

GPU Nuclear Corporation Post Office Box 388 Route 9 South Forked Fliver New Jersey 08731-0388 609 971-4000 Writer's Direct Dial Number

> July 24, 1992 C321-92-2209

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

Gentlemen:

Subject:

Oyster Creek Nuclear Generating Station

Docket No. 50-219

Response to NRC Bulletin 92-01

Ref: NRC Bulletin 92-01, "Failure of Thermo-Lag 330 Fire Barrier System to Maintain Cabling in Wide Cable Trays and Small Conduits Free From Fire Damage", dated June 24, 1992.

In accordance with the requested actions of NRC Bulletin 92-01, this letter identifies (1) the areas of the Dyster Creek plant which have Thermo-Lag 330 fire barrier material installed, (2) compensatory measures implemented in response to the bulletin, and (3) measures being taken to ensure or restore fire barrier operability.

Thermo-Lag 330 fire barriers have been installed at Oyster Creek to protect conduit, duct work, drywell penetrations and stairwell enclosures; no cable trays were protected. There are 15 locations within the reactor building, turbine building and office building where Thermo-Lag 330 fire barriers are installed. Three of these locations are not conduit protective installations. The remaining 12 locations are within 7 fire zones identified as TB-FZ-11C, TB-FZ-11D, RB-FZ-1F2, RB-FZ-1D, RE-FZ-1E, OB-FZ-6A, and OB-FZ-6B. Specific items protected in each fire zone are identified in Attachment 1.

Immediately upon receiving the bulletin, hourly fire watch patrols were established in the above fire zones until an evaluation of the functionality of the specific installations could be made. This is the compensatory measure required by plant technical specification 3.12.E for a non-functional fire barrier.

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There are two locked high radiation areas in the plant containing Thermo-Lag 330 fire barriers. After evaluating the installed fire barriers and the actual fire hazards in these two areas, it was concluded that the barriers would perform their intended function in the event of a fire, and maintaining a fire watch patrol for the purpose of fire detection would result in unnecessary plant personnel exposure. Accordingly, on June 26, 1992 a fixed camera was installed in the travelling in-core probe (TIP) drive room located in fire zone RB-FZ-IE for remote observation of the TIP drive room by an hourly fire watch patrol, and on July 1, 1992, the fire watch patrol for fire zone RB-FZ-IF2 (reactor building southwest corner room) was secured.

On July 16, 1992, after evaluating the specific installations, it was concluded that the fire barriers in fire zones TB-FZ-11C, TB-FZ-11D, RB-FZ-1F2, RB-FZ-1D and RB-FZ-1E are functional and the fire watch patrols in these zones were secured. The functionality of the fire barriers in OB-FZ-6A and OB-FZ-6B (480 volt switchgear room) was considered indeterminate and the fire watch patrol is being maintained for this area. Our evaluation of the functionality of the Thermo-Lag 330 fire barriers installed at Oyster Creek is provided in Attachment 2. Our evaluation includes consideration of actual combustible loads, barrier tests and analyses for specific configurations, installation quality controls, on-going fire barrier inspection, and control of combustibles.

Although the rijority of installed fire barriers are considered functional (largely due to low combustible loads) and technical specification requirements are being applied accordingly, compliance with 10 CFR 50, Appendix R, Section III.G, which requires a 1 hour or 3 hour rated barrier, is considered indeterminate at this time. The resolution of this Appendix R compliance issue is being handled in accordance with GPUN Procedure 100G-ADM-7215.01, "Material Nonconformance Reports and Receipt Deficiency Notices". This procedure allows continued use of non-conforming material if engineering justification is provided. Attachment 2 provides this justification.

Appropriate actions to restore (or confirm) fire barrier operability are being developed through an industry program being coordinated by NUMARC. This program will include establishment of a fire barrier test database, development of guidance for applicability of tests, development of generic installation guidance, and consideration and coordination of additional testing as appropriate. We will apply the results of these efforts, as appropriate, to the Thermo-Lag fire barriers in the 480 volt switchgear room and to the resolution of the Appendix R compliance issue.

We are confident that the high level of protection provided by the fire protection program at Oyster Creek is being maintained. We are sensitive to the significance of the Thermo-Lag fire endurance test failures identified in Bulletin 92-01 and will continue to monitor developments in this area.

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If there are any questions regarding this matter, please call in ... chael Heller, Licensing Engineer, at (609) 971-4680.

John J./B

Vice Prosident and Director Oyster Creek

Sworn and Subscribed to before me this 24th day of July 1992.

