CENTERIOR ENERGY

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Docket Number 50-346

License Number NPF-3

Serial Number 2258

December 8, 1994

Mr. R. P. Zimmerman
Associate Director for Projects
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Subject: Response to the Follow-up to the 10CFR50.54(f) Request for Additional Information Regarding Generic Letter 92-08, "Thermo-Lag 330-1 Fire Barriers" (TAC No. M85542)

Dear Mr. Zimmerman:

Toledo Edison (TE) received the Nuclear Regulatory Commission's (NRC) follow-up letter to the request for additional information regarding Generic Letter (GL) 92-08, "Thermo-Lag 330-1 Fire Barriers," on September 21, 1994 (TE Log Number 4398). This letter provides TE's response to the request as applicable to the Davis-Besse Nuclear Power Station (DBNPS), and updates TE's February 11, 1994 response (TE Serial Number 2201) to the NRC's previous request for additional information dated December 21, 1993 (TE Log Number 4125). Since this letter is an update, the format of the enclosure is consistent with TE's previous response.

Toledo Edison's previously submitted response to GL 92-08 (TE Serial Number 2132 dated April 16, 1993) discussed that, as an interim measure, TE has established hourly fire watch patrols as compensatory measures in the rooms where the Thermo-Lag 330-1 fire barrier system is used as a 1-hour or 3-hour fire barrier for the protection and separation of safe shutdown capability. These compensatory measures are in addition to the existing fire detection and suppression systems installed at the DBNPS, the onsite fire brigade, and the combustible material controls program.

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As noted in previous correspondence, TE is participating in the ongoing industry test program being coordinated by the Nuclear Energy Institute (NEI), previously Nuclear Management and Resources Council (NUMARC), for addressing the Thermo-Lag 330-1 issues. The enclosure describes TE's program currently underway to resolve the Thermo-Lag issue for the DBNPS. Toledo Edison is presently evaluating installed fire barrier configurations using the NEI Application Guide. Toledo Edison will provide the NRC with an update of its response, including any schedule updates, by June 1995.

As noted in the previous February 11, 1994 TE letter, a 10 CFR 50 Appendix R exemption request was previously submitted (TE Serial Number 1809 dated May 18, 1990) which is based, in part, on the existence of radiant energy shields which separate redundant trains of safe shutdown circuits within the containment annulus. These shields are made in part of Thermo-Lag 330-1 fire barrier material, and are included in the overall program described in the enclosure. The current schedule for submittal of additional information in support of the exemption request is June, 1995.

As noted in the enclosure to this letter, there are two previously approved 10 CFR 50 Appendix R exemptions that in the technical basis rely on fire barriers, which are constructed in whole or in part of Thermo-Lag. These barriers will be evaluated as part of the overall program described in the enclosure, under the schedule described in Section VI of the enclosure.

If you have any questions, please contact Mr. W. T. O'Connor, Manager - Regulatory Affairs, at (419) 249-2366.

Sincerely yours,

MRL/laj

Enclosure

cc: L. L. Gundrum, NRC/NRR DB-1 Project Manager
J. B. Martin, Regional Administrator, NRC Region III
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USNRC Document Control Desk
Utility Radiological Safety Board

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RESPONSE TO FOLLOW-UP REQUEST FOR ADDITIONAL INFORMATION

REGARDING GENERIC LETTER 92-08

FOR

DAVIS-BESSE NUCLEAR POWER STATION

UNIT NUMBER 1

This letter is submitted pursuant to 10CFR50.54(f). Attached is Toledo Edison's response (letter Serial Number 2258) to the NRC letter dated September 15, 1994, received by Toledo Edison on September 21, 1994, requesting additional information regarding Generic Letter 92-08, "Thermo-Lag 330-1 Fire Barriers". The attached also updates the Toledo Edison February 11, 1994 response (TE Serial Number 2201) to the previous NRC request for additional information dated December 21, 1993 (TE Log Number 4125). To ensure continuity, the format of the attached is consistent with the previous TE response and includes verbatim quotes from the previous NRC request for additional information.

By: _____
J. F. Stetz, Vice President,
Nuclear - Davis-Besse

Sworn and Subscribed before me this 8th day of December, 1994.

