



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 157 TO

FACILITY OPERATING LICENSE NO. NPF-6

ENTERGY OPERATIONS, INC.,

ARKANSAS NUCLEAR ONE, UNIT NO. 2

DOCKET NO. 50-368

1.0 INTRODUCTION

By letter dated July 22, 1993, as supplemented by letter dated October 20, 1993, Entergy Operations, Inc. (the licensee) submitted a request for changes to the Arkansas Nuclear One, Unit No. 2 (ANO-2) Technical Specifications (TSs). The requested changes would remove the cycle-specific variables from the TSs and control them under a new document called the Core Operating Limits Report (COLR), in accordance with Generic Letter (GL) 88-16. The proposed amendment would also revise the definition of shutdown margin (SDM) in Technical Specification 1.13 to achieve consistency with NUREG-1432, Revision 0, "Revised Standard Technical Specifications (RSTS) for CE (Combustion Engineering) Plants.

The October 20, 1993, supplement provided an additional page that was inadvertently omitted from the proposed TSs. This additional page would also reference the COLR and does not change the initial proposed no significant hazards consideration determination.

2.0 DISCUSSION

The proposed changes would modify TSs having cycle-specific parameter limits by replacing the values of those limits with a reference to a COLR for the values of those limits. The proposed changes also include the addition of the COLR to the Definitions section and to the reporting requirements of the Administrative Controls section of TSs. Guidance on the proposed changes was developed by NRC and provided to all power reactor licensees and applicants by GL 88-16, dated October 4, 1988.

The request to change the SDM definition is unrelated to GL 88-16.

3.0 EVALUATION

3.1 COLR

The proposed changes to the TSs are in accordance with the guidance provided by GL 88-16 and are addressed below.

- (1) The definition section of the TSs was modified to include a definition of the COLR that requires cycle/reload-specific parameter limits to be established on a unit-specific basis in accordance with NRC-approved methodologies that maintain the limits of the safety analysis. The definition notes that plant operation within these limits is addressed by individual specifications.
- (2) The following specifications were revised to replace the values of cycle-specific parameter limits with reference to the COLR that provides these limits.
  - (a) Specification 3/4.1.1  
Shutdown margin limits for this specification ( $T_{avg} > 200^{\circ}F$  and  $T_{avg} \leq 200^{\circ}F$ ) are specified in the COLR.
  - (b) Specification 3.1.1.4  
The moderator temperature coefficient (MTC) limits for this specification are specified in the COLR.
  - (c) Specification 3.1.3.1  
The core power limits for the moveable control rod assemblies - CEA position deviation are specified in the COLR.
  - (d) Specifications 3.1.3.6 and 3.1.3.7  
The regulating CEA insertion limits and part length CEA insertion limits for these specifications are specified in the COLR.
  - (e) Specifications 3/4.2.1 and 3.10.2.b.2  
The linear heat rate limit for these specifications is specified in the COLR.
  - (f) Specification 3.2.3  
The maximum azimuthal power tilt limits for this specification are specified in the COLR.
  - (g) Specification 3/4.2.4  
The DNBR margin related limits for this specification are specified in the COLR.
  - (h) Specification 3.2.7  
The axial shape index range limits for this specification are specified in the COLR.

The bases of affected specifications have been modified by the licensee to include appropriate reference to the COLR. Based on our review, we conclude that the changes to these bases are acceptable.

