



Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379-2000

Robert A. Fenech
Vice President, Sequoyah Nuclear Plant

February 10, 1994

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of)	Docket Nos. 50-327
Tennessee Valley Authority)	50-328

SEQUOYAH NUCLEAR PLANT (SQN) - REQUEST FOR ADDITIONAL INFORMATION
REGARDING GENERIC LETTER 92-08, "THERMO-LAG 330-1 FIRE BARRIERS," PURSUANT
TO 10 CFR 50.54(f) - SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 (TAC
NOS. M85604 AND M85605)

Reference: TVA letter to NRC dated April 15, 1993, "Sequoyah Nuclear
Plant (SQN) - Generic Letter (GL) 92-08 - Thermo-Lag 330-1
Fire Barrier"

The purpose of this letter is to provide TVA's response to NRC's letter
dated December 21, 1993, requesting additional information regarding GL
92-08. TVA's original response is contained in the above reference.
Enclosure 1 provides a detailed response to each requested item.
Enclosure 2 contains the commitment made as a result of this submittal.

Additionally, this response will serve as the response committed to in
Enclosure 2 of the referenced letter.

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U.S. Nuclear Regulatory Commission

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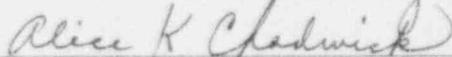
Please direct questions concerning this issue to W. C. Ludwig at
(615) 843-7460.

Sincerely,



Robert A. Fenech

Sworn to and subscribed before me
this 10th day of February 1994



Notary Public

My Commission Expires 2/8/97

Enclosures

cc (Enclosures):

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ENCLOSURE 1

SEQUOYAH NUCLEAR PLANT (SQN) UNITS 1 AND 2
RESPONSE TO NRC'S REQUEST FOR ADDITIONAL
INFORMATION DATED DECEMBER 21, 1993

The following is a direct response to each reporting requirement contained in the December 21, 1993, NRC request for additional information.

"I. Thermo-Lag Fire Barrier Configurations and Amounts

B. Required Information

1. Describe the Thermo-Lag barriers installed in the plant to
 - a. meet 10 CFR 50.48 or Appendix R to 10 CFR Part 50,
 - b. support an exemption from Appendix R,
 - c. achieve physical independence of electrical systems,
 - d. meet a condition of the plant operating license,
 - e. satisfy licensing commitments."

Response:

Item I.B.1.a.

As previously responded to in Reference 1, Thermo-Lag 330-1, one-hour fire barriers have been installed at SQN Units 1 and 2 and are relied upon to meet fire-protection requirements in nuclear power plants as specified in 10 CFR 50.48. The material has been used to achieve compliance with 10 CFR 50, Appendix R, Section III.G, requirements for SQN Units 1 and 2. No Thermo-Lag 330-1, three-hour-rated fire barriers or radiant-energy heat shields have been installed at SQN.

In addition to the typical two-section, preformed conduit configurations, other examples of plant-specific, Thermo-Lag 330-1, fire-barrier configurations include:

1. Six grouped, 4-inch-horizontal conduits running parallel that are protected with nominal 5/8-inch-thick board material on the bottom and top of the grouping. Preformed conduit shapes have been installed on each side of the conduit groupings and butted to the top and bottom board material to complete the fire-barrier enclosures.
2. Fire barriers consisting of grouped conduits protected by common box configurations that are made from nominal 5/8-inch, Thermo-Lag board material. These barriers are installed tight against concrete walls.
3. Fire barriers for 18-inch by 4-inch electrical cable trays including a tee intersection.
4. Fire barriers that are for electrical junction and/or pull boxes that are sized from 12 inches by 12 inches by 6 inches to 52 inches by 24 inches by 24 inches.

Item I.B.1.b.

The following NRC-approved deviations from Section III.G of 10 CFR 50, Appendix R, are supported by the installation of one-hour, Thermo-Lag 330-1 fire barriers. Reference 4 provided TVA with NRC-prepared safety evaluations for these deviations. The following are descriptions of those approved deviations.