EVELYN L. DRESS
Notary Public, State of Ohio
My Commission Expires 7/28/98

_____
Notary Public, State of Ohio

TOLEDO EDISON RESPONSE TO FOLLOW-UP REQUEST
FOR ADDITIONAL INFORMATION
REGARDING GENERIC LETTER 92-08

NRC Request for Information Section I:

I. Thermo-Lag Fire Barrier Configurations and Amounts

A. Discussion

Generic Letter (GL) 92-08,"Thermo-Lag 330-1 Fire Barriers," applied to all 1-hour and all 3-hour Thermo-Lag 330-1 materials and barrier systems constructed by any assembly method, such as by joining preformed panels and conduit preshapes, and trowel, spray, and brush-on applications. This includes all fire barriers, all barriers to achieve physical independence of electrical systems, radiant energy heat shields, and barriers installed to enclose intervening combustibles.

B. Required Information

1. Describe the Thermo-Lag 330-1 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.

The descriptions should include the following information: the intended purpose and fire rating of the barrier (for example, 3-hour fire barrier, 1-hour fire barrier, radiant energy heat shield), and the type and dimension of the barrier (for example, 8-ft by 10-ft wall, 4-ft by 3-ft by 2-ft equipment enclosure, 36-inch-wide cable tray, or 3-inch-diameter conduit).

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 3-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.

Toledo Edison Response to Section I:

Thermo-Lag Fire Barrier Configurations and Amounts

Toledo Edison has Thermo-Lag 330-1 Fire Barrier systems (Thermo-Lag) installed at the Davis-Besse Nuclear Power Station (DBNPS):

- Thermo-Lag is installed to meet the requirements of 10 CFR 50 Appendix R, "Fire Protection Program for Nuclear Power Plants Operating Prior to January 1, 1979".

- Thermo-Lag is installed to support commitments made in the following requested exemptions from Appendix R:

  - On April 29, 1982 (TE Serial Number 815), Toledo Edison submitted an exemption request from Section III.G of Appendix R for the requirement to have 20 feet separation between redundant system equipment in the same fire area for the component cooling water room. The exemption request notes that selected conduits and valves which are required for safe shutdown in this room are protected by one hour fire barriers consisting of two one-inch thick Kaowool blankets. This exemption was granted by the NRC on November 23, 1982 (TE Log Number 1138).

    Some of the Kaowool blankets were subsequently replaced with Thermo-Lag barriers. In addition, Thermo-Lag was added to some additional circuits which did not previously have Kaowool. These barriers are encompassed in the list of one hour Appendix R fire barriers categorized below.

  - On January 12, 1987 (TE Serial Number 1327), Toledo Edison submitted an exemption request from Section III.G of Appendix R for the requirement to have 20 feet separation between redundant containment air cooler fans located in containment. The exemption request notes that radiant energy shields will be installed between the redundant air cooler circuits. This exemption was granted by the NRC on April 18, 1990 (TE Log Number 3219).

    The subject radiant energy shields, which are constructed, in part, of Thermo-Lag, are encompassed in the list of radiant energy shields categorized below.

  - On May 18, 1990 (TE Serial Number 1809), Toledo Edison submitted an exemption request from Section III.G.2 of Appendix R to the extent it requires the separation of redundant safe shutdown circuits in the containment annulus. This exemption request is based, in part, on the existence of radiant energy shields. As

noted in the NRC letter dated March 23, 1993 (TE Log Number 3965), the NRC has suspended review of this exemption request pending submittal by Toledo Edison of additional information.

The subject radiant energy shields, which are constructed, in part, of Thermo-Lag, are encompassed in the list of radiant energy shields categorized below.

- Thermo-Lag is not installed to achieve physical independence of electrical systems.

- The DBNPS Operating License, License Condition 2.C.(4), references fire protection program requirements in general. Although this License Condition does not explicitly refer to Thermo-Lag installations, Thermo-Lag installations are used to satisfy fire protection program requirements.

- Thermo-Lag is installed to satisfy commitments made in the DBNPS Fire Hazard Analysis Report (FHAR) to provide protection for specific safe shutdown circuits.

The Thermo-Lag applications at DBNPS can be categorized as follows:

1. One hour Appendix R fire barriers:

   a. About 740 linear feet on conduits from 0.75 to 3.0 inches in diameter.

   b. About 1000 square feet of boxes (around condulets, flow transmitters, multiple conduits, etc.) with the largest being 14 by 46 by 43 inches.

