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AUTH.NAME AUTHOR AFFILIATION
LEVINE,J.M. Arizona Public Service Co. (formerly Arizona Nuclear Power
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SUBJECT: Provides status of activities associated w/resolution of GL 92-08, "Thermo-Lag 330-1 Fire Barriers."

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MAY

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Palo Verde Nuclear Generating Station

James M. Levine
Senior Vice President
Nuclear

TEL (602)393-5300
FAX (602)393-6077

Mail Station 7602
P.O. Box 52034
Phoenix, AZ 85072-2034

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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-37
Washington, DC 20555

References: 1) Letter dated February 7, 1994, from W. F. Conway, Executive Vice President, Nuclear, APS to USNRC

2) Letter dated March 28, 1995, from W. L. Stewart, Executive Vice President, Nuclear, APS to USNRC

3) Letter dated July 29, 1996, from W. L. Stewart, Executive Vice President, Nuclear, APS to USNRC

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Status of PVNGS Activities Associated with the Resolution of Generic Letter 92-08, Thermo-Lag 330-1 Fire Barriers

Provided for your information is a status of PVNGS activities associated with the resolution of Generic Letter 92-08, "Thermo-Lag 330-1 Fire Barriers." The following provides a summary of the major work activities completed to date, a description of the work remaining, and a schedule for completion of those work activities.

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FIRE ENDURANCE

The total population of Thermo-Lag barriers relied upon at PVNGS Units 1, 2, and 3 for Appendix R compliance has been decreased by approximately 85% by surface area relative to that which was originally reported to the NRC by letter dated February 7, 1994 (Reference 1). The reduction is supported by an Appendix R reanalysis. In accordance with that reanalysis, 470 linear feet (1410 square feet) of 1-hour conduit fire barriers and approximately 530 square feet of 1-hour junction box fire barriers are required to remain in place to meet Appendix R fire protection requirements. A physical upgrade to these Thermo-Lag 330-1 configurations is required to bring them into conformance with qualified 1-hour configurations. Engineering work and document preparation in support of these upgrades is complete with in-plant modification work remaining. Field modifications are scheduled and are planned to be completed by the end of the third quarter of 1997.

An engineering evaluation has been conducted and a 50.59 evaluation has been performed which concludes that, based on other defense-in-depth fire protection features, PVNGS no longer needs to credit the Thermo-Lag 330-1 barriers installed on Heating, Ventilation and Air Conditioning (HVAC) and cable tray supports.

COMBUSTIBILITY

APS has completed engineering activities associated with the combustibility of Thermo-Lag 330-1. A fire protection evaluation has been performed to address the combustibility of Thermo-Lag 330-1 installed throughout the plant. The addition of Thermo-Lag 330-1 to the fire combustible loadings had no adverse impact on the ability to achieve and maintain safe shutdown. As a result of this evaluation, one Thermo-Lag 330-1 enclosure which is no longer credited for Appendix R compliance will be removed in all three units. The removal of these enclosures will be completed during the next refueling outage for each unit.

A fire protection engineering evaluation has been performed to demonstrate the Thermolag 330-1 radiant energy heat shield for the auxiliary spray valve and associated circuitry in containment meets the requirements of Appendix R Section III.G.2.f. The evaluation demonstrates that a credible postulated fire in the fire zones containing the radiate energy heat shield

would not expose the Thermo-Lag 330-1 to a temperature in excess of 1000 ^{0}F and, thus, would not adversely affect the Thermo-Lag 330-1 or the circuitry enclosed within the Thermo-Lag 330-1.

SEISMIC

By letter dated March 28, 1995 (Reference 2), APS committed to performing destructive examinations to evaluate panel weight and density and to review raceway seismic calculations based on the results of these examinations. APS has completed the subject examinations and seismic calculations. The samples were taken from Thermo-Lag 330-1 which was originally installed to either achieve physical independence of electrical systems (Reg. Guide 1.75), meet 10 CFR 50 Appendix R, or installed as extra Thermo-Lag which was not required to meet licensing commitments. A total of 51 samples were obtained for evaluation which is representative of the total Thermo-Lag 330-1 population. The as-built weight and density data has been used to verify the adequacy of cable tray, conduit and HVAC support calculations. Engineering work has been completed and there are no unresolved issues.

PRODUCT CONSISTENCY

By letter dated July 29, 1996 (Reference 3), APS provided information to the NRC which closed out the issue of Thermo-Lag 330-1 product consistency. APS has participated in the Nuclear Energy Institute (NEI) industry test program and independently sent samples for laboratory testing to evaluate chemical composition as a means of addressing product consistency. As stated in the Reference 3 submittal, APS has concluded that the materials used to address technical concerns associated with Thermo-Lag 330-1 barriers are representative of the materials installed at PVNGS.

AMPACITY

APS has developed an analytical methodology for performing ampacity calculations. This methodology has been used to perform a detailed evaluation to demonstrate adequate available ampacity margin for cables in PVNGS Unit 1. Further analysis of approximately 50 non-Class 1E cable tray sections is in progress and will be completed by January 30, 1997. One Class 1E circuit has been identified as having insufficient ampacity

margin in that the circuit could operate at temperatures up to 93°C which is above its 90°C rating. This condition has been evaluated and represents a cable life issue as opposed to an immediate operability concern. The circuit of concern is the same circuit described above under combustibility for which the Thermo-Lag is no longer needed and will be removed.

APS currently anticipates that the evaluation performed for Unit 1 will bound Units 2 and 3. APS will verify the applicability of the Unit 1 ampacity calculation to Units 2 and 3 by the end of the second quarter of 1997. APS will provide a description of the analytical methodology and a sample calculation demonstrating application of the methodology by January 24, 1997.

APS proposes to meet with the NRC in February 1997 to provide a status of the resolution of Thermo-Lag 330-1 issues including information on the remaining work activities and a discussion on the ampacity methodologies which are being utilized at PVNGS.

Should you have any questions, please contact Scott A. Bauer at (602) 393-5978.

Sincerely,

James M. Levine

JML/SAB/NLT/rh

Enclosure

cc: L. J. Callan
K. E. Perkins
J. W. Clifford
K. E. Johnston