- Electrical conduits containing redundant, component cooling water pump circuit cables have been protected with Thermo-Lag 330-1 fire barriers above a one-hour fire wall between the A-train and B-train pumps. This wall is not a Thermo-Lag 330-1 barrier and extends from the floor to 3 feet above the highest point of the pumps.
- Raceways containing redundant shutdown circuits in the auxiliary building that are not separated by a horizontal distance of 20 feet or more are enclosed in a one-hour, Thermo-Lag 330-1 fire barrier until a 20-foot separation is attained. This is not in literal compliance with Appendix R, Section III.G.2, that requires the fire barrier to extend throughout the fire area.

In addition to the above deviations, Reference 5 documents the fire hazard analysis that provides justification for a permanent deviation from Section III.G.2 of Appendix R of 10 CFR 50. This deviation involves a manual sprinkler system and one-hour, Thermo-Lag 330-1 conduit fire barriers installed in the 125-volt (V) vital battery board rooms. The Reference 5 analysis was performed in accordance with the guidelines set forth by NRC in 10 CFR 50 Appendix R, Section II.B, NUREG 0200, Chapter 9.5-1, Section C.6, and NRC Generic Letter 86-10, Section C.

Item I.B.1.c.

Thermo-Lag 330-1 system materials have not been installed at SQN to achieve physical independence of the electrical systems.

Item I.B.1.d.

As provided in Reference 1, Thermo-Lag 330-1 fire barriers are utilized to meet License Condition 2.C (13) c of the SQN Unit 2 operating license. License Condition 2.C (13) c requires compliance with Sections III.G, III.J, III.L, and III.O of Appendix R of 10 CFR 50, except where NRC has approved deviations, on a schedule consistent with that required for other operating reactors. This condition was not included in the Unit 1 operating license.

Item I.B.1.e.

TVA is committed in References 2 and 4 to comply with the same 10 CFR 50, Appendix R, sections and conditions as described at 9 in Item I.B.1.d. This commitment applies to both units.

- "2. For the total population of Thermo-Lag fire barriers described under Item I.B.1, submit an approximation of:
- a. For cable tray barriers: the total linear feet and square feet of 1-hour barriers and the total linear feet and square feet of three-hour barriers.
 - b. For conduit barriers: the total linear feet of 1-hour barriers and the total linear feet of 3-hour barriers.
 - c. For all other fire barriers: the total square feet of 1-hour barriers and the total square feet of 3-hour barriers.
 - d. For all other barriers and radiant energy heat shields: the total linear or square feet of 1-hour barriers and the total linear or square feet of 3-hour barriers, as appropriate for the barrier configuration or type."

Response:

Item I.B.2.a.

As shown on the Reference 3 drawing series, a total of approximately 40 linear feet of 18-inch by 4-inch steel ladder back cable tray is protected by one-hour, Thermo-Lag 330-1 barriers. This results in approximately 147 square feet of tray surface protection. This fire barrier system is confined to Train A control voltage cable trays in the auxiliary control room on Elevation 734.0 of the auxiliary building. There are no three-hour, Thermo-Lag 330-1 cable tray fire barriers installed at SQN.

Item I.B.2.b.

The total linear footage of conduits protected with Thermo-Lag 330-1, one-hour fire barriers is approximately 6,200 feet. Of this total, there are approximately 1,450 feet of 4-inch-conduit and 550 feet of 3-inch-conduit, Thermo-Lag 330-1 fire barriers installed at SQN. There are no three hour, Thermo-Lag 330-1 conduit fire barriers installed at SQN.

Item I.B.2.c.

Thermo-Lag 330-1 system materials have been used for one-hour barriers on approximately 20 junction boxes of various sizes. This results in approximately 350 square feet of junction-box surface protection. One cable air drop fire barrier has been installed inside a pull box in the 480-V shutdown transformer room on Elevation 749 of the auxiliary building. This configuration was installed because of the support problems associated with the protection of the pull box.