2. Three hour Appendix R fire barriers:

   a. About 170 linear feet on conduits from 0.75 to 4.0 inches in diameter.

   b. About 860 square feet of boxes (around condulets, multiple conduits, fire dampers, etc.) with the largest being 17 by 21 by 98 inches.

3. Radiant energy shields: About 170 linear feet of radiant energy shields located in the containment and the containment annulus, protecting conduit ranging in size from 0.75 to 3.0 inches in diameter, with the largest enclosure being 48 by 48 by 54 inches.

4. Structural steel fireproofing: About 2200 square feet, with the largest steel member being 18 inches by 24 inches in cross-section.

Thermo-Lag is not installed in cable tray fire barrier applications.

The above estimates do not include any peripheral supports and intervening items which may be enclosed by Thermo-Lag due to being in proximity.

NRC Request for Information Section II:

II. Important Barrier Parameters

A. Discussion

In a letter of July 29, 1993, from A. Marion, NUMARC, to C. McCracken, NRC, NUMARC stated: "Relative to bounded configurations, ... [i]t will be the utilities' responsibility to verify their baseline installations are bounded." Furthermore, NUMARC stated that the parameters of importance for utility use of data from the industry Thermo-Lag fire barrier test program are:

1. Raceway orientation (horizontal, vertical, radial bends)
2. Conduit
3. Junction boxes and lateral bends
4. Ladder-back cable tray with single layer cable fill
5. Cable tray with T-Section
6. Raceway material (aluminum, steel)
7. Support protection, thermal shorts (penetrating elements)
8. Air drops
9. Baseline fire barrier panel thickness
10. Preformed conduit panels
11. Panel rib orientation (parallel or perpendicular to the raceway)
12. Unsupported spans
13. Stress skin orientation (inside or outside)
14. Stress skin over joints or no stress skin over joints
15. Stress skin ties or no stress skin ties
16. Dry-fit, post-buttered joints or prebuttered joints
17. Joint gap width
18. Butt joints or grooved and scored joints
19. Steel bands or tie wires
20. Band/wire spacing
21. Band/wire distance to joints
22. No internal bands in trays
23. No additional trowel material over sections and joints or additional trowel material applied
24. No edge guards or edge guards

Each NUMARC cable tray fire test specimen includes 15 percent cable fills (i.e., a single layer of cables uniformly distributed across the bottom of the cable tray). This approach requires consideration of plant-specific cable information during the assessments of tested configurations and test results in relation to plant-specific Thermo-Lag configurations; for example, cable trays with less thermal mass (cable fill) than the NUMARC test specimens, different cable types, and the proximity of the cables to the Thermo-Lag (e.g.,

cables may be installed in contact with the unexposed surface of the Thermo-Lag or may come into contact during a fire if the Thermo-Lag material sags). In its letter of July 29, 1993, NUMARC stated: "Utilities using the results of the NUMARC testing will need to evaluate their installed cable fill and ensure that it is bounded by the tested cable fill." NUMARC is not conducting any cable functionality tests or evaluations and stated that cable functionality evaluations will be performed by utilities using data from the generic program.

The parameters of importance concerning cables protected by fire barriers are:

1. Cable size and type (power, control, or instrumentation).
2. Cable jacket type (thermoplastic, thermoset) and materials.
3. Cable conductor insulation type (thermoplastic, thermoset plastic) and materials.
4. Cable fill and distribution of cables within the protected conduit or cable tray.
5. Proximity of cables to the unexposed (inside) surfaces of the fire barrier.
6. Presence of materials between the cables and the unexposed side of the fire barrier material (for example, Sealtemp cloth, which is used in the NUMARC test specimens).
7. Cable operating temperature.
8. Temperatures at which the cables can no longer perform their intended function when energized at rated voltage and current.

Other parameters that are unique to particular barriers, such as interfaces between Thermo-Lag materials and other fire barrier materials or building features (walls, etc.) and internal supports, are also important. In addition, because of questions about the uniformity of the Thermo-Lag fire barrier materials produced over time, NUMARC stated in its letter of July 29, 1993, that "chemical analysis of Thermo-Lag materials provided for the program, as well as samples from utility stock, will be performed, and a test report prepared comparing the chemical composition of the respective samples." The results of the chemical analyses may indicate that variations in the chemical properties of Thermo-Lag are significant and may require additional plant-specific information in the future.

B. Required Information

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

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

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.

