October 28, 1996

Mr. Joseph J. Hagan
Vice President, Operations GGNS
Entergy Operations, Inc.
P. O. Box 756
Port Gibson, MS 39150

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION RELATED TO AMPACITY DERATING ISSUES FOR THERMO LAG FIRE BARRIERS FOR GRAND GULF NUCLEAR STATION (TAC NO. M85554)

Dear Mr. Hagan:

By letter dated June 28, 1996, you submitted a response to the staff's Request for Additional Information (RAI) dated November 6, 1995, related to Generic Letter (GL) 92-08, "Thermo-Lag 330-1 Fire Barriers," for the Grand Gulf Nuclear Station, Unit 1 (GGNS). The staff has completed its preliminary review of the analytical approach documented in the June 28, 1996, submittal, and has identified a number of concerns requiring clarification. These concerns are discussed in the enclosed RAI.

To permit us to continue our review on our current schedule we require that the information requested in the enclosure be provided within 30 days of the end of the current refueling outage.

Sincerely,

Jack N. Donohew, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosure: Request for Additional Information

cc w/encl: See next page

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

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REQUEST FOR ADDITIONAL INFORMATION

AMPACITY DERATING ISSUES FOR THERMO LAG FIRE BARRIERS

ENTERGY OPERATIONS, INC.

GRAND GULF NUCLEAR STATION, UNIT 1

DOCKET NO. 50-416

TAC NO. M85554

1.0 BACKGROUND

By letter dated June 28, 1996, Entergy Operations, Inc. (the licensee) submitted a response to the staff's Request for Additional Information (RAI) dated November 6, 1995, related to Generic Letter (GL) 92-08, "Thermo-Lag 330-1 Fire Barriers," for Grand Gulf Nuclear Station, Unit 1 (GGNS).

The consideration of ampacity derating factors for Thermo-Lag fire barriers at GGNS is based on a similarity analysis. The licensee provided two engineering reports (GGNS-96-0006 and GGNS-96-0032) to address ampacity derating issues due to Thermo-Lag fire barriers. The licensee used the results from the Texas Utilities (TU) ampacity derating tests in its evaluation (Engineering Report No. GGNS-96-0006 and GGNS-96-0032) of GGNS Thermo-Lag fire barriers with nominal 1/2" base with or without 1/4" overlay. Additionally, the licensee used the results from the Tennessee Valley Authority (TVA) ampacity derating tests in its evaluation (Engineering Report No. GGNS-96-0032) of GGNS Thermo-Lag fire barriers with nominal 1-1/4" thick panels and/or pre-formed conduit sections.

The staff has completed the preliminary review of the licensee's submittal and the following questions require clarification by the licensee.

2.0 QUESTIONS

1. For cables installed in exposed or enclosed groups of conduits in air, the grouping factors given in Table IX of ICEA Standard P-46-426 is specified for use when the spacing between conduit surfaces is not greater than the conduit diameter or less than 1/4 of the conduit diameter. The calculations did not use a conduit grouping factor. Provide a discussion about conduit grouping factor at GGNS.

ENCLOSURE

2. It is not clear how the licensee calculated the full load amperes (FLA) for applicable conduits. The constant KVA loads will draw 11 percent more current at 90 percent of rated voltage available at its terminals. Additionally, some loads may operate at overload or at a service factor of 15 percent. Accordingly, the FLA could be as high as 125 percent of FLA at nominal voltage. The licensee needs to address this aspect of system operation in its ampacity derating analysis.

3. The actual percent fill for conduits (1BBAOT22, 1BBAOT23, 1BBAOT25) exceeded the allowable percent fill. Provide justification of cable ampacity if the conduit fill exceeds the value given in National Electric Code (NEC) tables.

4. Base ampacities for #12 AWG control cables in random fill trays are from Table 11 or 12 of ICEA P-54-440 (1972). These tables are for 601-2000 volt cables. What is the voltage rating of the control cables (2/C, 4/C, 7/C, 12/C #12 AWG)?

5. What ampacity derating test or analysis bounds those configurations in Sections 13.1.3.b.11 & 13.1.3.b.12 of licensee document, Engineering Standard ES-02? The licensee is requested to provide the ampacity derating parameters with applicable technical justification for the subject configurations.

6. Sections 6.1.1 and 6.1.2 of the Engineering Report GGNS-96-0006 which was part of the licensee submittal dated June 28, 1996, contains a reference to both conduit and air drop fire barrier (i.e., Flexi-Blanket 330-660) material properties. The licensee should explain how the installed configurations are bounded by the referenced ampacity derating tests. The licensee is also requested to describe geometrically the fire barrier construction and identify the ampacity derating test being considered for the specific Thermo-Lag fire barrier configuration.