P.O. Box 128, Ft. Pierce, FL 34954-0128

October 27, 1995

L-95-286
10 CFR 50.4

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

RE: St. Lucie Units 1 and 2
Docket No. 50-335 and 50-389
Generic Letter 92-08 - Supplemental Information

A supplemental response to the additional information you requested from Florida Power and Light Company (FPL) on the material properties and attributes of the Thermo-Lag 330-1 used at St. Lucie is attached. The original St. Lucie response to Generic Letter (GL) 92-08, *Thermo-Lag 330-1 Fire Barriers*, was submitted by FPL letter, L-93-96 on April 16, 1993, and supplemented in response to your requests for additional information (RAI) dated December 20, 1993, August 9, 1994, and December 28, 1994, by FPL letters, L-94-33 dated February 11, 1994, L-94-104 dated April 29, 94, L-94-275 dated November 4, 1994, and L-95-101 dated March 28, 1995.

The previous plans and schedules were based on the projected industry efforts. On October 3, 1995, Alex Marion to G. M. Holahan, Nuclear Energy Institute (NEI) submitted the results of the industry test program on Thermo-lag material properties to the NRC. Completion of that industry activity enables FPL to update the NRC on the status of our efforts.

This letter replaces previous schedules and plans for the resolution of the Thermo-Lag fire barrier issues based on the NEI Thermo-lag material test results, the use of the *NEI Application Guide for Evaluation of Thermo-Lag 330 Fire Barrier Systems*, and plant specific fire barrier testing and evaluations completed to date.

Please contact us if there are any questions about this submittal.

Very truly yours,

D. A. Sager
Vice President
St. Lucie Plant

DAS/GRM

Attachment

cc: Stewart D. Ebneter, Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, St. Lucie Plant

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St. Lucie Units 1 and 2
Docket No. 50-335 and 50-389
Generic Letter 92-08 - Supplemental Information

FPL responded to the December 28, 1994, NRC request for additional information (RAI) in a letter to the NRC dated March 28, 1995. Those NRC questions that need an updated response are provided below.

NRC REQUEST 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 St. Lucie 1 and 2, 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 1.a

FPL has participated in a generic industry test program managed by the Nuclear Energy Institute (NEI). As part of the NEI test program, a pyrolysis gas chromatographic method using a mass selective detector was developed to qualitatively compare the organic constituents of various Thermo-Lag samples on an industry wide basis. Samples were received from 18 utilities representing 25 power plants including 9 samples from St. Lucie Plant. Also included in this comparison were samples previously analyzed for the NEI testing program. To date 169 samples have been compared with Thermal Science Incorporated (TSI) lot numbers known for 57 of these samples representing material manufactured from 1984 to 1995. The remainder of the samples were from installed Thermo-lag. Results of the test program were submitted to the NRC by the October 3, 1995, NEI letter.

The NEI test program verified that all the samples tested are consistent in terms of chemical composition. Further, since the chemical composition of the material is consistent between the as-installed and the as-tested configurations, the remaining tested properties listed below are also valid:

- material thickness
- material weight and density
- the presence of voids, cracks, and delaminations
- fire endurance capabilities
- combustibility
- flame spread rating
- ampacity derating
- mechanical properties such as tensile strength, compressive strength, shear strength, and flexural strength.

Note that the following Thermo-Lag issues continue to be investigated:

i. Wall-type configurations have been independently tested by Vectra Technologies. The "fire endurance capabilities" for specific St. Lucie Plant wall-type configurations are being addressed by FPL as part of item 2.d.3.

ii. Due to the issue of Thermo-Lag material as a combustible, its continued use in radiant heat shield applications at St. Lucie Plant is currently being analyzed as part of item 2.d.3.

iii. "Ampacity derating" will be addressed by the FPL response to the October 9, 1995, NRC RAI on the same subject.

NRC REQUEST 1.c:

Submit the schedule for verifying the Thermo-Lag materials.

FPL Response 1.c

Results of the generic industry chemical composition testing were submitted to the NRC by NEI letter dated October 3, 1995. This completes FPL's activities for this effort.