Notary Public of New Jersey

JUDITH M. CROWE Notary Public of New Jersey
My Commission Expires 1/25

Attachments

Administrator, NRC Region 1 NRC Resident Inspector Oyster Creek NRC Project Manager

Attachment 1
Oyster Creek Thermo-Lag 330 Fire Barrier Installations

| FIRE ZONE/LOCATION | CONDUIT OR PENETRATION # | SIZE | T-LAG RATING | CIRCUIT # | DESCRIPTION |
|---|-----------------------------|---------|-----------------|----------------------------------|--|
| TB-FZ-11C 4160V Switchgear Rm Turbine Bldg Elev 23'-6" | 86-71 | 4" | 3 Hr | 86-71 | Power Feed Circuit to Switchgear 1D |
| TB-FZ-11D Turbine Bldg Basement Elev 3'-6" | 86-71 | 4" | 1 Hr | 86-71 | Power Feed Circuit to Switchgear 1D |
| | CGCTB071 | 1" | 1 Hr | 86-66 | EDG 2 Differential Prot Ckt |
| | CGCTB017 | 1" | 1 Hr | 86-GC0016 | EDG 2 Differential Prot Ckt |
| | CGCTB030 | 1 1/2 " | 1 Hr | 62-93 | 125V DC Dist Ctr "B" to 460V USS1B3 |
| | CGCTB029 | 1" | 1 Hr | 62-100 | 125V DC Dist Ctr "B" to 460V Swgr 1D |
| | CGCTB020 | 1 1/2 " | 1 Hr | 62-93 62-100 | 125V DC Dist Ctr "B" to 460V USS1B 125V DC Dist Ctr "B" to 460V Swgr 1D3 |
| | 14-25 | 3 1/2 " | 1 Hr | 14-25 | Power Feed Circuit to USSIR2 |
| | 14-28 | 2 1/2 " | 1 Hr | 14-28 | Power Feed Circuit to USS1B3 |
| RB-FZ-1F2 Reactor Bldg SW Corner Room Elev (-)19' | CGPA2002 | 1½" | 1 Hr | 62GP0228 62GP0229 | 125V DC Dist Ctr "B" to 460V USSIB 125V DC Dist Ctr "B" to 460V Swgr 1D3 |
| RB-FZ-1D Reactor Bldg Elev 51' | CGXA3028 | 1" | 1 Hr | 82GX0849 | Indicator Ckt (LT/IG068) |
| | CGCA1027 | 2" | 1 Hr | 22GC1259 22GC1258 21GC2671 | Position Indicator (V-14-32) Control Ckt (V-14-37) Valve Power/Centrol Ckt (V-11-34) |
| | 62-153 | 2" | 1 Hr | 62-153 | 125V DC Dist Ctr "C" to MCC-DC2 |

| FIRE ZONE/LOCATION | CONDUIT OR PENETRATION # | SIZE | T-LAG RATING | CIRCUIT # | DESCRIPTION |
|---|-----------------------------|---------|-----------------|--|---|
| RB-FZ-1D (Cont) Reactor Bldg Elev 51' | CRCA1026 | | 1 Hr | 63RC0712 63RC0713 63RC0710 63RC0711 | Control and Ind Ckt (V-14-35) Control and Ind Ckt (V-14-35) Control and Ind Ckt (V-14-33) Control and Ind Ckt (V-14-33) |
| | GGPA3026 | 2~ | 1 Hr | 12GP0816 12GP0817 | Power Ckt (V-14-37) Power Ckt (V-14-32) |
| | CGCR3021 | 2" | 1 Hr | 22GC1258 | Control Ckt (V-14-37) |
| | CGCR2086 | 1" | 1 Hr | 22GC1298 | Valve Ckt (V-16-1) |
| RB-FZ-1E Reactor Bldg Elev 23' | CRCA1026 | 2" | I Hr | 63RC0710 63RC0711 63RC0712 63RC0713 | Control & ind Ckt (V-14-33) Control & Ind Ckt (V-14-33) Control & Ind Ckt (V-14-35) Control & Ind Ckt (V-14-35) |
| | 62-153 | 2" | 1 Hr | 62-153 | 125V DC Dist Ctr "C" to MCC-DC2 |
| | CGCA2010 | 1 1/2 " | 1 Hr | 63GP0749 63GC0751 63GP0744 | Control Ckt (V-16-12) Control Ckt (V-16-14) Control Ckt for PS-215-1044 |
| | CGPA2008 | 3" | 1 Hr | 62GP0225 62GP0226 | Power Feed Ckt (V-16-2) Power Feed Ckt (V-16-14) |
| | Penetration 8. 9 18 & 19 | NA | 1 Hr | NA | Electrical penetration boxes enclosed by Thermo-Lag. Mounted on drywell wall. |
| | CGCR3021 | 1" | 1 Hr | 22601258 | Control Ckt (V-14-37) |
| | CCPR3019 | 1" | 1 Hr | 12-GP0816 | Valve Power Feed Ckt (V-14-37) |
| | CRXR2050 | 1" | 1 Hr | 82-598 | TE-58 Channel "B" Circuit |