Toledo Edison Response to Section II:
Important Barrier Parameters

Toledo Edison has been performing field walkdowns and design verifications of its Thermo-Lag installations. A current review status for each of the requested barrier and cable parameters is provided below. Parameters which are not applicable to DBNPS are so indicated. As also indicated, several cable parameters have not yet been verified. These parameters are expected to be verifiable and will be verified on a case-by-case basis only if needed to support the Application Guide evaluation process. As also indicated, several parameters are statused based upon a review of the purchase order specification or installation guide. Thermo-Lag installation was verified, at the time of installation, to be done in accordance with applicable design requirements under normal Quality Control and work practices.

A. Barrier Parameters

1. Raceway Orientation (horizontal, vertical, radial bends): has been verified from design drawings and/or walkdowns.

2. Conduit: has been verified from design drawings and/or walkdowns.

3. Junction boxes and lateral bends: have been verified from design drawings and/or walkdowns.

4. Ladder-back cable tray with single layer cable fill: is not applicable (no cable tray barrier applications are installed).

5. Cable tray with T-section: is not applicable (no cable tray barrier applications are installed).

6. Raceway material (aluminum, steel): has been verified from design drawings.

7. Support protection, thermal shorts (penetrating elements): have been verified from design drawings and walkdowns.

8. Air drops: have been verified from design drawings.

9. Baseline fire barrier panel thickness: the required minimum thickness was specified in the purchase order and was verified in a sample of Quality Control installation inspections.

10. Preformed conduit panels: use of preformed panels, such as "clamshells", has been verified from design drawings and walkdowns.

11. Panel rib orientation (parallel or perpendicular to the raceway): is not applicable (only non-ribbed panels are used).

12. Unsupported spans: have been verified from design drawings and/or walkdowns.

13. Stress skin orientation (inside or outside): has been verified during installation to be in accordance with design drawings. Walkdowns of the visible portions have also confirmed this.

14. Stress skin over joints or no stress skin over joints: based on the installation guide, there is no stress skin over joints. Walkdowns have also confirmed this.

15. Stress skin ties or no stress skin ties: based on the installation guide, there are no stress skin ties.

16. Dry-fit, post-buttered, or prebuttered joints: based on the installation guide, pre-buttered joints are used.

17. Joint gap width: not verifiable by walkdowns, but believed to be less than 0.25 inch based on the installation guide and/or design drawings showing no gaps in the installation.

18. Butt joints or grooved and scored joints: not verifiable (both methods are allowed per design).

19. Steel bands or tie wires: has been verified from walkdowns; while both steel bands and tie wires are allowed per design, walkdowns show that bands were used in the majority of cases.

20. Band/wire spacing: has been verified from design dravings and walkdowns.

21. Band/wire distance to joints: has been verified from design drawings and from walkdowns (where visible).

22. No internal bands in trays: not verifiable (although no cable tray barrier applications are installed, internal bands are allowed, but not required, for use in structural steel applications).

23. No additional trowel grade material over sections and joints or additional trowel material applied: no appreciable additional trowel grade material applied.

24. No edge guards or edge guards: no edge guards were used.

B. Cable Parameters

1. Cable size and type (power, control, or instrumentation): are verifiable from design documents.

2. Cable jacket type (thermoplastic, thermoset plastic) and materials: are verifiable from design documents and/or walkdowns.

3. Cable conductor insulation type (thermoplastic, thermoset plastic) and materials: are verifiable from design documents and/or walkdowns.

4. Cable fill and distribution of cables within the protected conduit or cable tray: no cable tray barrier applications are installed; Conduit fill is verifiable from design drawings; distribution is believed to be a concern for cable tray but not for conduit.

5. Proximity of cables to the unexposed (inside) surfaces of the fire barrier: no cable tray barrier applications are installed; for conduit, because the cables are inside a round conduit, some cables are in physical contact with the inside of the conduit surface.

6. Presence of materials between the cables and the unexposed side of the fire barrier material (for example, Sealtemp cloth, which was used in the NUMARC test specimens): has been verified from review of design drawings that no materials are present.

7. Cable operating temperature: has been verified from design documents.

8. Temperatures at which the cables can no longer perform their intended function when energized at rated voltage and current: has been verified from design documents.

C. Application Guidance vs. Unknown Parameters

The "NEI Application Guide for Evaluation of Thermo-Lag 330 Fire Barrier Systems" was issued by NEI on July 18, 1994. This Application Guide will be used to evaluate the various performance parameters of the fire barrier system.