Item I.B.2.d.

Only the 10 CFR 50, Appendix R, one-hour, Thermo-Lag 330-1 barrier types described in the responses to Items I.B.2.a., I.B.2.b, and I.B.2.c have been installed at SQN.

"II. Important Barrier Parameters

B. Required Information

1. State whether or not you have obtained and verified each of the aforementioned parameters for each of the Thermo-Lag barriers installed in the plant. If not, discuss the parameters you have not obtained or verified. Retain detailed information on the site for NRC audit where the aforementioned parameters are known."

Response:

TVA is presently performing plant walkdowns to gather data on the important barrier parameters and the configuration of the existing Thermo-Lag 330-1. This information is to be captured on walkdown data sheets and used to determine the feasibility of upgrading the existing configurations in regard to size, clearance, and shape. These walkdowns will also include taking digital pictures of unique configurations. The final step will be the development of a Thermo-Lag 330-1 database that will contain the NRC-listed information.

Except for the 3-inch-size conduits, the qualification of SQN conduit fire barriers will be based upon barrier fire-endurance test results on Thermo-Lag 330-1 from Watts Bar Nuclear Plant (WBN). Cable loading for all of the conduit, junction box, and cable air drop fire barrier tests consisted of single No. 8 American Wire Gauge (AWG), bare copper instrumented conductors within the electrical circuit protective system in accordance with criteria listed in Reference 10. The results from these low-thermal-mass tests will be applied to qualify all applicable SQN cable types and conduit fill conditions. It should be noted that some of the WBN-tested assemblies were based on actual SQN-installed configurations.

The WBN tests demonstrated end-point temperatures slightly above the allowable average temperature rise of 250 degrees Fahrenheit (F) for both the 3-inch iron and aluminum conduit, fire-barrier configurations protected with the nominal 5/8-inch-thick, Thermo-Lag 330-1 material. Therefore, the pertinent parameters from those listed above will be used in conjunction with the test data toward the qualification of these barriers in accordance with the WBN-modified, Appendix B criteria in Reference 10. If qualification of the cables installed in the existing 3-inch-conduit fire barriers cannot be achieved, the Thermo-Lag 330-1 barriers will be upgraded with the addition of a nominal 3/8-inch layer of Thermo-Lag 330-1 material. Summary results of the WBN tests are included in Reference 6.

TVA has evaluated the cable tray fill based upon the Consolidated Cable Routing System computer database (Reference 11) ensuring that it is bounded by the Texas Utilities (TU) cable tray tests.

- "2. For any parameter that is not known or has not been verified, describe how you will evaluate the in-plant barrier for acceptability."

Response:

As discussed in the Item II.B.1 response above, a required configuration parameter database is in the process of being established based upon in-plant walkdowns. A second walkdown will be required as part of the design process established at SQN. Appendix B of Reference 6 (TVA design standard) includes the following information and guidance to be used by Site Engineering to assess, document, qualify, and where necessary, upgrade existing Thermo-Lag 330-1 fire barriers to rated configurations during the second walkdown.

- A number of test articles and designs used in the WBN testing configurations are installed in accordance with Reference 14. Section 6.0 of Reference 6 provides WBN test configuration, results, and limitation information.
- Complex configurations were outside the scope of the WBN testing used to develop the Reference 6 standard.

Also included in Appendix B of Reference 6 are the following general requirements for the walkdown inspection of the existing installed Thermo-Lag 330-1 fire barriers. The walkdown personnel should consist of Nuclear Engineering Fire Protection and Electrical Engineers, Modifications engineer, and a certified insulator. The team can assess what will be required to upgrade the existing fire barriers during the same walkdown. Nuclear Assurance should be included in these walkdowns.

