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FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250  
50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251

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BOHLKE, W.H. Florida Power & Light Co.  
RECIP. NAME RECIPIENT AFFILIATION  
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SUBJECT: Provides util response to NRC RAI re validity & use of  
technical info provided by Thermal Science, Inc for  
resolution of fire barrier issues at plant.

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TITLE: Generic Letter 92-008 Thermal-Lag 330 Fire Barrier

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L-95-074  
10 CFR 50.54(f)

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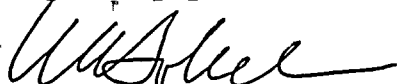
Re: Turkey Point Units 3 and 4  
Docket Nos. 50-250 and 50-251  
Response to Follow-Up to the Request for  
Additional Information - Generic Letter 92-08  
Thermo-Lag 330-1 Fire Barriers

By letter dated December 26, 1994, the NRC issued to Florida Power and Light Company (FPL) a request for additional information regarding Generic Letter (GL) 92-08, "Thermo-Lag 330-1 Fire Barriers." The December 26, 1994 letter requested information concerning the validity and use of technical information provided by Thermal Science, Incorporated for resolution of the fire barrier issues at Turkey Point Units 3 and 4.

In accordance with the NRC request, FPL provides the attached response. The attached 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 concerning this response, please contact us.

Very truly yours,

  
W. H. Bohlke  
Vice President  
Nuclear Engineering and Licensing

OIH

Attachment

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

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STATE OF FLORIDA       )  
                                  ) ss.  
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W. H. Bohlke being first duly sworn, deposes and says:

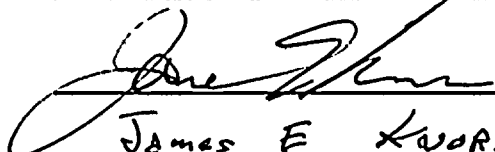
That he is Vice President, Nuclear Engineering and Licensing, of Florida Power and Light Company, the Licensee herein;

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.

  
W. H. Bohlke

Subscribed and sworn to before me this

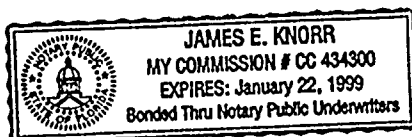
24<sup>th</sup> day of March, 1995.

  
James E Knorr  
Name of Notary Public (Type or Print)

NOTARY PUBLIC, in and for the County of  
Dade, State of Florida

My Commission expires Jan 22 1999  
Commission No. CC 434300

W. H. Bohlke is personally known to me.



RESPONSE TO NRC REQUEST FOR  
ADDITIONAL INFORMATION REGARDING GENERIC LETTER 92-08  
"THERMO-LAG 330-1 FIRE BARRIERS"

NRC REQUESTED INFORMATION: QUESTION 1.A

Describe the specific tests and analyses that will be performed to verify that the Thermo-Lag fire barrier materials that are currently installed at Turkey Point Units 3 and 4, or that will be installed in the future, are representative of the materials that were used to address the technical issues associated with Thermo-Lag barriers and to construct the fire endurance and ampacity derating test specimens. The tests and analyses shall address the material properties and attributes that were determined or controlled by TSI during the manufacturing process and the quality assurance program. The tests and analyses shall also address the material properties and attributes that contribute to conclusions that the Thermo-Lag materials and barriers conform to NRC regulations. These include:

- (1) chemical composition
- (2) material thickness
- (3) material weight and density
- (4) the presence of voids, cracks, and delaminations
- (5) fire endurance capabilities
- (6) combustibility
- (7) flame spread rating
- (8) ampacity derating
- (9) mechanical properties such as tensile strength, compressive strength, shear strength, and flexural strength.

FPL RESPONSE - QUESTION 1.A:

FPL is currently participating in the effort initiated and sponsored by the Nuclear Energy Institute (NEI) to determine the fire rating of the installed Thermo-Lag material as well as determining modifications necessary to restore the Thermo-Lag fire barriers to their required rating. This program has included chemical composition testing of materials from plant stock as well as material used for testing purposes. The conclusions of the chemical testing laboratory were that no significant variation in composition existed for any of the tested samples. Other testing has included fire endurance, flame spread, and combustibility.

