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PLUNKETT,T.F. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
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SUBJECT: Responds to RAI re GL 92-08, "Thermo-Lag 330-1 Fire Barriers" issued by NRC on 931220,to help insure timely resolution of fire barrier at facility Units 2 & 3.

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MAF

FPL

DEC 16 1994

L-94-306
10 CFR 50.54(f)

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

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

A request for additional information regarding Generic Letter (GL) 92-08, "Thermo-Lag 330-1 Fire Barriers" was issued by the NRC on December 20, 1993, to help insure timely resolution of the fire barrier issues at Turkey Point Units 3 and 4. By letter L-94-24, dated February 7, 1994, Florida Power and Light Company (FPL) provided the response relative to the Turkey Point Plant.

A follow-up to the request for additional information regarding GL 92-08 was issued by the NRC on September 19, 1994. In accordance with the NRC request, FPL provides the attached response relative to the Turkey Point Plant. The attached response supersedes FPL's response provided by letter L-94-24.

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,

T. F. Plunkett
Vice President
Turkey Point Plant

TFP/OIH

Attachment

cc: Stewart D. Ebneter, Regional Administrator, Region II, USNRC
T. P. Johnson, Senior Resident Inspector, USNRC

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PDR ADOCK 05000250
P PDR

A029

STATE OF FLORIDA)
) ss.
COUNTY OF DADE)

T. F. Plunkett 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.

T. F. Plunkett

Subscribed and sworn to before me this

16 day of Dec, 1994.

Cheryl A. Kelly

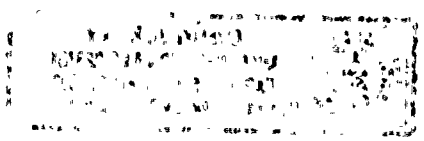
Name of Notary Public (Type or Print)

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

CHERYL A. KELLY
MY COMMISSION # CC 223781
EXPIRES: September 27, 1996
Bonded Thru Notary Public Underwriters

My Commission expires_____
Commission No. _____

T. F. Plunkett is personally known to me.



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

BACKGROUND

The NRC began a review of the Thermo-Lag 330-1 fire barrier system fire endurance and ampacity derating test reports, installation procedures, and as-built configurations after receiving reports from Gulf States Utilities about failed qualification tests and installation problems. The NRC later conducted a series of fire tests of 1-hour and 3-hour Thermo-Lag prefabricated panels to assess the fire performance of these panels. The results of these fire barrier tests raised additional concerns about the ability of the Thermo-Lag 330-1 fire barriers to provide a level of fire protection in accordance with their specified fire-resistance ratings.

As a result of these concerns, the NRC initially issued Information Notice (IN) 92-46 (Reference 1) and Bulletins 92-01 and 92-01, Supplement 1, (Reference 2). Later the NRC issued Generic Letter 92-08 (Reference 3) to document the principal areas of concern that the NRC had regarding the qualification and application of Thermo-Lag 330-1. Generic Letter 92-08 requested a written response from all Operating or Construction Permit licensees under the requirements of 10 CFR 50.54(f). Under Generic Letter 92-08, each licensee was required to provide technical/licensing information to the NRC, which addressed the qualification, application and configuration of 1-hour and 3-hour Thermo-Lag 330-1 fire barrier systems installed at each licensed facility to meet the requirements of 10 CFR 50.48.

In response to Generic Letter 92-08, FPL provided its response by letter L-93-75, dated April 6, 1993 (Reference 4). In the FPL response to Generic Letter 92-08, specific plant resolution of the Thermo-Lag concerns was deferred until after completion of a Nuclear Energy Institute (NEI - formerly NUMARC) coordinated testing program. The NEI test results were to be used to determine any required plant configuration modifications. Subsequently, in early December, the NRC became concerned that the scope of the NEI testing would not be sufficient to resolve all Thermo-Lag barrier issues identified in Generic Letter 92-08.

In response to these growing NRC concerns, the NRC requested additional information to supplement their Generic Letter 92-08 requests; this Request for Additional Information Regarding Generic Letter 92-08 was contained within the NRC's correspondence of December 20, 1993 (Reference 5). In response to this supplemental NRC request, FPL provided a response by letter L-94-24, dated February 7, 1994 (Reference 7). FPL responded to this NRC request for additional information by providing additional details of the qualification and application of Thermo-Lag 330-1 fire barriers at Turkey Point Units 3 and 4.

