



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

ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATING TO TOPICAL REPORT CE-NPD 282-P

"TECHNICAL MANUAL FOR THE CENTS CODE"

ABB COMBUSTION ENGINEERING

1. INTRODUCTION

In letters of April 19, 1991 (Ref. 1) and November 4, 1991 (Ref. 2), Omaha Public Power District (OPPD) and ABB Combustion Engineering (CE) submitted three volumes of topical report CE-NPD 282-P, "Technical Manual for the CENTS Code," for NRC review. The topical report describes the Combustion Engineering Nuclear Transient Simulation (CENTS) computer code developed by CE to calculate the transient behavior of a pressurized-water reactor (PWR) for normal and abnormal conditions, including accidents. CENTS is intended to replace the CESEC code presently used to simulate the transient response of PWR nuclear plants.

The NRC staff was supported in this review by its consultant, Brookhaven National Laboratory. The staff has adopted the findings recommended in the consultant's technical evaluation report (Ref. 3) which is attached.

2. EVALUATION

The attached technical evaluation report provides the evaluation.

3. CONCLUSIONS

The staff has reviewed the CE topical report CE-NPD 282-P and the supporting documentation sent in response to its request for additional information. On the basis of this review, the staff concludes that CE-NPD 282-P is acceptable for referencing in licensing actions with respect to the calculation of transient behavior in PWRs designed by CE, subject to the limitations stated in the attached technical evaluation report.

#### 4. REFERENCES

1. Letter from W. G. Gates (OPPD) to Document Control Desk (NRC), "Revised Core Reload Methodology Topical Reports for Cycle 14," Enclosures, Volumes 1 and 2 of CE-NPD 282-P, April 19, 1991.
2. Letter from S. A. Toelle (CE) to John T. Larkins (NRC), "Submittal of Volume 3 of CENTS Code Topical Report," November 4, 1991.
3. Letter from John F. Carew (BNL) to Laurence I. Kopp (NRC), "Review of the ABB-CE CENTS Transient Analysis Methodology Topical Report CE-NPD 282-P (FIN A-3868/Task-39/TAC-M82718)," March 2, 1994.