

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

July 29, 1992

United States Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D. C. 20555

Serial No. 92-436  
NL&P/CGL R6  
Docket Nos. 50-338  
50-339  
50-280  
50-281  
License Nos. NPF-4  
NPF-7  
DPR-32  
DPR-37

Gentlemen:


**VIRGINIA ELECTRIC AND POWER COMPANY**  
**NORTH ANNA POWER STATION UNITS 1 AND 2**  
**SURRY POWER STATION UNITS 1 AND 2**  
**RESPONSE TO 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**

On June 24, 1992, the NRC issued Bulletin 92-01, entitled "Failure of Thermo-Lag 330 Fire Barrier System to Maintain Cabling in Wide Cable Trays and Small Conduits Free from Fire Damage." The bulletin requests licensees to take the recommended actions and provide a written response describing the actions taken to address the fire endurance testing results associated with Thermo-Lag 330 fire barrier systems installed to protect safe shutdown capability.

The response to NRC Bulletin 92-01 for North Anna and Surry Power Stations is provided in Attachment 1. The locations and descriptions of Thermo-Lag 330 applications at North Anna and Surry Power Stations are provided in Attachments 2 and 3, respectively.

Should you have questions regarding this information or require additional information, please contact us.

Very truly yours,

  
W. L. Stewart  
Senior Vice President - Nuclear

Attachments:

1. Response to NRC Bulletin 92-01
2. Thermo-Lag 330 Fire Barrier Material - North Anna Power Station
3. Thermo-Lag 330 Fire Barrier Material - Surry Power Station

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cc: U. S. Nuclear Regulatory Commission  
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COMMONWEALTH OF VIRGINIA )  
 )  
COUNTY OF HENRICO )

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by W. L. Stewart who is Senior Vice President - Nuclear, of Virginia Electric and Power Company. He is duly authorized to execute and file the foregoing document in behalf of that Company, and the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 29<sup>TH</sup> day of July, 1992.  
My Commission Expires: May 31, 1994.

Dicki L. Hull  
Notary Public

(SEAL)

## ATTACHMENT 1

### RESPONSE TO 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

The requested actions in the bulletin and the responses for North Anna and Surry Power Stations are as follows:

- 1. For those plants that use either 1- or 3-hour pre-formed Thermo-Lag 330 panel and conduit shapes, identify the areas of the plant which have Thermo-Lag 330 fire barrier material installed and determine the plant areas which use this material for protecting either small diameter conduit or wide trays (widths greater than 14 inches) that provide safe shutdown capability.**

#### Response

North Anna and Surry Power Station use 1- and 3-hour Thermo-Lag 330 fire barrier systems in panel and conduit shapes. Neither station uses Thermo-Lag as a fire barrier system for cable trays. Thermo-Lag is also used as a radiant energy shield with a 1/2 hour fire rating inside containment at both stations. The locations and descriptions of Thermo-Lag applications at North Anna and Surry are provided in Attachments 2 and 3, respectively. Attachments 2 and 3 also identify whether the specific application is addressed by NRC Bulletin 92-01.

- 2. In those plant areas in which Thermo-Lag fire barriers are used to protect wide cable trays, small conduits, or both, the licensee should implement, in accordance with plant procedures, the appropriate compensatory measures, such as fire watches, consistent with those which would be implemented by either the plant technical specifications or the operating license for an inoperable fire barrier.**

#### Response

Compensatory measures were implemented at both stations in the areas where Thermo-Lag 330 material is installed as an Appendix R fire barrier. These compensatory measures were discussed with the NRC during a June 25, 1992 conference call. The compensatory measures associated with the applications addressed by NRC Bulletin 92-01 are detailed in the following paragraphs.

Starting on June 25, 1992, both stations implemented continuous fire watches for Thermo-Lag 330 fire barrier installations outside containment. Specifically, fire watches were implemented at North Anna for the auxiliary building and at Surry for the Unit 1 cable vault and emergency switchgear room. The North Anna continuous fire watch was provided because of the 1-hour fire wrap used on the

## ATTACHMENT 1 (continued)

power feeds for a charging pump and a component cooling pump. Surry implemented a continuous fire watch because of the 3-hour fire wrap used on cables in the Appendix R communication system.