Since NEI Thermo-Lag testing and development of a Thermo-Lag application guide had not been completed at the time of FPL's supplemental response (Reference 7), portions of this FPL supplemental response to the NRC were deferred pending completion of the NEI testing program, completion of the NEI Thermo-Lag application guide, and completion of the NRC's review of an FPL proposed performance-based approach for resolution of all Thermo-Lag technical concerns for Turkey Point (Reference 8). In a May 20, 1994 briefing session (SECY-94-127) the NRC Staff informed the Commission of four options which the Staff was considering for resolution of Thermo-Lag fire barrier technical issues. During this NRC briefing session, the Commission approved a Staff recommendation to return plants to compliance with existing NRC requirements and to permit plant-specific exemptions from Appendix R where they could be technically justified. Thus, no further NRC consideration of any performance-based approach could be expected from the NRC.

Following this NRC Commission decision, the NRC forwarded a second follow-up request for information pursuant to 10 CFR 50.54(f), which was contained within their correspondence of September 19, 1994 (Reference 8).

This amended FPL response will serve to supplement and update FPL's initial response to NRC Generic Letter 92-08 and respond to the original NRC request for additional information as required in the NRC's follow-up correspondence of September 19, 1994 (Reference 9).

APPROACH FOR RESOLUTION

FPL has revised its approach for the resolution of identified Thermo-Lag technical issues consistent with the NRC Policy Issue on Thermo-Lag (SECY-94-127). This revised approach includes the following specific actions:

1. Abandonment of the "performance-based approach" for resolution of Thermo-Lag technical issues;

2. Re-evaluation of selected circuits protected by Thermo-Lag to confirm that they are required under 10 CFR 50, Appendix R criteria to achieve and maintain safe shutdown;

3. Perform assessments of fire barrier capabilities for protected circuits that are required for safe shutdown using the NEI Application Guide. Critical design parameters and test data information will be extracted from the NEI Application Guide. The assessments for fire barrier ratings will be based on entire raceway assemblies (i.e., horizontal runs, vertical runs, elbows, bends, couplings, etc.), where practical. Specific components (e.g., junction boxes) will be evaluated separately where they were not tested with the raceway assemblies;

4. Re-evaluation of the protection features of each fire area to establish that compliance with 10 CFR 50, Appendix R, has been achieved;

5. Preparation and submittal of Appendix R exemption request(s), where an evaluation can establish a sound technical basis for the exemption(s); and

6. Implementation of plant modifications, where necessary to achieve compliance with the requirements of Appendix R.

NRC REQUESTED INFORMATION - ITEM I.B.1

Describe the Thermo-Lag 330-1 barriers installed in the plant to

a. meet 10 CFR 50.48 or Appendix R to 10 CFR Part 50,

b. support an exemption from Appendix R,

c. achieve physical independence of electrical systems,

d. meet a condition of the plant operating license,

e. satisfy licensing commitments.

The descriptions should include the following information: the intended purpose and fire rating of the barrier (for example, 3-hour fire barrier, 1-hour fire barrier, radiant energy heat shield), and the type and dimension of the barrier (for example, 8-ft by 10-ft wall, 4-ft by 3-ft by 2-ft equipment enclosure, 36-inch-wide cable tray, or 3-inch-diameter conduit).

FPL RESPONSE - ITEM I.B.1

Turkey Point Units 3 and 4 were licensed to operate prior to January 1, 1979 and are required to meet 10 CFR 50.48 and 10 CFR 50, Appendix R, Sections III.G, J and O. Thermo-Lag 330-1 material was used for raceway fire-proofing to meet the separation requirements of 10 CFR 50, Appendix R, Section III.G.

The information contained in the following response to the Items in I.B was carefully developed as described below:

1. First, raceways listed in the Turkey Point Safe Shutdown Analysis were reviewed along with information from other approved engineering documentation. From those reviews 1-hour and 3-hour barrier requirements were extracted. The resulting information was used as the master listing for the information presented.

