



Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

August 4, 1993

U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, DC 20555

Attention: Document Control Desk

Subject: Additional Information on Fire Barrier Qualification

Byron Station Units 1 and 2,
(NRC Docket Numbers 50-454 and 50-455)

Braidwood Station Units 1 and 2,
(NRC Docket Numbers 50-456 and 50-457)

Zion Station Units 1 and 2,
(NRC Dockets 50-295 and 50-304)

Dresden Station Units 2 and 3,
(NRC Dockets 50-237 and 50-249)

Quad Cities Station Units 1 and 2,
(NRC Dockets 50-254 and 50-265)

LaSalle County Station Units 1 and 2,
(NRC Dockets 50-373 and 50-374)

TAC NOS. M83846, M83847, M83853, M83854, M83870, M83871,
M83888, M83889, M83919, M83920, M85626, and M85627.

- References: (1) Letter from C.Y. Shiraki to D.L. Farrar dated May 28, 1993.
- (2) Letter from D.J. Chrzanowski to Dr. T.E. Murley dated April 16, 1993.
- (3) Letter from D.J. Chrzanowski to U.S. Nuclear Regulatory Commission dated July 8, 1993

The purpose of this letter is to provide additional information on Fire Barrier qualification, installation, and ampacity derating margins for the Thermo-Lag applications at Braidwood, Byron, LaSalle and Zion. The responses to the four (4) specific questions contained in the Reference (1) letter are provided in the attachment to this letter.

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As discussed in Reference (2), Dresden and Quad Cities do not have Thermo-Lag Fire Barriers. Also, as discussed in Reference (3), CECo concurs with the NRC's schedule for providing a discussion of necessary fire barrier corrective actions. This schedule calls for CECo to inform the NRC of our plans for restoring the operability of Thermo-Lag fire barriers within 30 days after the completion of the NUMARC test program.

If there are any questions or comments, please contact me at (708) 663-7292.

Sincerely,



David J. Chrzanowski
Generic Issues Administrator
Nuclear Regulatory Services

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Attachment

Commonwealth Edison Response NRC Request For Additional Information Generic Letter 92-08, "Thermo-Lag 330-1 Fire Barriers"

In Reference (1), four (4) questions were posed regarding Thermo-Lag Fire Barrier Systems in use at Commonwealth Edison (CECo) nuclear stations. These questions were developed from the Staff's review of CECo's response, dated April 16, 1993, to Generic Letter 92-08. The questions and CECo's responses are as follows.

1. The CECo response to 2.(a)¹ indicates that tests were not performed to qualify Thermo-Lag used at the stations.
What qualification test(s) did CECo rely on to qualify its fire barrier system?

CECo Response:

The fire barrier systems at Byron, Braidwood, and Zion were qualified based on tests performed on generic barrier configurations and were provided by Thermal Sciences Inc. (TSI). These reports documented tests performed on various Thermo-Lag barrier systems by Industrial Testing Laboratories Inc. (ITL) and Construction Technology Laboratories Inc. (CTL). In addition, American Nuclear Insurers (ANI) reports were provided by TSI which documented the review and approval of the ITL and CTL fire barrier tests.

The fire barrier systems at LaSalle relied on certifications of conformance (C of C). These documents stated that the TSI supplied materials met TSI's manufacturing and written Quality Control Specifications. Certain fire barrier installation materials at LaSalle were provided with the type of reports discussed above.

It was these test reports and documents coupled with the TSI installation procedures that CECo relied upon to qualify the Thermo-Lag fire barrier systems.

¹ Question 2(a) of Generic Letter 92-08; "State whether or not the licensee has qualified the Thermo-Lag 330-1 fire barriers by conducting fire endurance tests in accordance with the NRC's requirements and guidance or licensing commitments."

2. The response to 2.(b)(1)² does not indicate if these fire barrier assemblies were installed under a Quality Assurance or Quality Control program. How did CECo confirm that the barrier systems were installed per the qualification test assembly configurations?

CECo Response:

The installation of Thermo-Lag fire barriers at Byron, Braidwood, Zion and LaSalle was considered a reliability related or regulatory related activity rather than a safety related activity. The scope of installation at all four sites included quality control oversight. This oversight verified that installation of the fire barrier material was performed in accordance with TSI provided procedures.

Did CECo utilize site specific installation guidance or was the guidance generic and vendor supplied?

CECo Response:

The installation procedures used at Byron, Braidwood, Zion and LaSalle were based on installation procedures supplied by TSI. Depending on the timeframe of the installation and the type of barrier system, the guidance for barrier installation was contained in one of the following TSI documents; Technical Note 20684, "Installation Procedures Manual For ThermoLag 330 Fire Barrier System"; Technical Note 11266, "Installation Procedures for the Ready Access Designs of ThermoLag 330-1 Subliming Fire Barrier Systems"; or Technical Note 80181, "ThermoLag 330-1 Subliming Coating Envelope System Application Procedures."

² "[State] whether or not the fire barrier configurations installed in the plant represent the materials, workmanship, methods of assembly, dimensions, and configurations of the qualification test assembly configurations;"

3. In the response to 2.(b)(1), CECo indicated that some potential deviations from tested configurations have been identified. In the response to 2.(b)(2)³, CECo indicated that these potential deviations from tested configurations have not been evaluated.

Is the CECo schedule for completing the analysis of deviations from the barrier test configurations consistent with its schedule to correct the fire barrier deficiencies?

CECo Response:

Yes. CECo, as part of the Fire Barrier Materials Project, will be reviewing the details of qualified configurations from; the NUMARC test program, other industry/utility test programs, as well as CECo unique, site-specific programs. Concurrent with this review, deviations from qualified barriers will be assessed and corrective actions will be developed. The number and extent of the deviations from tested/qualified fire barriers will influence the schedule for correcting the deficiencies but the analysis program will be consistent with the corrective action program.

³ "[State] whether or not the licensee has evaluated any deviations from the tested configurations."

4. In the response to 2.(c)(2)⁴ for Byron, Braidwood, and Zion, CECo indicated that its derating factors are consistent with the 33% identified in Information Notice 92-46.

How much derating margin still remains by plant design?

Are the tested configurations consistent in design and construction with the "as-built" plant configurations?

CECO Response:

For Byron, Braidwood, and Zion Stations, specific ampacity margins on a cable or cable tray node basis were not calculated. Firewrapped power trays, representing as-built plant configurations, were analyzed to determine what the worst case depth of fill would be with a 33% derating. The trays which were below this depth of fill were considered acceptable. Those trays which exceeded this depth of fill were further analyzed to ensure a cable's load did not exceed the cable's ampacity with the 33% derating applied. All cases were found to be acceptable; however, in no instances were margins calculated. In addition, firewrapped trays are administratively "blocked" to ensure that cable ampacities are not inadvertently exceeded.

As discussed in CECo's April 16, 1993 response to Generic Letter 92-08, ampacity derating calculations for LaSalle Station were performed and judged acceptable, however, LaSalle is considering the option of replacing their Thermo-Lag material with an alternate fire barrier material.

⁴ "[State] whether or not the ampacity derating test results relied upon by the licensee are correct and applicable to the plant design."