An engineering evaluation was subsequently developed to justify modification of the continuous fire watch for the power feeds for a charging pump and a component cooling pump at North Anna. Based on this evaluation, the fire watch frequency was modified on July 21, 1992, and is now based on the availability of the unaffected charging pumps and component cooling water pumps. Specifically, the fire watch is maintained hourly unless one or more of the unaffected charging pumps and component cooling pumps is unavailable. Given these specific conditions, a continuous fire watch is required. At Surry, the fire watch monitoring the area associated with the Appendix R communication system was already in place for other reasons. For the purposes of satisfying the requirements of NRC Bulletin 92-01, this fire watch will remain in place, independent of other concerns, until operability of the barriers is restored or the issue is otherwise resolved.

- 3. Each licensee, within 30 days of receiving this bulletin, is required to provide a written notification stating whether it has or does not have Thermo-Lag fire barrier systems installed in its facilities. Each licensee who has installed Thermo-Lag 330 fire barriers is required to inform the NRC, in writing, whether it has taken the above actions and is required to describe the measures being taken to ensure or restore fire barrier operability.**

### Response

Appropriate actions to restore fire barrier operability are being developed through an industry program being coordinated by NUMARC. This program will include establishment of a test database, development of guidance for applicability of tests, development of generic installation guidance, as well as consideration and coordination of additional testing, as appropriate. Virginia Electric and Power Company will review the results of these efforts, when they are completed, for applicability to the Thermo-Lag installations at North Anna and Surry within the scope of NRC Bulletin 92-01. If the existing Thermo-Lag installation can not be qualified by the additional test information, the installations will be reviewed to determine if modifications can be made to existing conduit wrap to make them acceptable.

In addition, the following measures will be considered concurrently for evaluation as a potential means to ensure or restore fire barrier operability:

- Rerouting of the affected conduit to satisfy the Appendix R requirements.
- Removal of the Thermo-Lag and replacement with another fire wrap material that meets applicable NRC requirements.

## ATTACHMENT 2

### THERMO-LAG 330 FIRE BARRIER MATERIAL

#### NORTH ANNA POWER STATION

#### Thermo-Lag installations addressed by NRC Bulletin 92-01

<u>ITEM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>
1.	Auxiliary Building, Power feed (2.77" armored cable) for component cooling water pump 2-CC-P-1A, el. 244'-6".	Fire retardant coating, 1/2" thick preformed sections attached to armored cable.
2.	Auxiliary Building, Power feed (2.77" armored cable) for charging pump 1-CH-P-1C, el. 259'-6".	Fire retardant coating, 1/2" thick preformed sections attached to armored cable.

#### Thermo-Lag installations not addressed by NRC Bulletin 92-01

3.	Containment Units 1 and 2, RHR pump motors 1-RH-P-1A & 1B and 2-RH-P-1A & 1B, elev. 231'-6".	Radiant energy shield, 1/2" thick panels mounted to steel frame to form shield between pump motors.
4.	Containment Units 1 and 2, the cable penetration to the Fuel Building, elev. 291'-0", column 5 (Unit 1) and column 13 (Unit 2).	Radiant energy shield, 1/2" thick panels mounted to a steel frame to form a 4 sided box around penetration.
5.	Containment Unit 1, transmitters PT-RC-1000 & LT-RC-1000, elev. 262'-10", column 9.	Radiant energy shield, 1/2" thick panels mounted to a steel frame to form box around transmitters.
6.	Containment Unit 2, transmitters LT-RC-2000 & LT-2461, elev. 262'-10", column 6.	Radiant energy shield, 1/2" thick panels mounted to a steel frame to form box around transmitters.
7.	Containment Unit 1, conduit 1CX933NB (1.5") from PT-RC-1000 & LT-RC-1000 to penetration in no. 4 above.	Radiant energy shield, 1/2" thick preformed sections attached to conduit.