- Attach the Thermo-Lag 330-1 firmly to the raceway. This is especially true on box sections covering conduit condulets.
- Inspect for any cracks and the general surface condition especially at joints.
- Verify that the primary raceway supports are protected their entire length.
- Verify that any steel projecting into the fire barrier is protected a minimum of 18 inches.
- Document all results and information from the walkdown.
- Ensure insulators performing work on Thermo-Lag 330-1 fire barriers have "TVA Thermo-Lag 330 Certification."

- "3. To evaluate NUMARC's application guidance, an understanding of the types and extent of the unknown parameters is needed. Describe the type and extent of the unknown parameters at your plant in this context."

Response:

TVA's approach to establishing the resolution to the Thermo-Lag 330-1, fire-barrier issue at SQN will be primarily based upon the results obtained from the WBN tests for conduit, junction boxes, and cable air drops. Therefore, an evaluation of the application guidance of the Nuclear Management and Resources Council (NUMARC), based upon the type and extent of unknown parameters, will not be required.

- "4. Discuss the applicability of the Tennessee Valley Authority Watts Bar Nuclear Plant (TVA WBN) test program on these parameters."

Response:

As previously discussed, the WBN test program conservatively utilized the single-instrumented, No. 8 AWG bare copper cables inside the barriers in accordance with Reference 10. This conservative approach provides assurance that the one-hour qualification of the installed Thermo-Lag 330-1 barriers, or those to be upgraded in the plant, will perform acceptably regardless of the cable fill. References 6 and 8 provide the specific applicability of the WBN test program to other TVA sites.

"III. Thermo-Lag Fire Barriers Outside the Scope of the NUMARC Program

B. Required information

1. Describe the barriers discussed under Item I.B.1 that you have determined will not be bounded by the NUMARC or WBN test programs."

Response:

The specific conduit fire-barrier configurations discussed under Item I.B.1 are not bounded by the NUMARC or WBN test programs. Also, the 52-inch by 24-inch by 24-inch protected junction box configuration exceeds the maximum one-side dimension in the WBN tests.

- "2. Describe the plant-specific corrective action program or plan you expect to use to evaluate the fire barrier configurations particular to the plant. This description should include a discussion of the evaluations and tests being considered to resolve the fire barrier issues identified in GL 92-08 and to demonstrate the adequacy of existing in-plant barriers."

Response:

The plant-specific corrective action will be tracked and controlled by the requirements of the site corrective action program (Reference 12). Problem Evaluation Report No. SQ930690PER has been initiated to report the concerns identified in GL 92-08 and fire endurance test failures found during the performance of the WBN testing.

TVA is presently performing walkdowns at SQN to gather data on the important barrier parameters and configuration of the existing installed Thermo-Lag 330-1. The configuration of the Thermo-Lag will be necessary to determine the upgrade methods or requirements to modify the present installation. These walkdowns will also provide digital pictures of special or unique Thermo-Lag 330-1 configurations not contained in the WBN testing.

The Thermo-Lag 330-1 configurations not bounded by the WBN testing program will be reworked to tested configurations or additional tests will be conducted.

- "3. If a plant-specific fire endurance test program is anticipated, describe the following:
- a. Anticipated test specimens.
 - b. Test methodology and acceptance criteria including cable functionality."

Response:

Test specimens will be identified by the previously discussed walkdown program. Those identified configurations that are significantly different from those on which fire endurance tests have already been performed will be tested by TVA using techniques and acceptance criteria applied in the previous WBN tests. If cable functionality is required, the criteria will be based on cable insulation and jacket material types and the final temperatures recorded in the tested enclosures.

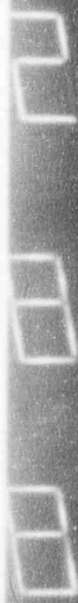
"IV. Ampacity Derating

B. Required Information

1. For the barriers described under Item I.B.1, describe those that you have determined will fall within the scope of the NUMARC or WBN programs for ampacity derating, those that will not be bounded by these programs, and those for which ampacity derating does not apply."

