

# Pennsylvania Power & Light Company

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Washington, DC 20555

**SUSQUEHANNA STEAM ELECTRIC STATION  
RESPONSE TO GENERIC LETTER 92-08  
PLA-3944 FILES R41-1A/A20/P122-1**

Docket Nos. 50-387  
and 50-388

Following is Pennsylvania Power & Light Company's response to NRC Generic Letter 92-08, "Thermo-Lag 330-1 Fire Barriers;" as applicable to Susquehanna Steam Electric Station.

## NRC QUESTION #1

State whether Thermo-Lag 330-1 barriers are relied upon (a) to meet 10 CFR 50.48, to achieve physical independence of electrical systems, (b) to meet a condition of a plant's operating license, or (c) to satisfy a licensing commitment. If applicable, state that Thermo-Lag 330-1 is not used at the facility. This generic letter applies to all 1-hour and all 3-hour Thermo-Lag 330-1 materials and barrier systems assembled by any assembly method such as by assembling preformed panels and conduit shapes, as well as spray, trowel and brush-on applications.

## PP&L'S RESPONSE

Thermo-Lag 330-1 (preformed and spray-on) fire barriers are relied upon at Susquehanna SES to:

- (a) Meet 10 CFR 50.48
- (b) Meet conditions of both the Unit 1 and Unit 2 operating licenses
- (c) Satisfy licensing commitments for both Unit 1 and Unit 2

~~Thermo-Lag 330-1 is not used~~ at Susquehanna SES to achieve physical independence of electrical systems (Regulatory Guide 1.75):

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**NRC QUESTION #2**

If Thermo-Lag 330-1 barriers are used at the facility,

- (a) 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.
- (b) State (1) 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; and (2) whether or not the licensee has evaluated any deviations from the tested configurations.
- (c) State (1) whether or not the as-built Thermo-Lag 330-1 barrier configurations are consistent with the barrier configurations used during the ampacity derating tests relied upon by the licensee for the ampacity derating factors used for all raceways protected by Thermo-Lag 330-1 (for fire protection of safe shutdown capability or to achieve physical independence of electrical systems) and (2) whether or not the ampacity derating test results relied upon by the licensee are correct and applicable to the plant design.

**PP&L's RESPONSE**

- (a) Thermo-Lag 330-1 fire barriers utilized at Susquehanna SES were qualified to existing NRC guidance and/or commitments at the time of qualification. The actual testing was not in all cases conducted by PP&L.
- (b)(1) Fire barriers at Susquehanna SES were installed in accordance with plant specifications. Those specifications were based on fire resistance testing criteria, testing results, and extrapolations made therefrom. NRC guidance at the time of barrier qualification did not require consideration of all of the attributes cited in the question in the performance of a comparison between tested and installed configurations.
- (b)(2) Since their original qualification, installed configurations have been evaluated by way of engineering studies done as part of PP&L re-evaluation of Appendix R. These evaluations were performed in accordance with the interpretations and guidance of Generic Letter 86-10, Item 3.2.2. Accordingly, the following criteria were satisfied:

1. The continuity of the fire barrier is maintained.
2. The thickness of the barrier is maintained.
3. The nature of the support assembly is unchanged from the tested configuration.
4. The application or "end use" of the fire barrier is unchanged from the tested configuration.
5. The configuration has been reviewed by a qualified fire protection engineer and found to provide an equivalent level of protection.

(c)(1) PP&L is not aware of formal generic NRC guidance addressing appropriate factors for comparing tested and installed barrier configurations for ampacity derating. The extent to which installed configurations at Susquehanna SES are consistent with tested configurations is based upon engineering evaluations.

*AMPACITY*

(c)(2) PP&L has reviewed ampacity derating for Susquehanna SES using available industry ampacity derating test reports. We have conservatively assumed the test configurations are applicable to Susquehanna SES and have determined that when the most conservative data is applied (i.e. Conduit : 7.7% for one-hour barrier, 10.5% for three-hour barrier; Cable Tray : 28.04% for one-hour barrier and 31.15% for three-hour barrier) a conservative margin exists with respect to the affects of ampacity.

Engineering analysis has been used for untested multiple layer configurations where the individual barrier ampacity deratings have been algebraically summed to yield what we believe is a conservative ampacity derating factor for the area protected by the overlapped material.

It must be noted that PP&L has been unable to obtain copies of either the UL duplicate test report or the SWRI test reports referenced in NRC Generic Letter 92-08. Although these reports cite higher ampacity derating factors, we have no way of comparing pertinent data to determine their applicability to Susquehanna SES.

This issue remain opens. PP&L is involved with industry efforts to develop generic ampacity derating factors.

**NRC QUESTION #3**

With respect to any answer to items 2(a), 2(b), or 2(c) above in the negative, (a) describe all corrective actions needed and include a schedule by which such actions shall be completed and (b) describes all compensatory measure taken in accordance with the technical specifications or administrative controls. When corrective actions have been completed, confirm in writing their completion.

**PP&L'S RESPONSE**

- (a) While PP&L believes we have evaluated and qualified Thermo-Lag fire barrier configurations consistent with guidance available at the time those evaluations were performed, we recognize that further actions are necessary to address current concerns with fire endurance and ampacity with respect to Thermo-Lag barriers. As such, PP&L is involved through NUMARC in an industry Thermo-Lag program intended to provide generic testing and information necessary to accomplish resolution of this issue. Specific test scheduling will be provided to NRC by NUMARC.

In addition, PP&L intends to perform Susquehanna SES specific fire resistance testing. This testing program is on hold awaiting development of a test acceptance criteria by the NRC.

- (b) PP&L has implemented compensatory measures required by Technical Specifications for inoperable raceway barriers. Closed circuit television has been installed to conduct continuous fire watch activities in locked radiation areas should that be necessary. The use of closed circuit television for this function has been approved by the NRC.

**NRC QUESTION #4**

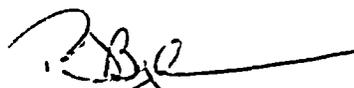
List all Thermo-Lag 330-1 barriers for which answers to item 2 cannot be provided in the response due within 120 days from the date of this generic letter, and include a schedule by which such answers shall be provided.

**PP&L'S RESPONSE**

The response to NRC Question #2 applies to all Thermo-Lag installations at Susquehanna SES.

Should you have any questions, please call Mr. W.W. Williams at (215) 774-5610.

Very truly yours,



R. G. Byram

cc: NRC Region I  
Mr. R. J. Clark, NRC Sr. Project Manager (OWFN)  
Mr. G. S. Barber, NRC Sr. Resident Inspector (SSES)