A significant quantity of testing has been performed by NEI and member utilities with no indication of inconsistencies with the material. FPL is participating in the effort sponsored by NEI to further verify the chemical composition of Thermo-Lag materials. The NEI effort includes testing a number of samples from various participating plants, including Turkey Point Units 3 and 4. The results of this testing will provide a basis for comparison to the industry fire test data and to confirm applicability of generic test data with respect to fire endurance capability, combustibility, flame spread, heat release and ampacity.

FPL concurs with NEI's position that all chemical testing should be performed to the same protocol as the previous NEI chemical testing method (i.e., pyrolysis gas chromatography), so as to provide a consistent generic basis for comparison. NEI's approach, by use of a generic pool, will cover a larger population of lot numbers and provide greater assurance of material consistency. NEI has agreed to function as a clearinghouse for the chemical test data and will provide the results to the NRC in a generic fashion.

NEI and other utilities have performed extensive testing in order to determine various capabilities of the Thermo-Lag 330 material. It is FPL's and NEI's position that only chemical analysis of a small number of plant specific samples is necessary to provide a reasonable assurance as to the applicability of the generic industry testing. Material properties and attributes such as fire endurance capability, flame spread, combustibility, etc., can be determined by the generic test data collected by NEI.

Information on the mechanical properties of Thermo-Lag installations do not relate to fire barrier performance, but rather to integrity under normal service applications and seismic considerations. FPL treats fire barriers as seismic Category II/I. Mechanical properties of Thermo-Lag are not significant in terms of seismic integrity as opposed to the actual installation (i.e., location of tie wires, banding and other attachment methods). Mechanical properties are expected to vary only if chemical composition deviated.

The issues of material thickness and installation are addressed in FPL's response to Question 2 below.

Ampacity derating has been addressed by FPL in existing calculations. FPL believes that there is sufficient margin in these calculations with regard to ampacity derating to bound any testing which may be performed. After an acceptable plan and test methodology have been established and agreed upon, and testing has been performed, FPL will review test results to determine if there is any impact on ampacity derating calculations.

#### NRC REQUESTED INFORMATION - QUESTION 1.B

Describe the methodology that will be used to determine the sample size and demonstrate that the sample size will be large enough to ensure that the information and data obtained will be sufficient to assess the total population of in-plant Thermo-Lag barriers and the materials that will be installed in the future. In determining the sample size, consider the time of installation and manufacture of the various in-plant materials and barrier installations. Give the number and types (e.g., panels, conduit preshapes, trowel-grade material, stress skin) of samples that will be tested or analyzed.

**FPL RESPONSE - QUESTION 1.B**

As discussed above, FPL is participating in the NEI effort to verify the composition of installed Thermo-Lag materials. The NEI effort includes testing a number of samples from various participating plants, including Turkey Point Units 3 and 4. FPL concurs with NEI's position that, based on the testing that has been performed, only chemical analysis of a small number of plant specific samples is necessary to determine composition. Material properties and attributes such as fire endurance capability, flame spread, combustibility, etc., can be determined based on the generic test data collected by NEI. Inspection of samples from TSI and utilities following performance of fire testing indicate no variations in material fire endurance capability as a function of manufacture date.

FPL is providing seven Thermo-Lag samples from Turkey Point Units 3 and 4 in accordance with NEI's test program. Since Turkey Point Units 3 and 4 have shared facilities, such as the Auxiliary Building, one set of samples was determined to be sufficient for chemical testing. Of the seven samples, five are taken from "vintage" Thermo-Lag as prescribed by NEI (i. e., 1-hour conduit, 1-hour panel, 3-hour conduit, 3-hour panel, and trowel grade). The other two samples are taken from Thermo-Lag which was installed during the 1990-91 Dual Unit Outage. As only one-hour rated Thermo-Lag was installed, samples from a 1-hour conduit and a 1-hour panel were determined to be sufficient. The Thermo-Lag sampling is adequate, as this represents all of the "types" of Thermo-Lag used at Turkey Point. Therefore, the Turkey Point samples are considered to be representative and to bound installations in the plant.

**NRC REQUESTED INFORMATION - QUESTION 1.C**

Submit the schedule for verifying the Thermo-Lag materials.