| FIRE ZONE/LOCATION | CONDUIT OR PENETRATION # | SIZE | T-LAG RATING | CIRCUIT # | DESCRIPTION |
|--|-----------------------------|------|-----------------|--|---|
| RB-FZ-1E (Cont) Reactor Bldg Elev 23' | NA | NA | 1 Hr | NA | Thermo-Lag on steel enclosure over stairwell to Northeast Corner Room. |
| | Penetration 44 & 54 | NA | 1 Hr | NA | Electrical penetration boxes enclosed by Thermo-Lag. Mounted on drywell wall |
| OB-FZ-6A 480V Switchgear Rm Office Bldg Elev 23'-6" | CNXA 1125 | 2" | 1 Hr | 822X0830 822X0831 922X0829 832X0403 832X0404 822X0835 822X0836 822X0834 | Process Inst Ckt (DPT-622-1008) Process Inst Ckt (DPT-622-1009) Process Inst Ckt (PT-622-1018) Process Inst Ckt (TE-622-1020) Process Inst Ckt (TE-622-1021) Process Inst Ckt (DPT-622-1010) Process Inst Ckt (DPT-622-1011) Process Inst Ckt (PT-622-1019) |
| OB-FZ-6B 480V Switchgear Rm Office Bldg Flev 23'-5" | CNPA1042 | 1" | 1 Hr | 12NP0826 12NP0825 | Power Feed (FN-56-704) Power Feed (FN-56-J07) |
| | CNCA1043 | 3" | 1 Hr | 22NC1241 | Control Ckt (FN-56-004/007) |
| | CNCA1041 | 3" | 1 Hr | 22NC1241 | Control Ckt (FN-56-004/007) |
| | CNCA1040 2" | 2" |] Hr | 21202674 | Control Ckt for DM56-015 |
| | | | | 21202681 | Control Ckt for Damper DM56-017 |
| | | | | 22201243 | Control Ckt for Alt Fan FN56-008 |
| | | | | 21NC2678 | Control Feed from LSP-1A2 |
| | | | | 71NCU802 | Alarm Ckt for RSP |
| | | | | 71NC6809 | Alarm Ckt for LSP-1A2 |
| | 62-173 | 2" | 1 Hr | 62-173 | Conduit is within Thermo-Lag enclosure of adjacent conduit. Protection not required for this circuit. |
| | 12-604 | 2" | 1 Hr | 12-604 | "C" Battery Room Ventilation |

| FIRE ZONE/LOCATION | CONDUIT OR PENETRATION # | SIZE | T-LAS RATING | CIRCUIT # | DESCRIPTION |
|---|-----------------------------|------|-----------------|-----------|---|
| OB-FZ-6B (Cont) 480V Switchgear Rm Office Bldg Elev 23'-6" | 62-161 | 2" | i Hr | 62-161 | 125V DC Dist Ctr "C" to Panel DC-F |
| | 62-158 | 2" | 1 Hr | 62-158 | 125V DC Dist Ctr "C" to USS1A2 |
| | 12-603 | 2" | 1 Hr | 12-603 | Mtr Fdr Ckt "C" Battery Room Vent Fan |
| | 12-602 | 2" | 1 Hr | 12-602 | Mtr Fdr Ckt "C" Battery Room Vent |
| | 12-601 | 2" | 1 Hr | 12-601 | 460V Power Feed to "C2" Battery Room |
| | 12-600 | 2" | 1 Hr | 12-600 | 460V Power Feed to "C1" Battery Charger |
| | 22-1126 | 3" | 1 Hr | 22-1120 | Fan 2 Control "C" Battery Room |
| | | | | 22-1119 | Fan 1 Control "C" Battery Room |
| | | | | 11-861 | Fan Control Power "C" Battery Room |
| | CGPA-1044 | 1" | 1 Hr | 112P1406 | Halon Power Feed from Inst Panel 40 |
| | NA | NA | 1 Hr | NA | HVAC Duct with Thermo-Lag |