2. No cable tray fire barriers are required, and no radiant energy wall barriers are constructed with Thermo-Lag at the Turkey Point Plant. The conduit that is wrapped within containment is constructed using a 1-hour Thermo-Lag fire barrier design, which has been tabulated under the response to Item I.B.2 with the 1-hour conduit wrap. However, the requirements for fire protection design inside containment need only meet 10 CFR 50, Appendix R, Section III.G.2.f for radiant energy shields.

3. Conduits are protected with 1 and 3-hour rated fire barriers to meet the Appendix R, III.G.2 requirements. Conduits of the following diameters are protected by pre-formed Thermo-Lag conduit wraps: 3/4", 1", 1-1/2", 2", 3", and 4".

4. Electrical pull and terminal boxes are used to meet III.G.2 requirements. The 1-hour rated Thermo-Lag material is used to build enclosures around these electrical boxes, which have the following dimensions (dimensions are arranged height x width x length in inches):

6 x 6 x 828	24 x 24 x 12
6 x 6 x 1080	24 x 24 x 6
8 x 36 x 8	24 x 24 x 8
12 x 10 x 6	24 x 24 x 12
12 x 12 x 6	30 x 24 x 10
12 x 24 x 48	30 x 36 x 6
12 x 40 x 12	36 x 24 x 8
16 x 12 x 6	36 x 30 x 12
18 x 24 x 12	36 x 30 x 8
20 x 16 x 6	36 x 30 x 16
20 x 16 x 8	36 x 36 x 12
20 x 20 x 6	36 x 36 x 16
20 x 36 x 6	48 x 36 x 16
24 x 20 x 8	48 x 48 x 24

5. In addition to the 1-hour barriers identified above, various 3-hour Thermo-Lag fire barriers are installed. 3-hour rated Thermo-Lag material was used to build enclosures around this group of electrical boxes, which have the following dimensions (dimensions are arranged height x width x length in inches):

24 x 24 x 8	24 x 20 x 8
24 x 20 x 12	36 x 30 x 8

6. Thermo-Lag was used to seal two concrete wall openings (Opening 061W-H001/ 063W-H001: 2'-4" wide by 1'-7" high; and Opening 062W-H001: 1'-6" wide by 1'-6" high) to prevent the spread of fire from one fire area to another. These barriers are 3-hour rated barriers.

7. Thermo-Lag was used to seal wall penetrations where several reach-rod hand wheels for manual valves extend through concrete walls. It has been estimated that the total amount of Thermo-Lag is about 10 square feet per unit for a total of no more than 20 square feet. These barriers are 3-hour rated barriers.

NRC REQUESTED INFORMATION - ITEM I.B.2

For the total population of Thermo-Lag fire barriers described under Item I.B.1, submit an approximation of:

a. For cable tray barriers: the total linear feet and square feet of 1-hour barriers and the total linear feet and square feet of 3-hour barriers.

b. For conduit barriers: the total linear feet of 1-hour barriers and the total linear feet of 3-hour barriers.

c. For all other fire barriers: the total square feet of 1-hour barriers and the total square feet of 3-hour barriers.

d. For all other barriers and radiant energy heat shields: the total linear or square feet of 1-hour barriers and the total linear or square feet of 3-hour barriers, as appropriate for the barrier configuration or type.

FPL RESPONSE - ITEM I.B.2.

Based on a review of controlled engineering drawings, the following approximate amounts of Thermo-Lag fire barriers described under Item I.B.1 were identified:

BARRIER TYPE	1-HOUR LF	1-HOUR SqFt	3-HOUR LF	3-HOUR SqFt
Trays	N/A	N/A	N/A	N/A
Conduits	14,608 (Note 1)	N/A	602	N/A
Banked Conduits (Incl. w/conduits)	341 (Ref. 6)	N/A	N/A	N/A
Terminal & Pull Box Barriers	N/A	1,287	N/A	116
Radiant Heat Shields	N/A	N/A	N/A	N/A
Walls & Ceilings	N/A	N/A	N/A	$\leq$ 38

NOTES : (1) The quantity of banked conduits (341 linear feet) has been included within the overall number of linear feet of conduit (i.e., 14,608 linear feet).

