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

NOV 4 1988

Docket Nos. 50-327/328

Mr. S. A. White
Senior Vice President, Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dear Mr. White:

SUBJECT: DEVIATION FROM 10 CFR PART 50, APPENDIX R - SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 (TAC R00486, R00487)

By letter dated October 13, 1988, you requested NRC approval of a deviation from the requirements of 10 CFR Part 50, Appendix R, Section III.G.2. This is in regard to the required fire barriers around redundant trains and the required fire supression system at Sequoyah. The vital battery board rooms are protected by manual action and by a 1-hour fire resistant wrap which is not in compliance with Item c of Section III.G.2. In your letter dated October 20, 1988, you requested the deviation until the restart from the Unit 1 Cycle 4 refueling outage. This outage is currently scheduled for early 1990. For fire protection at Sequoyah, you have committed to comply with Appendix R for Sequoyah Unit 1 and the Sequoyah Unit 2 license contains a condition which requires compliance with certain provisions of Appendix R except for approved deviations.

Enclosed is the staff's Safety Evaluation Report (SER) on your request. The SER provides the basis for the staff's approval of the deviation to Appendix R until the restart from the Unit 1 Cycle 4 refueling outage. The compensatory measures discussed in the SER are acceptable until the deviation expires in 1990. They must remain in effect until the plant is returned to compliance with Appendix R, Section III.G.2. We have concluded that the existing plant condition with a low fire loading and your compensatory measures for the vital battery board rooms have provided an equivalent level of fire protection to Section III.G.2 and, therefore, the plant remains in compliance with the requirements of General Design Criterion 3, Fire Protection, of Appendix A to 10 CFR Part 50.

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In the October 20, 1988 letter, you committed to submit by December 21, 1988, the long-term actions to be taken to return the plant to compliance with Appendix R. The staff finds this committment acceptable. The staff intends to evaluate your long-term actions and issue its evaluation on them in a separate letter.

Sincerely,

Original signed by B.D. Liaw for

Steven D. Richardson, Director
TVA Projects Division
Office of Special Projects

Enclosure:
Safety Evaluation Report

cc w/enclosure:
See next page

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WASHINGTON, D. C. 20555

ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

RELATIVE TO REQUEST FOR A DEVIATION FROM

APPENDIX R REQUIREMENTS

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR POWER PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

1.0 INTRODUCTION

By letter dated October 13, 1988, the licensee requested NRC approval of a deviation from 10 CFR Part 50, Appendix R, Section III.G.2 in regard to fire resistance of fire barriers around redundant trains and the required fire suppression system. Section III.G.2 of Appendix R requires that redundant safe shutdown components be separated from each other by one of the following methods:

1) Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier.

2) Separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustible or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

According to the Sequoyah fire hazards analysis (FHA), all of the battery board rooms are protected by automatic preaction suppression system and by one-hour fire resistant wrap in compliance with Item C of Section III.G.2. On October 5, 1988, the licensee discovered that the preaction suppression system was actually controlled by hand valves rather than detector activated preaction valves. This was identified as a noncompliance with Section III.G.2 of Appendix R. The licensee notified the NRC and initiated Condition Adverse to Quality Report (CAQR) SQP 880513.

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2.0 EVALUATION

The interactions in the 125 volt vital battery board rooms are as follows:

1) Cables 1PP750A and 1PP759A (6.9 kV feeds to 480 volt shutdown board transformers 1A-A and 1A2-A, respectively) were routed and protected through the fifth vital battery board room. A fire in the fifth vital battery board room with the fifth vital battery system in service to vital battery systems II or IV could cause loss of either of these train B associated dc power systems, and loss of the above specified Unit 1 train A shutdown board transformer feeds.

2) Cable B164I is routed through vital battery board room II and provides power supply from the fifth vital battery to battery board I. Cable B168IV is routed through vital battery board room III and provides a power supply from the fifth vital battery to battery IV. With the fifth vital battery in service, a fire in either of these two rooms could cause loss of two redundant channels of dc vital power systems.

3) Cables 1B25II and 1B30II were installed in battery room I and cables 2B11III and 2B16III were installed in battery board room IV. These cables are the normal dc power supply cables to 480-V shutdown boards IB1-B, IB2-B, 2A1-A and 2A2-A. A fire in either of these rooms could cause loss of a dc power control bus of the boards, plus loss of the applicable channel of vital dc supply.

The licensee has already provided an hourly fire watch as a compensatory measure for the affected areas. The deviation request is to allow restart of Unit 1 and continued operation of Unit 2 with the compensatory measures now in place.

The licensee justifies this deviation on the basis of the low fire loading inside the rooms. According to the licensee's FHA, loading in the 125 volt vital battery board rooms is about 20,000 BTU/ft^2 which corresponds to an equivalent fire severity of 15 minutes under the standard curve. The staff inspected these rooms on September 5, 1988 and agrees with the description of fire loading in the FHA. Some of this fire loading is in conduits. It is the staff's conclusion that a fire in one of the vital battery rooms would not damage the redundant protected train even with the lack of automatic suppression. The hourly fire watch will assure that transient combustibles, which could increase the fire loading, are not inadvertently stored in the rooms.

By letter of October 20, 1988, the licensee requested that the term of the deviation be in effect until the Unit 1 Cycle 4 refueling outage. This date is consistent with TVA's present commitments for completion of modifications for Interaction Nos. 90 and 91 for source range instrumentation and long term corrective actions to prevent spurious operation of the volume control tank outlet valves (Interaction No. 120). The licensee also committed to submit to NRC by December 21, 1988, the long-term actions to be taken at the plant to resolve this deviation.

3.0 CONCLUSION

The staff concludes that the deviation request, in regard to Section III.G.2 in the 125 volt vital battery board rooms, should be granted. The compensatory measures initiated by the licensee must remain in effect during that period that this deviation is granted or until the plant is returned to compliance with Appendix R, Section III.G.2.

The staff also concludes that the existing plant condition with a low fire loading and the compensatory measures for the vital battery load rooms have provided an equivalent level of fire protection to Section III.G.2 and the plant remains within the requirements of General Design Criterion 3, Fire Protection, of Appendix A to 10 CFR Part 50. It is the staff's conclusion that, with the fire loading for the rooms, a fire in one of the rooms would not damage the redundant protected train even with the lack of automatic suppression.

Principal Contributor: R. Wescott

Dated: NOV 4 1988