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SUBJECT: Revises proposed ampacity derating factors for power raceway covered with Thermo-Lag 330-1 fire barriers at SSES provided in response to NRC GL 92-08,dtd 980106.

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SUSQUEHANNA STEAM ELECTRIC STATION
REVISED POSITION ON AMPACITY DERATING
IN RESPONSE TO NRC GENERIC LETTER 92-08
PLA-5011

Docket Nos. 50-387
and 50-388

References:

(1) *PLA-4819, R. G. Byram to USNRC, "NRC Generic Letter 92-08 – Thermo-Lag 330-1 Destructive Examinations & Ampacity Derating," dated January 6, 1998.*
(2) *NRC Safety Evaluation Addressing Thermo-Lag Related Ampacity Derating Issues For Crystal River (TAC No. M91772), dated November 14, 1997.*
(3) *NUREG-0847 Supplement No. 18, "Safety Evaluation Report Related to the Operation of Watts Bar Nuclear Plant, Units 1 and 2 Docket Nos. 50-390 and 50-391," dated October 1995.*
(4) *NRC Safety Evaluation of Ampacity Issues Related to Thermo-Lag Fire Barriers at Comanche Peak Steam Electric Station, Unit 2 (TAC No. M85999), dated June 14, 1995.*

The purpose of this letter is to revise the proposed ampacity derating factors for power raceway covered with Thermo-Lag 330-1 fire barriers at Susquehanna Steam Electric Station (SSES) provided in Reference 1.

The following fire barrier derating factors are the ampacity derating factors that PP&L, Inc. (PP&L) proposes to use when evaluating power cables in raceways wrapped with Thermo-Lag material:

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Recommended Ampacity Derating Values for SSES	
Raceway Type	Fire Barrier Derating Factor
Conduit/Air Drop – 1Hr.	10.7%
Conduit [non-std.] – 1Hr.	15.7%[1]
Conduit/Air Drop – 3 Hr.	13.0%[2]
Pull/Junction Boxes – 1 Hr.	10.7%
Pull/Junction Boxes – 3 Hr.	13.0%[2]
Cable Tray (w/o tray covers)	31.5%
Cable Tray (with tray covers)	41.0%
Wireway	41.0%

The following justification is provided in support of the values selected above.

Conduit, Boxes and Air Drops

1 Hour Installations:

Ampacity derating values for 1 hour rated conduit, boxes and air drop enclosures at SSES are based on the ampacity derating testing performed by FPC under Project No. 95NK17030 report letter dated 5/7/96. The ampacity derating values proposed to be used at SSES are bounded with margin by the values determined in this test and the values ultimately accepted by the NRC (Reference 2). Phase I Visual Walkdowns and Phase II Destructive Examinations performed at SSES have verified that the SSES installed fire barrier configurations are bounded by those fire barrier configurations used in the ampacity derating testing by FPC.

3 Hour Installations (Upgraded with Thermo-Lag 770-1):

Ampacity derating values for 3 hour rated conduit, boxes and air drop enclosures at SSES are based on the ampacity derating testing performed by TVA under Project Nos. 11960 – 97337 & 97338. The ampacity derating values proposed to be used at SSES are bounded by the values determined in this test and the values ultimately accepted by the NRC (Reference 3). The tested configurations, consisting of a baseline 3 hour installation ($1^1/_8$" +/- $^1/_8$" with post-buttered joints) of Thermo-Lag 330-1 upgraded with two layers of Thermo-Lag 770-1 material, are consistent in details of construction with the baseline and

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[1] This value includes an additional 5.0% derate to cover non-standard configurations identified at SSES. The worst-case non-standard configuration identified at SSES is a single row of three power conduit in a common fire barrier enclosure.

[2] This value applies to raceway upgraded with two layers of Thermo-Lag 770-1. For raceway fire barriers abandoned-in-place that have not been upgraded with additional 770-1 material, the 10.7% value applies.

upgrade configurations being used at SSES. Phase I Visual Walkdowns and Phase II Destructive Examinations performed at SSES have verified that the SSES baseline configurations are bounded by the configurations tested by TVA.

3 Hour Installations (Abandoned-in-place; No upgrade material):

Ampacity derating values for 3 hour rated conduit, boxes and air drop enclosures at SSES are based on the ampacity derating testing performed by FPC under Project No. 95NK17030 report letter dated 5/7/96. The ampacity derating values proposed to be used at SSES are bounded with margin by the values determined in this test and the values ultimately accepted by the NRC. Phase I Visual Walkdowns and Phase II Destructive Examinations performed at SSES have verified that the SSES installed fire barrier configurations are bounded by those fire barrier configurations used in the ampacity derating testing by FPC.

Non–Standard Conduit

1 Hour Installations:

Ampacity derating values for 1 hour rated non-standard conduit enclosures at SSES are based on testing by TVA under Project No. 11960 - 97335. The ampacity derating values proposed to be used at SSES are bounded with margin by the values determined in this test and the values ultimately accepted by the NRC (Reference 3). Phase I Visual Walkdowns performed at SSES have verified that this non-standard tested configuration bounds the non-standard configurations at SSES.

3 Hour Installations:

Phase I Visual Walkdowns and Phase II Destructive Examinations performed at SSES have verified that there are no non-standard 3 hour installations at SSES.

Cable Tray and Wireway

The derating value for cable tray without covers is based on TUEC Ampacity Derating Test Report No. TUE 12340 - 95169. The derating value for cable tray with covers and wireway is based on the ampacity derating testing performed by FPC under Project No. 95NK17030 report dated 5/8/96. The ampacity derating values proposed to be used at SSES are bounded by the values determined in these tests and the values ultimately accepted by the NRC (Reference 4). Wireways at SSES are constructed with steel enclosures on all four sides and are considered to be similar to cable tray with covers. No non-standard SSES configurations involving cable tray or wireway were identified as a part of the walkdowns performed in conjunction with the destructive examinations. These ampacity derating values are considered to be applicable to both 1 and 3 hour installations. This conclusion is based on the results of the FPC Ampacity Derating Testing in which the same derating value was derived for both 1 and 3 hour installations. Phase I Visual Walkdowns and Phase II Destructive Examinations performed at SSES have verified that the SSES configurations are bounded by those used in the ampacity derating testing by FPC and TUEC.

Currently, deficiencies exist with certain 1 hour rated cable tray with tray covers installed at SSES. These cable trays have been evaluated under our Condition Report program and have been determined to have no near term effect on the ability of the cabling in these cable trays to perform their function. For the long term, these cable trays are being

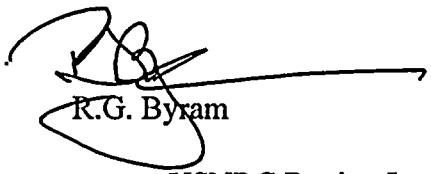
corrected as a part of our Thermo-Lag Raceway Fire Barrier Upgrade Project in one of two ways:

1. When the raceway fire barrier is no longer required based on our current Appendix R Safe Shutdown Analysis, the raceway fire barrier is being removed.

2. When the raceway fire barrier is still required by the safe shutdown analysis, the cable tray cover is being removed prior to upgrading the raceway fire barrier.

PP&L believes that this response provides final closure to the ampacity derating issue described in Generic Letter 92-08. Questions should be directed to Mr. R. R. Sgarro at (610) 774-7552.

Sincerely,



R.G. Byram

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Mr. S. L. Hansell, NRC Acting Sr. Resident Inspector - SSES
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Mr. R. V. Jenkins, NRC – OWFN