(2) The estimated quantities of Thermo-Lag identified in the above tabulation do not include the Thermo-Lag covering the intervening and attached steel supports for conduits and boxes.

(3) "N/A" in the above tabulation stands for Not Applicable.

Because FPL's re-evaluation of Thermo-Lag fire barriers continues, it is anticipated that the above approximate quantities and associated applications for Thermo-Lag will change as work progresses.

NRC REQUESTED INFORMATION - ITEM II.B.1

State whether or not you have obtained and verified each of the aforementioned parameters for each Thermo-Lag barrier installed in the plant. If not, discuss the parameters you have not obtained or verified. Retain detailed information on site for NRC audit where the aforementioned parameters are known.

FPL RESPONSE - ITEM II.B.1

FPL is reviewing engineering, construction, and quality records to determine how Thermo-Lag was installed and inspected. Information from installation records, such as, drawings, installation procedures, installation guidelines and installation specifications are being used in evaluations for the fire rating of Turkey Point Thermo-Lag installations.

In addition, field walkdowns and destructive testing of selected Thermo-Lag fire barriers have been performed. A listing of the critical design and installation parameters being evaluated in accordance with the NEI Application Guide, is provided below. These critical parameters are being evaluated to determine the fire barrier ratings, and include all those parameters identified in Item II.A of the NRC "Request for Additional Information Regarding Generic Letter 92-08" (Reference 5) that are applicable to the Turkey Point Thermo-Lag installations.

PARAMETERS for CONDUITS:

Commodity Parameters - Size, Material, Contents/Total Enclosed Mass, Orientation.

Barrier Parameters - Material Type, Material Thickness, Stress Skin Location, Joint Type, Joint Gap, Fastener Size/Material, Fastener Spacing, Fastener Distance from Joints, Joint Reinforcement Mechanisms, Structural Support and Intervening Steel Protection, Box/Conduit Interface and Hose Stream Test Performance.

PARAMETERS for BOXES:

Commodity Parameters - Size, Material, Contents/Total Enclosed Mass, Orientation.

Barrier Parameters - Material Type, Material Thickness, Stiffener (V-rib) Location/ Orientation, Stress Skin Location, Joint Type, Joint Gap, Unsupported Barrier Spans, Internal Support Mechanisms, Fastener Size/Material, Fastener Spacing, Fastener Distance from Joints, Fastener Edge Guards, Joint Reinforcement Mechanisms, Structural Support and Intervening Steel Protection, Boxed Enclosure Location and Hose Stream Test Performance.

FPL is evaluating the Thermo-Lag covered raceways using barrier test criteria, such as that from the ASTM E-119 Standard. It is not FPL's intention to rely on further cable functional testing to justify particular cable configurations. To the extent that fire test results are satisfactory on the basis of temperature, as provided in the NRC draft test and acceptance criteria, it is FPL's position that the listed cable performance parameters need not be considered further.

In response to the question of chemical testing of the Thermo-Lag material, FPL does not consider this necessary for the following reasons: (1) chemical testing performed by NEI on a wide variety of age samples has not yet revealed significant variations in chemical composition, and (2) it is our understanding that industry and NRC audits of Thermal Science, Inc. have not found any significant deficiencies in the vendor's industrial quality assurance program.

FPL continues to work closely with NEI in the Thermo-Lag program. Based on our assessment of the previous NEI initiatives in combination with the FPL approach, we are anticipating that these efforts will be sufficient to resolve the Thermo-Lag fire barrier issues identified in Generic Letter 92-08 for the Turkey Point Plant.

NRC REQUESTED INFORMATION - ITEM II.B.2

For any parameter that is not known or has not been verified, describe how you will evaluate the in-plant barrier for acceptability.

FPL RESPONSE - ITEM II.B.2

FPL has installed Thermo-Lag barriers in the Turkey Point Plant in accordance with vendor recommended installation practices. A final listing of the critical design parameters that FPL is evaluating Thermo-Lag installations against is provided above. We have performed in-place destructive examinations and walkdowns and are performing evaluations for the fire rating of the Turkey Point Thermo-Lag installations. Additional destructive examinations may be performed as FPL deems necessary.