Response:

At this time, TVA does not plan to use information from the NUMARC cable ampacity test program. Cable ampacity derating values for



single-conduit, Thermo-Lag 330-1 protection envelopes provided in Reference 7 are based upon testing performed by TVA as documented by Reference 13. The cable tray ampacity derating value provided in Reference 7 for nominal 5/8-inch-thick, Thermo-Lag 330-1 panel enclosures is based on TU tests.

The examples of grouped or "boxed" conduit fire barriers, as described in Item I.B.1, do not fall under the scope of cable ampacity derating testing performed at TVA's Central Laboratories Services (Reference 13) in single, Thermo-Lag 330-1 protected, 4-inch and 1-inch conduits. Reference 7 provides a note stating the Thermo-Lag 330-1 derating values shown for conduit do not apply to multiple conduits encased in the same Thermo-Lag 330-1 envelope. Additional engineering evaluations will be required for these configurations.

As discussed previously in response to Item I.B.2.a, the only SQN cable trays protected with one-hour, Thermo-Lag 330-1 fire barriers are for control voltage cables. Cable ampacity derating for these relatively low-energy circuit cables, in the environmentally mild location of the auxiliary control room (80 degrees F maximum normal temperature) and the inherent diversity involved, does not require further evaluation.

- "2. For the barriers you have determined fall within the scope of the NUMARC or WBN programs, describe what additional testing or evaluation you will need to perform to derive valid ampacity derating factors."

Response:

Cable ampacity testing performed by TVA for WBN (Reference 13) provided the required basis for cable in conduit ampacity derating factors provided in Reference 7. Before the WBN ampacity testing, the multiplying factors used at SQN for conduits protected with one-hour, Thermo-Lag 330-1 (nominal 5/8-inch thickness) barriers are as follows:

<u>Description</u>	<u>Multiplying Factor</u>
3/4 inch through 1 1/2 inch	0.910
2 inch through 6 inch	0.925

The new cable ampacity derating factors for Thermo-Lag barriers based upon test results from Reference 13 are as follows:

<u>Barrier Configuration</u>	<u>Multiplying Factor</u>
Conduit w/ 5/8-inch thickness	0.930
Conduit w/ 5/8-inch + 3/8-inch Upgraded Configuration	0.920

From the above derating values, only 2-inch, 2 1/2-inch, and possibly 3-inch upgraded single-conduit, fire barrier configurations will require an evaluation for cable ampacity reductions. This evaluation of 1/2 of 1 percent cable ampacity reduction will only be required if the protected conduit portion of the cable routing is the limiting condition of the cable routes.

- "3. For the barrier configurations that you have determined will not be bounded by the NUMARC or WBN test programs, describe your plan for evaluating whether or not the ampacity derating tests relied upon for the ampacity derating factors used for those electrical components protected by Thermo-Lag 330-1 (for protecting the safe-shutdown capability from fire or to achieve physical independence of electrical systems) are correct and applicable to the plant design. Describe all corrective actions needed and submit the schedule for completing such actions."

Response:

As stated in the above response to Item IV.B.1, additional engineering evaluations will be required to determine cable ampacity derating values for multiple conduits encased in the same Thermo-Lag 330-1 envelope. Single conduit and control voltage cable tray enclosures will not require additional testing or evaluations.

- "4. In the event that the NUMARC or TVA WBN fire barrier tests indicate the need to upgrade existing in-plant barriers or to replace existing Thermo-Lag barriers with another fire barrier system, describe the alternative actions you will take (and the schedule for performing those actions) to confirm that the ampacity derating factors were derived by valid tests and are applicable to the modified plant design."