As noted above, the joint gap width, parameter II.A.17, and the barrier joint type (butt joints or grooved and scored joints), parameter II.A.18, are not verifiable. No joint gap design tolerance was specified, and either joint method is allowed by design. These parameters are not readily discernible via visual inspection. The need for additional actions with respect to these unverifiable parameters will be identified in the evaluation process. Additional actions could potentially include destructive examinations of barriers.

As also noted above, the internal support mechanism, parameter II.A.22, is not verifiable for structural steel applications since internal banding is allowed (although not required) by design and since this parameter is not discernible via visual inspection. Therefore, the planned evaluations (described in Section III below) of these applications will not take credit for internal banding.

Parameters B.1, B.2, B.3 and B.4 are listed as "verifiable". These parameters are expected to be readily verifiable from additional walkdowns or design reviews, should the evaluation process confirm that verification is necessary.

Thermo-Lag applications believed to be outside the scope of the NEI test program are discussed in Section III below.

NRC Request for Information Section III:

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

A. Discussion

In your response of [sic] to GL 92-08, you indicated that actions necessary to restore the operability of these barriers would be based on the results of the NUMARC test program. During recent meetings with the NRC staff, the Executive Director for Operations and the Commission, NUMARC described the scope of its Thermo-Lag fire barrier program, the results of the Phase 1 fire tests, and planned Phase 2 tests. The program is limited to certain 1-hour and 3-hour conduit and cable tray fire barrier configurations and the development of guidance for applying the test results to plant-specific fire barrier configurations. However, NUMARC's program is not intended to bound all in-plant Thermo-Lag fire barrier configurations. In view of the scope of the NUMARC program and the limited success of the Phase 1 tests, it is clear that the NUMARC program will not be sufficient to resolve all Thermo-Lag fire barrier issues identified in GL 92-08. Therefore, licensees may need to take additional actions to address fire endurance and ampacity derating concerns with in-plant Thermo-Lag barriers.

B. Required information

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

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.

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.

Toledo Edison Response to Section III:

Thermo-Lag Fire Barriers Outside the Scope of the NUMARC Program

Of the applications described in Section I above, the following are currently not directly covered in the NEI test program scope. This list may change based on the results of further NEI testing and based on evaluations performed in accordance with the Application Guide.

1. 3-hour box configurations made of non-ribbed panels: Toledo Edison has requested that NEI consider including non-ribbed panels as part of the planned additional test program. If this is not feasible, Toledo Edison may perform additional testing, possibly in conjunction with other utilities, using NEI/Impell's test program to qualify those configurations for which no other alternative is viable (e.g. test extrapolation, cable rerouting, suppression installation, exemption request, etc.). Specific details on any additional testing (specimen configuration, acceptance criteria, etc.) will be determined once the scope and participants for additional testing have been fully determined.

2. Radiant energy shields: Toledo Edison plans to perform an evaluation to show that radiant energy shields are adequate based on an extrapolation of the testing summarized in the Application Guide. This evaluation will utilize the Application Guide evaluation forms and methodology.

3. Structural steel fireproofing: Toledo Edison plans to perform evaluations to show that the structural steel barriers are adequate based on an extrapolation of the NEI testing, taking into account the high failure temperature of the steel (over 1000 °F). If this is not feasible, Toledo Edison may perform additional testing, possibly in conjunction with other utilities, using NEI/Impell's test program to qualify the configurations. Specific details on any additional testing (specimen configuration, acceptance criteria, etc.) will be determined once the scope and participants for additional testing have been fully determined.

NRC Request for Information Section IV:

IV. Ampacity Derating

A. Discussion

NUMARC has informed the staff that it intends to use the Texas Utilities (TU) Electric Company and Tennessee Valley Authority (TVA) ampacity derating test results to develop an electrical raceway component model for the industry. Additional information is needed to determine whether or not your Thermo-Lag barrier configurations (to protect the safe-shutdown capability from fire or to achieve physical independence of electrical systems) are within the scope of the NUMARC program and, if not, how the in-plant barriers will be evaluated for the ampacity derating concerns identified in GL 92-08.

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 program for ampacity derating, those that will not be bounded by the NUMARC program, and those for which ampacity derating does not apply.

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

3. For the barrier configurations that you have determined will not be bounded by the NUMARC test program, 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.