Attachment 2

Evaluation of the Functionality of Thermo-Lag 330 Fire Barriers Installed at Oyster Creek

I. Introduction

NRC Bulletin 92-01 notifies licensees of failures in fire endurance testing associated with Thermo-Lag 330 fire barrier systems manufactured by Thermal Science, Inc. (TSI). These fire barriers are installed to protect safe shutdown capability as required by 10 CFR 50, Appendix R. The fire barriers of concern include 1 hour and 3 hour pre-formed assemblies installed on small conduit (less than 4" diameter) and wide cable trays (wider than 14").

Thermo-Lag 330 fire barriers have been installed at Oyster Creek to protect conduit, duct work, drywell penetrations and stairwell enclosures; ro cable trays were protected. There are 15 locations within the reactor building, turbine building and office building where Thermo-Lag 330 fire barriers are installed. Three of these locations are not conduit protective installations. The remaining 12 locations are within 7 fire zones identified as TB-FZ-11C, TB-FZ-11D, RB-FZ-1F2, RB-FZ-1D, RB-FZ-1E, OB-FZ-6A, and OB-FZ-6B.

II. Relevant Requirements

10 CFR 50.48, "Fire protection", requires the licensee to meet the requirements of 10 CFR 50, Appendix R, Section III.G, "Fire protection of safe shutdown capability". The objective of Section III.G is to ensure that at least one means of achieving and maintaining safe shutdown conditions will remain available during and after any postulated fire in the plant. Licensees can satisfy Section III.G by separating one safe shutdown train from its redundant train with fire rated barriers. The fire resistance rating required of the barrier, either 1 hour or 3 hours, depends on the other fire protection fectures provided in the fire area. Thermo-Lag 330 fire barrier systems were installed at Oyster Creek to satisfy these separation requirements.

In addition, Oyster Creek Technical Specification 3.12.E.1 requires an hourly fire watch patrol be established when a fire barrier is determined to be non-functional.

III. Evaluation

A. Fire Barrier Endurance Testing

Industrial Testing Laboratories (ITL) Report No. 86-8-207, dated August 14, 1986, documents a 1 hour fire endurance test conducted on a 4" diameter conduit test assembly protected with the pre-shaped conduit section design of the Thermo-Lag 330 Fire Barrier System. All Thermo-Lag pre-shaped conduit sections installed on the test assembly were previously manufactured and shipped to Oyster Creek by TSI. These

materials were returned to TSI from Oyster Creek's in-house stock for use in this test program. The test assembly was exposed to the standard time/temperature environment of ASTM E-119 for 65 minutes, followed by a 3 minute minimum water hose stream test. Examination of the cable within the test assembly, following the fire endurance and water hose stream test, indicated that they were all intact, functional and free from heat or fire damage. The report further documents that the highest average cable surface temperature recorded was 108°F and the maximum individual thermocruple cable surface temperature was 122°F.

The adequacy of the fire rated barriers installed at Oyster Creek is also supported by ITL Report No. 82-11-80, November 1982 (5 "generic" tests, 1 hour cable trays and conduits) and 82-11-81, November 1982 (5 "generic" tests, 3 hour cable trays and conduits). These tests included 4" conduit and were accepted by American Nuclear Insurers (ANI) for conduit sized up to a maximum of 4" diameter and were considered to bound smaller diameter conduit. GPUN is aware that NRC Information Notice 92-46 identifies a concern about the acceptability of considering these test results representative of prefabricated Thermo-Lag installations since the test specimens were made using direct application techniques and a cure accelerator. We believe the test results do provide some decree of assurance that the fire barriers installed at Cyster Creek are effective despite the different application methods.

B. Installation Quality Control

The installation of TSI Thermo-Lag 330 was in accordance with Oyster Creek Installation Specification 402730-002, which invoked TSI Technical Note 20684, "Thermo-Lag 330 Fire Barrier System Installation Procedures Manual Power Generating Plant Applications". Installation drawings incorporated TSI's recommendations. The installation specification required trained and certified installers, resulting in a high quality installation in accordance with TSI's qualified design details. The work was classified as "Nuclear Safety Related" and "Important to Safety" and applicable quality assurance requirements were in force, including installation inspections and post installation walkdowns.

