



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
OF SNCH-9501, "BWR STEADY STATE AND TRANSIENT ANALYSIS METHODS
BENCHMARKING TOPICAL REPORT"

EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-321 AND 50-366

1.0 INTRODUCTION

By letter dated July 24, 1996, Southern Nuclear Operating Company, Inc. (SNC/the licensee), requested that the staff approve its use of General Electric (GE) design and analysis computer codes to allow SNC to perform cycle-specific reload and other related analyses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch). Enclosed with the July 24 letter is a licensing topical report (LTR) that demonstrates SNC's ability to perform steady-state and transient reactor analysis by comparing SNC results to GE results using the GE computer codes. All of the codes referenced and used by SNC have received prior NRC review and approval. This safety evaluation reviews the SNC application of the following computer codes:

TGBLA	-	Lattice physics methods
PANACEA	-	Steady-state 3D core simulator
ODYN	-	1D systems transient code
TASC	-	Calculation of delta-critical power ratio (CPR)
GETAB	-	Delta-CPR calculation methodology

2.0 DISCUSSION

SNC has recalculated some of the key steady-state and transient results for Cycle 16 of Hatch Unit 1. Acceptance criteria from NEDO-32362, "Utility Licensing of Vendor Methods," were applied to the results of the SNC-to-GE comparisons. All phases of a transient analysis were examined, from the generation of the input to the calculation of the delta-CPR values. The approved methods in NEDE-24011-P-A, "General Electric Standard Application for Restart Fuel," (GESTAR II) typically only require that the limiting transients are reevaluated each cycle, which SNC has done for comparative purposes. Since the stated purpose of the SNC LTR is to qualify SNC's ability to use the approved GE codes, not to requalify them, there are no comparisons to data.

SNC appears cognizant of the fact that a majority of errors and discrepancies discovered in safety analyses can be traced to the user rather than the code. SNC proposes to address this fact in the following manner:

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- a. SNC's technical staff has received training on the use of GE computer codes at GE's design facility. The competency of the SNC personnel is demonstrated by the results presented in SNCH-9501.
- b. SNC proposes to use the codes in accordance with the restrictions in NEDC-24011-P-A and will control their use by its internal quality assurance procedures, which conform to 10 CFR Appendix B and other relevant ANSI standards.

3.0 EVALUATION

The SNC report (SNCH-9501) demonstrates the ability to properly use the approved GE licensing analysis computer codes. The results presented in SNCH-9501 all agree well with the reference GE results. This demonstrates SNC's ability to successfully apply the GE analysis tools for all of the phases needed to perform licensing analyses, including input preparation and code execution. For example, the results of the delta-CPR calculations all compare to the reference results within 0.003 delta-CPR, which is excellent agreement. SNC's efforts to ensure proper use of the codes and the ability of its staff to use the codes provides reasonable assurance that the codes will be correctly used and the proper analyses will be performed. It is the responsibility of SNC to properly consider all restrictions noted in the NRC staff safety evaluations that approved the codes.

4.0 CONCLUSIONS

The staff has reviewed the request by SNC to use approved GE methods to perform licensing analyses. Based upon SNC's demonstrated ability, the staff finds this request acceptable.

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