## ATTACHMENT 2 (continued)

<u>ITEM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>
8.	Containment Unit 2, conduit 2CX906NV (1.5") from LT-RC-2000 for 20' to column 5 and from column 17 to penetration in no. 4 above.	Radiant energy shield, 1/2" thick preformed sections attached to conduit.
9.	Containment Unit 1, conduit (4") (wide and source range neutron flux indication) elev. 241'-6" between columns 4 & 6.	Radiant energy shield, 1/2" thick preformed sections attached to conduit.
10.	Auxiliary Building, Appendix R flexible ventilation duct, elev. 259'-6".	Fire retardant coating, 1/2" thick Panels forming fire enclosure around locker containing duct.
11.	Auxiliary Building, Piping penetrations Charging Pump Cubicles, elev. 244'-6".	Fire barrier, 1" thick panels attached to steel plate.

### Notes:

1. A Radiant energy shield credited as a 1/2 hour fire rating.
2. Fire retardant coating credited as a 1 hour fire rating.
3. Fire barrier credited as a 3 hr. fire rating.

# ATTACHMENT 3

## THERMO-LAG 330 FIRE BARRIER MATERIAL

### SURRY POWER STATION

#### Thermo-Lag installations addressed by NRC Bulletin 92-01

<u>ITEM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>
1.	Unit 1 Cable Vault, communication system conduit 1M912 (1") & 1COM3 (3/4") from elev. 27'-6" of Auxiliary Building to Unit 1 Emergency Switchgear Room.	Fire barrier, 1" thick preformed sections attached to conduits for entire routing through Cable Vault.
2.	Unit 1 Emergency Switchgear Room, communication system conduits 1SVB151, 1SVB151A, & 1M912 all (1"); 1COM12 & 1COM3 both (3/4"); 1COM11 (2").	Fire barrier, 1" thick preformed sections attached to conduits.

#### Thermo-lag installations not addressed by NRC Bulletin 92-01

3.	Containment Units 1 & 2, RHR pump motors 1-RH-P-1A & 1B AND 2-RH-P-1A & 1B, elev. (-)13'-0".	Radiant energy shield, 1/2" thick panels mounted to steel frame to form shield between pump motors.
4.	Containment Unit 1, transmitters LT-1459A & LT-1461, elev. 18'-4", column 10.	Radiant energy shield, 1/2" thick panels mounted to steel frame to form shield between transmitters.
5.	Containment Unit 1, transmitter PT-1449, elev. (-)3'-6", column 9.	Radiant energy shield, 1/2" thick panels mounted to steel frame to form enclosure around transmitter.
6.	Containment Unit 2, transmitter LT-2459A, elev. 18'-4", column 5.	Radiant energy shield, 1/2" thick panels mounted to steel frame to form enclosure around transmitter.
7.	Containment Unit 2, transmitter LT-2487A, elev. (-)22'-6", column 9.	Radiant energy shield, 1/2" thick panels mounted to steel frame to form enclosure around transmitter.



### ATTACHMENT 3 (continued)

<u>ITEM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>
8.	Containments Unit 1 & 2, Appendix R cable penetration to Cable Vault.	Radiant energy shield, 1/2" thick panels mounted to steel frame to form 4 sided box around penetration.
9.	Containment Unit 1, conduit (3/4") from transmitters LT-1459A & PT-1449.	Radiant energy shield, 1/2" thick preformed sections attached to conduit.
10.	Containment Unit 2, conduit (3/4") from transmitters LT-2459A & LT-2487A.	Radiant energy shield, 1/2" thick preformed sections attached to conduit.
11.	Turbine Building Basement Units 1 & 2, HVAC duct between fire dampers 9 & 10 and the Emergency Switchgear Room.	Fire barrier, 1" thick panels attached to 4 sides of the ducts.
12.	Turbine Building Mezzanine Units 1 & 2, HVAC duct between fire dampers 19 & 20 and the Control Room.	Fire barrier, 1" thick panels attached to 4 sides of the ducts.
13.	Cable Vault Units 1 & 2, Appendix R communication cable containment penetration 4C & 3D.	Radiant energy shield, 1" thick panels mounted to steel frame to form 4 sided box around penetration.
14.	Mechanical Equipment Room #3, Charging Pump Service Water Pump supply piping.	Fire barrier, 1" thick panel sections protecting piping that enters MER 3 and runs to the CPSW pump room.

Notes:

1. A Radiant Energy Shield credited as 1/2 hour fire rating.
2. Fire Retardant Coating credited as a 1 hour fire rating.
3. Fire Barrier credited as a 3 hour fire rating.