In addition, a records review has confirmed the following:

- 1. All Thermo-Lag preformed sections were site receipt inspected against appropriate inspection criteria. Some sections were rejected and discarded, while others that were initially rejected were demonstrated by the manufacturer to be within the tolerances of sections that successfully passed the ASTM E-119 test.
- All installers and QC inspectors witnessing installation were formally trained and certified by TSI. All materials used were verified to be of proper quality and type.

- All installation and inspection work was actually performed by certified installers and QC inspectors and was properly documented.
- 4. All final installation inspections were performed with satisfactory results. Non-compliances noted during the installation were adequately addressed and did not violate the original design.
- All fire zones with Thermo-Lag 330 fire barriers are included in an on-going surveillance program that checks for cracks and other signs of degradation as well as proper band spacing (12" or less).

C. On-Going Fire Barrier Inspection

Station procedure 645.6.028, "Thermo-Lag Envelope System Fire Barrier Surveillance", provides detailed instructions to verify, visually, the functionality of Thermo-Lag fire barriers installed to comply with 10 CFR 50, Appendix R requirements. This surveillance/inspection is conducted at least once every 18 months and prior to declaring a fire barrier functional following repairs or maintenance in accordance with technical specification 4.12.E. The procedure requires veral verification that retaining bands/wires are in place (not roose) with a maximum spacing of 12 inches, and that no visible damage, cracks or missing pieces exist.

D. Control of Combustibles

GPUN Procedure 5000-ADM-7370.01, "Fire Protection Evaluation", assures that combustibles added to fire areas are accounted for, considered and cumulatively totallad. In addition, Station Procedure 120.5, "Control of Combustibles", establishes guidelines governing the introduction of transient combustibles into fire areas. The quantities of transient combustibles permitted into any fire area/zone are specified. Approval by the Site Fire Protection Coordinator is required if quantities exceed the specified limits. Overall totals are administratively controlled.

E. Fire Zone Specific Analysis

Our evaluation of the functionality of the fire barriers in each fire zone is provided below.

1. TB-FZ-11C, 4150 Volt Switchgear Room, Turbine Bldg. Elev. 23'-6"

This fire zone contains a 4" conduit above the 4160 volt switchgear room protected with a 3 hour rated barrier. The zone does not have an area wide automatic suppression system. The combustible load is high (exceeds 240,000 BTU/sq-ft) primarily due to hydrogen seal oil piping which passes through the zone. The combustible loading assumes a major oil line break and fire.

However, such a scenario is considerably less probable than a fire involving the ordinary in-situ combustibles and cable insulation present. Nonetheless, in consideration of the catastrophic type of fire, a 3 hour barrier was provided on the conduit containing circuitry required to achieve safe shutdown in the event of a fire. The acceptability of the fire barrier for the 4" diameter conduit has been adequately documented by 3 hour duration tests (Ref. ITL Report No. 82-11-80). We are confident that the three hour fire barrier provided meets the requirements of 10 CFR 50 Appendix R, Section III.G.2.a. In addition, ionization type fire detection and several automatic sprinklers are provided in the area of the oil piping and protected conduit. Based on the above, the installed conduit fire barrier is considered functional.

2. TB-FZ-11D, Turbine Building Basement, Elev. 3'-6"

This entire fire zone is provided with automatic sprinkler fire protection, therefore, conduit fire barriers with a 1 hour rating were utilized in accordance with 10 CFR 50, Appendix R. Conduit sizes protected range from 1" to 4" diameter. The acceptability of the fire barrier for the 4" conduit is supported by 1 hour duration tests (Ref. ITL Report No. 86-8-207 and 82-11-80). Since this fire zone has a current combustible load below 40.000 BTU/sq-ft, and since 80,000 BTU/sq-ft is the general 1 hour fire load, there is considerable margin between the actual fire conditions and the severe test exposure fire. Since the area has sprinkler protection and does not contain the quantity or concentration of combustible loads to approximate the ASTM E-119 standard time vs. temperature curve for exposure fire, the installed conduit fire barriers are considered functional.

RB-FZ-1F2, Reactor Building Southwest Corner Room, Elev. (-)19'

This fire zone contains 1½" conduit protected by a 1 hour rated fire barrier. The zone is provided with ionization detection for early warning of a fire condition and is virtually devoid of combustible loads (36 BTU/sq-ft) which could generate a fire of magnitude approaching that prescribed by ASTM E-119. The acceptability of the fire barrier for the 1½" conduit is supported by 1 hour duration tests (Ref. ITL Report No. 86-8-207 and 82-11-80). Based on the above, the installed conduit fire barrier is considered functional. In addition, this zone is a locked high radiation area and entry for the purpose of fire detection would result in unnecessary exposure to plant personnel.

