steam Line Break," to Charts 3 and 5. The licensee indicated Chart 5 would be renumbered as Chart 4 and renamed "Fuel Element Failure/Cooldown Events."

The licensee proposed this change to make the EAL charts easier to use. This change is intended to improve the classification of events and is acceptable.

#### 4.2 Changes to Setpoint for SG tube rupture EAL

Events involving failure of a steam generator tube(s) are addressed by the following NUREG-0654 initiating conditions (ICs):

##### Alert classification

- IC #2 Rapid gross failure of one steam generator tube with loss of offsite power
- IC #3 Rapid failure of steam generator tube (e.g., several hundred gpm primary to secondary leak rate)
- IC #4 Steam line break with significant (e.g., greater than 10 gpm) primary to secondary leak rate (PWR)

##### Site Area Emergency classification

- IC#3 Rapid failure of steam generator tubes (several hundred gpm leakage) with loss of offsite power
- IC #5 PWR steam line break with greater than 50 gpm primary to secondary leakage and indication of fuel damage

The licensee proposed changing its IC "S/G [Steam Generator] Tube rupture > 50 gpm (ABN [airborne] 100 or ABN 106)," which correlates to example IC #5 above, to "S/G Tube Rupture >Capacity of Available CCPs [Centrifugal Charging Pumps] following SI [Safety Injection] Actuation." The licensee indicated the CCPs have a capacity of 120 gpm each through the normal charging line. The licensee proposed this change because it is difficult in determining leakage of 50 gpm when operators are taking actions to mitigate the event (e.g., reducing power, reducing letdown, etc.). The licensee's experience during drills and exercises has been that, due to the difficulty in determining this leakage value, S/G Tube Rupture (STGR) events which did not exceed 50 gpm have been inappropriately classified. The licensee has determined that use of the "S/G Tube Rupture >Capacity of Available CCPs following SI Actuation" provides a more objective and observable threshold for classifying this event.

The NRC staff concludes that the licensee's chart provides an effective scheme for classifying SGTR events at the Unusual Event, Alert, Site Area Emergency and General Emergency levels based upon the magnitude of the leakage value and whether a release to the environment is occurring. The use of the threshold "S/G Tube Rupture >Capacity of Available CCPs following SI Actuation," is an appropriate indication for use as an input to the flow chart which, in consideration with other plant conditions, allows classification of the event according to the level of degradation of the safety of the plant and potential magnitude of the radioactive material release to the environment. Therefore, this proposed EAL revision is acceptable.

### 4.3 Changes to Radiation Monitor EALs

The licensee proposed to make the following changes to radiation monitor EALs:

- (a) Deleted several radiation monitors currently listed as indicators of failed fuel shown in Chart 3 (block 3.A) and in Chart 4 (block 4.A).
- (b) Add new, local, indicators of failed fuel based on manual radiation survey results from specific plant piping locations to Chart 2, "Loss of Reactor Coolant Boundary," (blocks 2.D and 2.F), Chart 3 "Steam Generator Tube Failure," (block 3.A), and new Chart 4, "Fuel Element/Cooldown Events," (stated as block 4.A but shown as block 5.A in proposed Revision 11).

The licensee indicated the following radiation monitors would be deleted from Charts 3 and 4:

- Main Steam Line Monitors (MSL - \*78, \*79, \*80, and \*81)
- Condenser Offgas Monitor (COG - \*82)
- Steam Generator Sampling Monitor (SGS - \*64)

The licensee stated these radiation monitors give an indication of primary-to-secondary leakage but are not a valid means of quantifying leak size or determining the extent of suspected fuel damage. These readings would vary with (1) the leak rate through a steam generator tube, (2) the amount of radioactivity in the reactor coolant system, and (3) the current steam flow.

The licensee stated these radiation monitors are in the process flow path and their readings are greatly influenced by the process flow rate, i.e., as the flow rate increases, the radioactivity available for detection increases and the monitor readings would increase even though the amount of fuel damage had not changed. The licensee indicated this would have the effect of indicating that there has been fuel damage when in fact there may be none. This would lead to higher event classification than would be warranted. The licensee maintained the EAL for the failed fuel line monitor and added a new EAL (i.e., "local Rad Readings") for failed fuel based on manual radiation survey results to be obtained from specified piping locations.

In its August 26, letter, the licensee stated that it has the capability to obtain timely and accurate information regarding potential fuel damage. This alternative method would allow the licensee to obtain this information promptly to assure rapid classification of these events. The licensee also indicated that although it proposed to delete these monitors from its EAL scheme, these monitors would still provide information in the control room and may be used to initiate actions to make local radiation survey measurements.

The NRC staff concludes that, because an effective threshold for indicating the degree of fuel damage cannot be established for the main steam line, condenser offgas, and steam generator monitors, it is acceptable to remove the EALs based on these indications. Furthermore, the staff concludes that the addition of EALs based upon local radiation readings, which have been correlated to the amount of fuel damage, provides assurance that the event will be appropriately classified.

## 5.0 STATE and LOCAL GOVERNMENTS AGREEMENT

Appendix E to 10 CFR Part 50 states, in part, that EALs are to be discussed and agreed on by State and local government authorities. The licensee stated in its March 30, 1999, letter that these proposed revisions were discussed with representatives of the State of Texas, Department of Public Safety, Division of Emergency Management and Department of Health, Bureau of Radiation Control, the Hood County Judge and the Somervell County Judge, and has received their endorsement to make these changes.

## 6.0 CONCLUSION

The proposed, revised, EALs are consistent with guidance provided in NUREG-0654/FEMA-REP-1, Revision 1. All deviations from NUREG-0654/FEMA-REP-1, Revision 1, were determined to be acceptable. The NRC staff concludes that the proposed, revised, EAL scheme meets the requirements of 10 CFR 50.47(b)(4) and Appendix E to 10 CFR Part 50. Therefore, the licensee may implement the proposed revision.

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