



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

February 4, 2014

Mr. C. R. Pierce  
Regulatory Affairs Director  
Southern Nuclear Operating Company, Inc.  
Post Office Box 1295, Bin - 038  
Birmingham, AL 35201-1295

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT, UNIT NOS 1 AND 2, EXEMPTION FROM  
THE REQUIREMENTS OF 10 CFR PART 50, SECTION 50.46, AND  
APPENDIX K (TAC NOS. MF1479 AND MF1480)

Dear Mr. Pierce:

The U.S. Nuclear Regulatory Commission (NRC) has approved the enclosed exemption from specific requirements of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.46, "Acceptance criteria for emergency core cooling systems [ECCS] for light-water nuclear power reactors," and Appendix K, "ECCS Evaluation Models," for the Edwin I. Hatch Nuclear Plant, Units 1 and 2 (HNP). This action is in response to Southern Nuclear Company's (SNC's, the licensee) letter dated April 23, 2013 (ADAMS ML13115A480).

SNC's letter of April 23, 2013, constitutes the licensee's second request for an exemption from the above fuel cladding material requirements in order to irradiate two GE14 Lead Test Assemblies (LTAs) in the HNP. The LTAs include a limited number of fuel rods manufactured with an advanced cladding alloy, known as Global Nuclear Fuel (GNF) Ziron, which is outside of the cladding materials specified in the regulations (i.e. zircaloy or ZIRLO™). By letter dated November 7, 2008, the NRC approved an earlier SNC request for an exemption in order to irradiate these two GE14 LTAs in the HNP Unit 2 reactor for cycles 21, 22 and 23 (ADAMS ML082950149). These two LTAs have now completed operation in cycles 21 and 22; however, SNC decided not to include them in the Unit 2 cycle 23 core loading in order to allow sufficient time to perform pool-side inspections. Since the original exemption request applied only to the operation of the LTAs in the Unit 2 reactor for cycles 21-23, SNC has requested a second exemption in order to continue irradiation of the LTAs in either of the HNP reactors for one or more additional cycles, up to GNF's approved peak pellet exposure.

As stated in the enclosed safety evaluation, the NRC staff concludes that application of 10 CFR 50.46 and Appendix K to 10 CFR 50 for this revised schedule is not necessary to achieve the underlying purposes of the rule and that it is acceptable to grant an exemption from the requirements of 10 CFR 50.46 and Appendix K to 10 CFR Part 50 for the use of two LTAs in either of the HNP reactors for one or more additional cycles, up to GNF's approved peak pellet exposure.


In addition to SNC's request for an exemption from certain parts of 10 CFR 50.46 and Appendix K, Section IV of SNC's letter dated April 23, 2013, addressed how other regulatory requirements related to the use of the LTAs are to be met by SNC. Specifically, the letter indicated that loading and irradiation of the LTAs will also be evaluated by SNC as a change to the plant as required by 10 CFR 50.59, "Changes, tests and experiments." This approach is consistent with the HNP Technical Specifications which allow a limited number of LTAs, provided they are

placed within non-limiting locations. As such, the NRC staff review in the enclosure addresses the exemption request pursuant to 10 CFR 50.12, and does not address core physics, core thermal hydraulics, fuel thermal-mechanical design, or Updated Final Safety Analysis Report (USFAR) safety analyses aspects of the LTAs nor their placement in non-limiting core locations.

Additionally, Section V of GNF's technical basis document (Enclosure 2 of ML13115A480) notes that the GNF fuel rod thermal mechanical code PRIME03 is now being used to assess fuel rod performance. The PRIME03 code (ADAMS ML102600248), which accounts for exposure-dependent fuel thermal conductivity, replaces the legacy GESTRM fuel rod performance code. While not explicitly approved for GNF-Ziron, the use of PRIME03 is consistent with the approved GNF reload methodology and therefore acceptable.

A copy of the enclosed exemption has been forwarded to the Office of the Federal Register for publication.

Sincerely,

  
Robert E. Martin, Senior Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosure: Exemption

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