NRC REQUEST 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 1.d

Results of the generic industry test program were submitted to the NRC by NEI letter dated October 3, 1995. The results for St. Lucie Plant are consistent with industry results, in that, the chemical composition is consistent with other utility and testing samples.

NRC REQUEST 2.d:

After the information has been obtained and verified, submit a written supplemental report that confirms that this effort has been completed and provides 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 2.d

The information schedules in this letter supersede and replace the schedules and activities provided in FPL letters L-93-96 dated April 16, 1993, L-94-33 dated February 11, 1994, L-94-104 dated April 29, 1994, L-94-275 dated November 4, 1994 and L-95-101 dated March 28, 1995. The current FPL activities for resolving Thermo-Lag concerns are listed below:

1 DETERMINATION OF REQUIRED APPENDIX R BARRIERS

Analysis has identified 10 functions on Unit 1 and 12 functions on Unit 2 which are required to be protected in accordance with NRC fire protection rules. This analysis was completed prior to April 28, 1995. (Note that Thermo-Lag is installed as a fire barrier for each of these functions.) In addition, applications of Thermo-Lag material installed to meet Regulatory Guide 1.75 commitments have been identified and are being analyzed with respect to its ability to satisfy Regulatory Guide 1.75.

2 RACEWAY BARRIER RATING AND ALTERNATIVES SELECTION

Rating of Thermo-Lag raceway fire barriers and verification of barrier parameters will be performed (using the NEI application guide) for some of the functions identified in 1 above. For other functions, various options are under review that do not include the use of Thermo-Lag fire barrier materials such as re-routing electrical circuits, use of alternate fire barrier materials and operator actions. These analyses are expected to be completed by May 31, 1996 for Unit 2 and January 31, 1997 for Unit 1.

3 RE-QUALIFICATION OF WALL-TYPE CONFIGURATIONS

The "one-hour" test for Thermo-Lag wall-type configurations was completed in January, 1995 and an additional "three-hour"

test was completed in June, 1995. The installed Thermo-Lag wall-type configurations are in the process of being re-qualified using these test results. FPL will be able to determine the acceptability of wall-type configurations upon completion of this re-qualification effort. This activity is expected to be finished by May 31, 1996 for Unit 2 and January 31, 1997 for Unit 1.

In addition, analysis that addresses the method to resolve the combustibility issue for Thermo-Lag radiant heat shields is expected to be completed by May 31, 1996 for Unit 2 and January 31, 1997 for Unit 1.

4 SAFETY EVALUATIONS AND EXEMPTION REQUESTS

At the completion of the activities identified in 2.d.1, 2.d.2, and 2.d.3, evaluations and/or exemptions will be prepared to support revisions to the Safe Shutdown Analysis in accordance with either 10 CFR 50.59, or 10 CFR 50.12, as appropriate. Exemptions for Unit 2 are expected to be submitted on or before August 30, 1996. Exemptions for Unit 1 are expected to be submitted on or before April 30, 1997. Evaluations are expected to be completed consistent with the schedules in activity 2.d.6 below.

5 PLANS AND SCHEDULE UPDATE

An updated response will be provided by August 30, 1996. In this response, FPL will provide a status of outstanding issues involving Thermo-Lag material (e.g., ampacity derating), identify exemption requests and update schedules for implementing modifications that will be required to bring the Thermo-Lag materials issues to closure.

6 IMPLEMENTATION AND CLOSURE

Any necessary modifications are anticipated to be implemented for Unit 2 during the Cycle 10 refueling outage currently scheduled for the Spring 1997 and for Unit 1 during the Cycle 15 refueling outage currently scheduled for the Spring 1998. FPL expects that final implementation, closure of all Thermo-Lag material issues, and submittal of a summary report will be concluded 180 days after these respective unit outages.

May 20th

FPL will continue to track industry developments regarding the acceptability of Thermo-Lag material. FPL will advise/update the NRC Project Manager on the status of the above work plan as appropriate.