**FPL RESPONSE - QUESTION 1.C**

Thermo-Lag samples from Turkey Point Units 3 and 4 are being forwarded to the NEI specified testing laboratory. This sampling was performed based on the guidelines provided in the NEI letter dated February 3, 1995.

**NRC REQUESTED INFORMATION - QUESTION 1.D**

After the analyses and tests have been completed, submit a written supplemental report that confirms that this effort has been completed and provide the results of the tests and analyses. Describe any changes to previously submitted plans or schedules that result from the tests or analyses.

**FPL RESPONSE - QUESTION 1.D**

Test data and results from the chemical testing will be provided from NEI generically. FPL will submit a supplemental report to confirm that the analyses and testing have been completed. Issues specific to Turkey Point will be discussed in the supplemental report.

**NRC REQUESTED INFORMATION - QUESTION 2.A**

Describe the examinations and inspections that will be performed to obtain the important barrier parameters given in Section II of the RAI of December 1993 for the Thermo-Lag fire barrier configurations installed at Turkey Point Units 3 and 4.

**FPL RESPONSE - QUESTION 2.A**

As discussed in FPL letter L-94-24, dated February 7, 1994, FPL is currently performing field walkdowns and destructive examinations of Thermo-Lag fire barriers (pull boxes and conduits) to verify installed configurations and important barrier parameters. This effort includes both indoor and outdoor Thermo-Lag fire barriers.

**NRC REQUESTED INFORMATION - QUESTION 2.B**

Describe the methodology that will be applied to determine the number and type of representative in-plant fire barrier configurations that will be examined in detail and demonstrate that the sample size is adequate to ensure that the information and data that will be obtained are adequate to assess the total population of in-plant Thermo-Lag barriers. A large enough sample of the total population of configurations should be examined to provide reasonable assurance that the materials and important barrier parameters used to construct the in-plant barriers and any future barrier installations or modifications, are representative of the parameters used to construct the fire endurance test specimens.

**FPL RESPONSE - QUESTION 2.B**

FPL has performed walkdowns to verify in-plant fire barrier configurations. Destructive examination of fire barriers is currently limited to Thermo-Lag which has been identified for repair as part of the on-going Thermo-Lag inspection/repair program, or has been determined through evaluation as not being required. FPL believes that this sampling is adequate for verifying in-plant fire barrier configurations for the following reasons:

- 1) At Turkey Point, the installation of Thermo-Lag fire barriers has been performed by qualified and trained personnel in accordance with approved procedures. The approved procedures provide guidance for Thermo-Lag installation to assure that important installation criteria are met. Quality Control (QC) inspection provides independent confirmation that the fire barrier installation meets or exceeds the requirements of the installation procedures. Section II of the December 1993 RAI identified critical barrier parameters which were part of the original installation procedure, but not necessarily part of the QC inspection. Limited sampling of fire barriers is being performed to assure that these additional parameters are met.
- 2) The destructive testing which has been performed has shown the barriers to be well constructed, having met or exceeded the installation guidelines.





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- 3) The random and excessive destructive testing of Thermo-Lag fire barriers poses an undue burden on the plant. Additional destructive testing of fire barriers, and the costs and manpower associated with replacement of these barriers, is not considered an effective, or necessary use of plant resources.

**NRC REQUESTED INFORMATION - QUESTION 2.C**

Submit the schedule for obtaining and verifying all of the important barrier parameters.

**FPL RESPONSE - QUESTION 2.C**

FPL will complete the verification of important Thermo-Lag fire barrier parameters by June 30, 1995.

**NRC REQUESTED INFORMATION - QUESTION 2.D**

After the information has been obtained and verified, submit a written supplemental report that confirms that this effort has been completed and provide the results of the examinations and inspections. Verify that the parameters of the in-plant configurations are representative of the parameters of the fire endurance test specimens. Describe any changes to previously submitted plans or schedules that result from the examinations.

**FPL RESPONSE - QUESTION 2.D**

FPL will submit a supplemental report to confirm that the important barrier parameters and fire barrier configurations have been verified. Based on a satisfactory resolution of the important fire barrier parameters issue and concerns related to the use of the NEI application guide, FPL will reassess and describe its plans for resolution of Thermo-Lag issues and any changes to previously submitted plans or schedules. FPL expects to complete these activities by November 15, 1995.