Response:

The results of the WBN fire-endurance testing support upgrading the SQN Thermo-Lag 330-1, single-conduit fire barriers by the installation of an additional nominal 3/8-inch-thick, Thermo-Lag 330-1 material over the existing barriers. This will be required for conduit sizes 2 1/2 inches and smaller with the possibility of also upgrading 3-inch conduit barriers as well.

As discussed in response to Item IV.B.2 above, TVA cable ampacity testing results (Reference 13) provide the ampacity derating factor of the upgraded conduit fire barrier. This factor will be used to evaluate cable ampacities, as required, for the SQN Thermo-Lag 330-1 fire barriers that will be required to be upgraded.

"V. Alternatives

B. Required Information

Describe the specific alternatives available to you for achieving compliance with NRC fire protection requirements in plant areas that contain Thermo-Lag fire barriers. Examples of possible alternatives to Thermo-Lag-based upgrades include the following:

1. Upgrade existing in-plant barriers using other materials."

Response:

TVA does not plan to upgrade existing in-plant barriers with other materials based upon the present lack of the qualification of other materials and the fire and ampacity testing that has been previously performed by TVA and TU on upgraded Thermo-Lag 330-1 installations. Based upon the results of the WBN testing, TVA will upgrade the existing fire barriers for conduit sizes smaller than 3 inches with an additional nominal 3/8-inch-thick, Thermo-Lag 330-1 material over the nominal 5/8-inch-thick barriers as configured for those tests. Prior to these upgrades, in-plant walkdown inspections to ensure the proper condition and configuration of the existing installations will be performed using information and guidance provided in Appendix B of Reference 6. Corrective actions will be implemented in accordance with instructions provided in Reference 8.

For the 3-inch-conduit, Thermo-Lag 330-1, one-hour fire barriers, the qualification of the cable types and configurations is to be tested in accordance with the TVA-modified, Appendix B criteria of Reference 10. Cables used in the testing will match or bound the installed cable types. The recorded temperature rise inside the fire barriers during the fire test is to be used for this testing. Testing is to include a specimen of each type of cable to be protected by the barrier. Where available, cable samples of the types from the applicable vendors is to be used in this testing.

Fire barriers consisting of nominal 5/8-inch Thermo-Lag 330-1 for conduit sizes greater than 3 inches are qualified by the WBN testing and require no upgrading.

Electrical junction boxes with one side larger than 24 inches and protected with nominal 5/8-inch, Thermo-Lag 330-1 fire barriers shall have those barriers upgraded by the addition of nominal 3/8-inch thickness of the same material.

Existing 18-inch-wide by 4-inch-deep cable tray barriers, which are fabricated from nominal 5/8-inch, Thermo-Lag 330-1 board material, require only reworking in accordance with details provided in Reference 6. No additional board material is required.

- "2. Replace Thermo-Lag barriers with other fire barrier materials or systems."

Response:

Based on the testing results of the fire barriers at WBN and ampacity testing performed by TVA, it is TVA's position that the total replacement of the Thermo-Lag 330-1 barriers would not be prudent.

- "3. Reroute cables or relocate other protected components."

Response:

This alternative will only be used when it is determined that upgrading the existing conduit fire barriers is deemed impractical. This is because existing cable tray fill conditions and the difficulty of the installation of new conduit with required seismic supports in a concrete structure such as the auxiliary building at SQN should be avoided whenever possible.

- "4. Qualify three-hour barriers as one-hour barriers and install detection and suppression systems to satisfy NRC fire protection requirements."

Response:

This alternative is not applicable since no three-hour barriers are installed at SQN.

"VI. Schedules

B. Required Information

Submit an integrated schedule that addresses the overall corrective action schedule for the plant. At a minimum, the schedule should address the following aspects for the plant:

1. Implementation and completion of corrective actions and fire barrier upgrades for fire barrier configurations within the scope of the NUMARC program,"

Response:

As previously stated, the implementation and completion of corrective actions and fire-barrier upgrades for fire-barrier configurations at SQN will not be based upon NUMARC test information. Current estimated schedules are based upon existing WBN and TU test information already available and future TVA testing.