4. RB-FZ-1D, Reactor Building, Elev. 51'

This fire zone contains I hour rated fire barrier in 3 locations protecting 1" and 2" conduit. The zone has a combustible load of around 20,000 BTU/sq-ft and is limited by the zone boundary analysis of the Fire Hazards Analysis Report (Volume 2, Section 1.3) to a maximum of 40,000 BTU/sq-ft. This limit is well below the 80,000 BTU/sq-ft load which would be necessary to approximate an exposure fire similar to the standard ASTM E-119 time vs. temperature curve. The acceptability of the fire barrier for this diameter conduit is supported by 1 hour duration tests (Ref. ITL Report No. 86-8-207 and 82-11-80). In addition, ionization detection is provided for all but a small portion of this zone and deluge sprinkler systems are provided for the major cable trav routings. These systems are supplemented by hose stations and portable extinguishers. Therefore, since the combustibles to create the severe fire exposure of the tested configuration are not present, the installed fire barriers are considered functional.

5. RB-FZ-1E, Reactor Building, Elev. 23'

This fire zone contains 1 hour rated fire barrier in 4 locations protecting conduit with diameters ranging from 1" to 3". The zone has a combustible load of around 20,000 BTU/sg-ft and is limited by the zone boundary analysis of the Fire Hazards Analysis Report (Volume 2, Section 1.3) to a maximum of 40 000 BTU/sq-ft. This limit is well below the 80,000 BTU/sq-ft load which would be necessary to approximate an exposure fire similar to the standard ASTM E-119 time vs. temperature curve. The acceptability of the fire barrier for this diameter conduit is supported by 1 hour duration tests (Ref. ITL Report No. 86-8-207 and 82-11-80). In addition, ionization detection is provided for all but a small portion of this zone and deluge sprinkler systems are provided for the major cable tray routings. These systems are supplemented by hose stations and portable extinguishers. Therefore, since the combustibles to create the severe fire exposure of the tested configuration are not present, the installed fire barriers are considered functional.

Within this fire zone is the travelling in-core probe (TIP) drive room which is a locked high radiation area. This room contains 2" conduit fire barrier. Entering this room for the purpose of fire detection would result in unnecessary exposure to plant personnel.

6. OB-FA-6, 480 Volt Switchgear Room, Office Building, Elev. 23'-6"

This area is divided into 2 fire zones (OB-FZ-6A and OB-FZ-6B) with 1" to 3" diameter conduit protected with 1 hour rated fire barriers. Both switchgear zones are protected with automatic halon total flooding suppression systems actuated by ionization and photoelectric smoke detection. Fire loads in both zones exceed 80,000 BTU/sq-ft, which includes oil filled transformers of approximately 225 gallon capacity. Due to the potential transformer rupture/fire scenario with the attendant quantities of combustibles available, the adequacy of the 1 hour rated fire barriers on conduit in these zones is considered indeterminate.

F. Conclusion

In an actual fire situation, the fire resistance required of a barrier depends on the expected severity of the fire to which it may be exposed. The combustible loading in the fire areas at Oyster Creek containing Thermo-Lag fire barrier is known and is controlled. As discussed above, these loads are typically much lower than that needed to produce a fire approaching the severity of a test fire. In addition, an actual plant fire would have a much slower temperature rise than the test fire. In large open volumes, such as most fire areas at Oyster Creek, a fully developed fire may occur in one part of the area, but it is not pluable that the entire volume (fire area) would flashover. Unless a fire reaches this stage, it is not likely to present a credible challenge to any fire barrier. Further, the fire areas at Oyster Creek are equipped with appropriate passive and active fire protection features consistent with the defense-in-depth principle.

Based on this evaluation, the following conclusions are made:

- 1. The installed Thermo-Lag fire barriers in fire zones TB-FZ-11C, TB-FZ-11D, RB-FZ-1F2, RB-FZ-1D and RB-FZ-1F are functional. The functionality of the fire barriers in OB-FZ-6A and OB-FZ-6B (480 volt switchgear room) is indeterminate at this time. The fire watch patrols established in accordance with technical specification 3.12.E can be secured in the zones where the fire barriers are considered functional.
- Excluding the installed Thermo-Lag fire barrier in fire zone TB-FZ-1IC (4160 volt switchgear room), compliance with 10 CFR 50, Appendix R, Section III.G, which requires a 1 hour or 3 hour rated barrier, is considered indeterminate at this time.