4. In the event that the NUMARC 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.

Your response to Section IV.B may depend on unknown specifics of the NUMARC ampacity derating test program (for example, the final barrier upgrades). However, your response should be as complete as possible. In addition, your response should be updated as additional information becomes available on the NUMARC program.

Toledo Edison Response to Section IV:

Ampacity Derating

As stated in the September 15, 1994 NRC letter (TE Log Number 4398), there are unresolved technical issues regarding ampacity derating, and it is the NRC Staff's view that these issues can be resolved independently of the fire endurance issues. Toledo Edison will continue to follow the developments in resolution of this issue.

NRC Request for Information Section V:

V. Alternatives

A. Discussion

On the basis of testing of Thermo-Lag fire barriers to date, it is not clear that generic upgrades (using additional Thermo-Lag materials) can be developed for many 3-hour barrier configurations or for some 1-hour barriers (for example, 1-hour barriers on wide cable trays, with post-buttered joints and no internal supports). Moreover, some upgrades that rely on additional thicknesses of Thermo-Lag material (or other fire barrier materials) may not be practical due to the effects of ampacity derating or clearance problems.

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.

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

3. Reroute cables or relocate other protected components.

4. Qualify 3-hour barriers as 1-hour barriers and install detection and suppression systems to satisfy NRC fire protection requirements.

Toledo Edison Response to Section V:
Alternatives

Toledo Edison is planning to submit exemption requests for each of the rooms utilizing Thermo-Lag as protection on safe shutdown circuits. The balance of the uses of Thermo-Lag (such as its use for structural steel protection) will have evaluations performed in accordance with the provisions of NRC Generic Letter 86-10.

Exemption requests or site specific engineering evaluations will be based on evaluation of the existing protection (detection, suppression, and barriers) against the hazards in the room. They will provide the information suggested in the enclosure of the September 15, 1994 NRC letter. All of the exemptions and evaluations will provide a sound technical justification that clearly demonstrates that the fire protection defense-in-depth is appropriately maintained.

Fire modeling may also be used to support these exemption requests or evaluations.

For rooms where insufficient protective margin exists, Toledo Edison will evaluate options to improve the margin, such as:

1. Enhance the existing portions of the barrier that are shown to be prone to premature structural failure. These enhancements could consist of joint reinforcements made with stress skin and trowel grade material, and/or additional banding.

2. Replacement of Thermo-Lag barriers with other fire barrier materials, including gypsum panels.

3. Re-routing of cables or replacement of existing cables with higher temperature cables.

4. The use of a modular water mist suppression system located in a manner which will provide rapid protection against a specific hazard.

5. Qualifying existing 3-hour barriers as 1-hour barriers and installing or upgrading suppression systems.

6. Conduct additional testing, either singly or in concert with other utilities.

NRC Request for Information Section VI:

VI. Schedules

A. Discussion

The staff expects the licensees to resolve the Thermo-Lag fire barrier issues identified in GL 92-08 or to propose alternative fire protection measures to be implemented to bring plants into compliance with NRC fire protection requirements. Specifically, as test data becomes available, licensees should begin upgrades for Thermo-Lag barrier configurations bounded by the test results.

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,

2. implementation and completion of plant-specific analyses, testing, or alternative actions for fire barriers outside the scope of the NUMARC program.

Toledo Edison Response to Section VI:

Schedules

Toledo Edison's current schedule for resolution of the Thermo-Lag fire barrier concerns is as follows:

October 1994 to March 1995:

- Complete Application Guide evaluations of installed configurations

March 1995 to June 1995:

- For each installed configuration that requires corrective action in lieu of or in addition to exemption or evaluation (see Section V, Alternatives), prioritize and initiate corrective actions. It is noted that corrective action initiation may occur for some configurations while other configurations are still being evaluated.

- Complete any fire modeling necessary to support exemption requests

- Submit exemption requests for NRC approval

June 1995 to June 1996:

- Complete corrective actions

- NRC approval of exemption requests obtained

NRC Request for Information Section VII:

VII. Sources and Correctness of Information

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

Toledo Edison Response to Section VII:
Sources and Correctness of Information

The following sources of information were used in the preparation of this response and are accurate and valid for the purposes of responding to this request:

- controlled design drawing reviews
- plant walkdowns by engineering, operations, and quality assurance personnel
- installation modification package review
- vendor documentation review
- NUMARC/NEI workshop notes
- Equipment Qualification documentation
- purchase order/specification reviews