- "2. Implementation and completion of plant-specific analysis, testing, or alternative actions for fire barriers outside the scope of the NUMARC

program, including barrier configurations bounded by the TVA WBN test program."

Response:

SQN will complete walkdowns, plant specific analyses, additional testing (if required), and modifications to upgrade the presently installed Thermo-Lag 330-1 by October 1, 1996. However, this date is based upon material availability. The configurations outside the scope of the NUMARC program are not a concern to SQN because TVA will base the qualification of the SQN configurations on WBN tests and TU testing of cable trays. See the attachment to this enclosure for a tentative schedule.

"VII. Sources and Correctness of Information

Describe the sources of the information provided in response to this request from information (for example, from plant drawings, quality assurance documentation, walk downs or inspections) and how the accuracy and validity of the information was verified."

Response:

The sources used include personal knowledge of the installed Thermo-Lag 330-1 fire barriers in the plant. The estimate of the total linear footage of conduit and cable tray protected by Thermo-Lag 330-1 was obtained by scaling the Reference 3 drawings. As previously stated in response to Item III.B.2, TVA is presently establishing a computer database from plant walkdowns of the installed Thermo-Lag 330-1 fire barriers at SQN. The initial walkdowns previously discussed in Item II.B.1 will provide final verification of the exact quantity and installed configurations.

References:

1. TVA letter to NRC dated April 15, 1993, "Sequoyah Nuclear Plant (SQN) - Generic Letter (GL) 92-08 - Thermo-Lag 330-1 Fire Barriers"
2. Letter from L. M. Mills, TVA, to H. R. Denton, NRC, dated May 26, 1981
3. TVA drawing series, 45E890, 10 CFR 50 Appendix R cable drawings
4. NRC letter from B. J. Youngblood to Steven A. White dated May 29, 1986
5. NE Calculation SQN-00-D052, EPM-MHS-111188, "Fire Hazard Analysis of 125V Battery Board Rooms"
6. TVA Mechanical Design Standard DS-M17.2.2, "Electrical Raceway Fire Barrier Systems"
7. TVA Electrical Design Standard 12.6.3, "Auxiliary and Control Power Cable Sizing, up to 15,000 Volts"
8. TVA General Engineering Specification G-98, "Installation, Modification, and Maintenance of Electrical Raceway Fire Barrier Systems"
9. TVA NE Calculation No. SQN-SQS4-127, "Equipment Required For Safe Shutdown Per 10 CFR 50 Appendix R"
10. Underwriters Laboratories, Inc. (UL) Subject 1724-84 - Outline of Investigation for Fire Tests for Electrical Circuit Protective Systems
11. Consolidated Cable Routing System (CCRS) - TVA/SQN
12. TVA/SQN Site Standard Practice SSP-3.4, "Corrective Action"
13. Final Report - Testing To Determine Ampacity Derating Factors For Fire Protected Cables For Watts Bar Nuclear Plant - Job Number 93-0501, Rev. 0, July 6, 1993 (E13 930706 252)
14. TVA/SQN Modifications and Additions Instruction M&AI-13.2, "Installation of Thermo-Lag 330-1 1-Hour Fire Barrier Systems"

ATTACHMENT

<u>ACTION</u>	<u>DATE</u>
• Complete initial walkdown	03/04/94
• Identify conduit barriers that require testing/ prepare testing and perform tests/issue report	10/28/94
• Identify three-inch conduits to be tested/prepare and perform tests/issue report	10/28/94
• Review test report and issue study for required modifications	11/18/94
• Prepare/issue design change documents	05/26/95
• Complete required modifications	10/01/96

ENCLOSURE 2

Commitment

Sequoyah Nuclear Plant will complete walkdowns, plant specific analysis, additional testing (if required), and any required modification to upgrade the presently installed Thermo-Lag 330-1 by October 1, 1996. This date is based upon material availability.