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 HOVEY,R.J. Florida Power & Light Co.  
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SUBJECT: Responds to follow-up to RAI re GL 92-02, "Thermo-Lag 330-1 Fire Barriers."

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JUN 28 1996

L-96-150  
10 CFR 50.54(f)

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
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Gentlemen:

Re: Turkey Point Units 3 and 4  
Docket Nos. 50-250 and 50-251  
Response to the Follow-Up Request for  
Additional Information - Generic Letter 92-08  
Thermo-Lag 330-1 Fire Barriers

By letter L-95-301, dated November 16, 1995, Florida Power and Light Company (FPL) provided the NRC Staff with the schedule and plans for resolution of the ampacity derating issue for Thermo-Lag fire barriers installed in Turkey Point Units 3 and 4, as requested in the NRC letter of September 29, 1995. FPL informed the NRC Staff that a copy of the Texas Utilities Comanche Peak Steam Electric Station, Unit 2, ampacity test reports had been obtained and would be used in evaluating the Turkey Point Units 3 and 4 installed Thermo-Lag configurations relative to the derating factors determined by the Texas Utilities testing. The purpose of this letter is to inform the NRC that the evaluation is complete and that it verifies the power cables to be adequately sized when the Texas Utilities ampacity derating factors are applied to Turkey Point configurations.

Ampacity derating for Turkey Point Units 3 and 4 was re-evaluated based on ampacity tests performed for Texas Utilities. Texas Utilities had ampacity derating tests performed at Omega Point Laboratories for raceways wrapped with a one hour rated Thermo-Lag 330-1 fire barrier. FPL evaluated the Texas Utilities test report and determined that the tested fire barrier configurations were representative of the one hour Thermo-Lag fire barriers installed at Turkey Point. The worst case derating factors extracted from the Texas Utilities test report are 11% for a one hour wrapped single conduit and 31% for a one hour wrapped cable tray. One hour wrapped banked conduits, which are banked in a single plane at Turkey Point, are considered to be equivalent to one hour wrapped cable trays and therefore also have a derating factor of 31%.

The Texas Utilities test report did not include three hour rated fire barrier testing. In order to establish derating factors for cables wrapped with three hour rated Thermo-Lag 330-1 fire barriers at Turkey Point, FPL performed calculations to extrapolate the one hour barrier test results to a three-hour barrier. The extrapolation was performed based on heat transfer calculations considering the thermal resistance from the conductor out to the ambient environment. The change in thermal resistance was calculated based on the documented physical properties of the Thermo-Lag material and the change in dimensions. Based on the calculated thermal resistance, an ampacity derating factor was determined for the three hour rated barriers. The results of this extrapolation resulted in a worst case derating factor of 20% for a three hour wrapped single conduit, 40% for three hour banked conduit and 40% for a three hour wrapped cable tray.

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In order to confirm that the testing performed for Texas Utilities bounded the raceway fill configurations at Turkey Point, the total heat generation per foot of raceway was calculated and compared to the test results. The heat generation was verified to be bounded by the tested configurations.

These derating factors represent the percent by which the maximum allowable current carrying capacity of power cables must be reduced by the application of Thermo-Lag. The derating factors were applied to power cables which are located within raceways wrapped with a one hour or three hour rated Thermo-Lag 330-1 fire barrier, as appropriate.

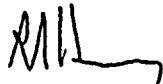
When the derating factors based on the Texas Utilities test report were applied to the Turkey Point Thermo-lag wrapped conduit configurations, FPL determined that the smallest margin between a power cable's derated current carrying capacity and its maximum anticipated load current was 25.1%, i.e., the cable's derated ampacity rating is 25.1% greater than the load current it is required to carry. For any power cable in a Thermo-Lag wrapped cable tray, the smallest margin was 9.46%. Based on these margins, the power cables installed in Thermo-Lag protected conduits and trays at Turkey Point Units 3 and 4 are adequately sized to carry anticipated load currents.

The re-evaluation of all Thermo-Lag wrapped conduits and trays performed and summarized in this letter confirms our previous position, contained in FPL letter L-95-074, dated March 24, 1995, which stated there is sufficient margin in the existing calculations with regard to ampacity derating. Our review of the Texas Utilities test report and our subsequent evaluation conclude that the test configurations are representative of the installed Turkey Point Thermo-Lag barrier configurations and that the power cables installed in Thermo-Lag protected conduits and trays are adequately sized.

This information is provided pursuant to the requirements of Section 182a of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.54(f).

Should there be any questions please contact us.

Very truly yours,



R. J. Hovey  
Vice President  
Turkey Point Plant

OIH/PKG

cc: S. D. Ebnetter, Regional Administrator, Region II, USNRC  
T. P. Johnson, Senior Resident Inspector, USNRC, Turkey Point  
Plant

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210

L-96-150  
Response to Follow-up Request for  
Additional Information Regarding Generic Letter 92-08

STATE OF FLORIDA            )  
                                  ) ss.  
COUNTY OF DADE            )

Robert J. Hovey being first duly sworn, deposes and says:

That he is Vice President, Turkey Point Plant,  
of Florida Power and Light Company, the Licensee herein;

That he has executed the foregoing document; that the statements  
made in this document are true and correct to the best of his  
knowledge, information and belief, and that he is authorized to  
execute the document on behalf of said Licensee.



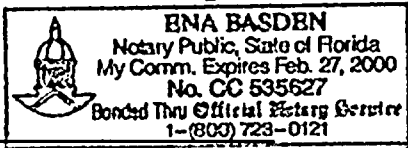
Robert J. Hovey

Subscribed and sworn to before me this

28<sup>th</sup> day of June, 1996.



Name of Notary Public (Type or Print)  
NOTARY PUBLIC, in and for the County of  
Dade, State of Florida



My Commission expires \_\_\_\_\_  
Commission No. \_\_\_\_\_

Robert J. Hovey is personally known to me.

211

211