- (3) Specification 6.9 is revised to include the COLR under the reporting requirements of the Administrative Control section of the TSs. This specification requires that the COLR be submitted, upon issuance, to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector. The report provides the values of cycle-specific parameter limits that are applicable for the current fuel cycle. Furthermore, this specification requires that the NRC-approved methodologies be used in establishing the values of these limits for the relevant specifications and that the values be consistent with all applicable limits of the safety analysis. The approved methodologies are the following:
- (a) CENPD-266-P-A, "The ROCS and DIT Computer Codes for Nuclear Design," April 1983, (Methodology for Specifications 3.1.1.1 and 3.1.1.2 for Shutdown Margins, 3.1.1.4 for MTC, and 3.1.3.6 for Regulating CEA Insertion Limits).
  - (b) CENPD-190-A, "C-E Method for Control Element Assembly Ejection Analysis," January 1976, (Methodology for Specification 3.1.3.6 for Regulating CEA Insertion Limits and 3.2.3 for Azimuthal Power Tilt).
  - (c) CEN-139(A)-P, "Statistical Combination of Uncertainties, Combination of System Parameter Uncertainties in Thermal Margin Analyses for Arkansas Nuclear One Unit 2," November 1980, (Methodology for Specification 3.2.4 for DNBR Margin and 3.2.7 for ASI).
  - (d) CENPD-132-P, "Calculational Methods for the CE Large Break LOCA Evaluation Model," August 1974 - Approved June 1975; Supplement No. 1, February 1975 - Approved June 1975; No. 2, July 1975 - approved December 1975, (Methodology for Specification 3.1.1.4 for MTC, 3.2.1 Linear Heat Rate, 3.2.3 for Azimuthal Power Tilt, and 3.2.7 for ASI).
  - (e) CENPD-137-P, "Calculational Methods for the CE Small Break LOCA Evaluation Model," August 1974 - Approved June 1975, (Methodology for Specification 3.1.1.4 for MTC, 3.2.1 for Linear Heat Rate, 3.2.3 for Azimuthal Power Tilt, and 3.2.7 for ASI).
  - (f) "CESEC-Digital Simulation of a Combustion Engineering Nuclear Steam Supply System," December 1981 - Approved March 1984, (Methodology for Specifications 3.1.1.1 and 3.1.1.2 for Shutdown Margin, 3.1.1.4 for MTC, 3.1.3.1 for Movable Control Assemblies - CEA Position, 3.1.3.6 for Regulating CEA Insertion Limits, and 3.1.3.7 for Part Length CEA Insertion Limits).

Finally, the specification requires that all changes in cycle-specific parameter limits be documented in the COLR before each reload cycle or

remaining part of a reload cycle and submitted upon issuance to NRC, prior to operation with the new parameter limits. Furthermore, the licensee should identify the applicable specifications to be relocated to the COLR under each approved methodology cited above.

### 3.2 SDM Definition

The licensee's proposed revision to the definition of SDM is denied because the licensee did not propose all portions of the SDM definition in NUREG-1432, Revision 0, "Revised Standard Technical Specifications for CE Plants" (hereafter referred to as the RSTS). Specifically, the licensee did not include the RSTS statement, "In Modes 1 and 2, the fuel and moderator temperatures are changed to the nominal zero power design level." The licensee's reason for not including this portion, as discussed in the application, is that this RSTS statement is not applicable to the ANO-2 SDM calculation method, and that another specification verifies the SDM in Modes 1 and 2 by verifying that the CEA group withdrawal is within the transient insertion limits.

The staff position is that the above RSTS statement is applicable and is needed to accurately define the starting point for SDM. The verification of the CEA group withdrawal assists in ensuring the SDM is met, however, the staff is of the opinion that how SDM is met and the definition of SDM are two different concepts that should be separated.

Similarly, the licensee did not include the RSTS statement, "There is no change in part length CEA position." In the application, the licensee offered no reason for not including this statement. The staff position is that this statement is also necessary to accurately define the starting point for the SDM definition.

### 4.0 SUMMARY

On the basis of its review, the NRC staff finds that the licensee provided an acceptable response to the items in GL 88-16 on modifying cycle-specific parameter limits in the TSs. Because plant operation continues to be limited in accordance with the values of cycle-specific parameter limits that are established using NRC-approved methodologies, the NRC staff finds that this change has no impact on plant safety.

Regarding the licensee's proposed SDM definition, the staff is denying this part of the application since it did not accurately define the starting point for shutdown margin. A Notice of Partial Denial of Amendment to Facility Operating License and Opportunity for Hearing is being prepared under separate cover and will appear in the Federal Register.

### 5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Arkansas State official was notified of the proposed issuance of the amendment. The State official had no comments.

## 6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (58 FR 46230). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: T. Huang, SRXB  
T. Alexion, PD IV-1

Date: April 11, 1994