NRC REQUESTED INFORMATION - ITEM II.B.3

To evaluate NUMARC's [currently NEI] application guidance, an understanding of the types and extent of the unknown parameters is needed. Describe the type and extent of the unknown parameters at your plant in this context.

FPL RESPONSE - ITEM II.B.3.

A listing of the critical design features against which FPL is evaluating Thermo-Lag installations is provided above in Item II.B.1. Detailed fire barrier destructive examinations have been performed on selected configurations to identify those critical design features.

NRC REQUESTED INFORMATION - ITEM III.B.1

Describe the barriers discussed under Item I.B.1 that you have determined will not be bounded by the NUMARC [currently NEI] test program.

FPL RESPONSE - ITEM III.B.1

In addition to the individual raceway (i.e., conduit and pull/terminal boxes) sections protected with Thermo-Lag 330-1 fire barriers, which are bounded by the NEI test configurations, there are several sections of 'banked' conduits protected with Thermo-Lag. The necessity to have 'banked' conduit runs was created during the 1990-1991 Dual Unit Outage during which conduit sections required to be protected were routed in closer proximity than were addressed by standard Thermo-Lag installation practices due to physical plant limitations.

For cases where individual pre-formed Thermo-Lag sections could not be installed on multiple conduits running close together and side-by-side, 1-hour Thermo-Lag pre-formed straight or conduit half-sections were installed on the outer-most conduits and straight sections of Thermo-Lag boards were installed on the top and bottom of conduit runs. Vendor instructions were used for installation of the joints (pre-buttered) of the top and bottom panels. Where space was available, a section of Thermo-Lag was fitted between conduits within the banked enclosure.

Additionally, some of the Turkey Point box designs which are mounted against concrete walls do not fall within the NEI tested box configurations as presently configured.

NRC REQUESTED INFORMATION - ITEM III.B.2

Describe the plant-specific corrective action program or plan you expect to use to evaluate the fire barrier configurations particular to the plant. This description should include a discussion of the evaluations and the tests being considered to resolve the fire barrier issues identified in GL 92-08 and to demonstrate the adequacy of existing in-plant barriers.

FPL RESPONSE - ITEM III.B.2

In an effort to resolve those issues raised by NRC Bulletin 92-01 and Generic Letter 92-08, FPL is performing a detailed engineering review of those electrical raceways presently protected by Thermo-Lag material. The objective of this re-evaluation is to confirm that the protected raceways are required for Appendix R safe shutdown. As a result of the installation of two new Emergency Diesel Generators during the 1990-91 Dual Unit Outage and associated modifications to separate power distribution sources, this review is expected to reduce the number of raceways requiring protection. Critical design parameters and test data information will be extracted from the NEI Application Guide. The assessments for fire barrier ratings will be based on entire raceway assemblies (i.e., horizontal runs, vertical runs, elbows, bends, couplings, etc.), where practical. Specific components (e.g., junction boxes) will be evaluated separately where they were not tested with the raceway assemblies.

The output of the FPL approach, including any required modifications, will continue to ensure that one train of systems necessary to achieve and maintain safe shutdown will remain free from fire damage.

NRC REQUESTED INFORMATION - ITEM III.B.3

If a plant-specific fire endurance test program is anticipated, describe the following:

a. Anticipated test specimens.

b. Test methodology and acceptance criteria including cable functionality.

FPL RESPONSE - ITEM III.B.3

No specific plant testing is anticipated. The testing performed by NEI encompasses the majority of the Thermo-Lag installations and installation techniques utilized at the Turkey Point Plant, with the possible exception of banked conduits and some junction/pull boxes mounted against walls.

As stated above, the circuits in these protected raceways are being evaluated. For those raceways which will continue to be required for Appendix R safe shutdown, FPL will have the option of upgrading the assembly to meet a qualified test configuration or perform any of the other options included in our response to Item V.B.

NRC REQUESTED INFORMATION - ITEM IV.B.1

For the barriers described under Item I.B.1, describe those that you have determined will fall within the scope of the NUMARC [currently NEI] program for ampacity derating, those that will not be bounded by the NUMARC [currently NEI] program, and those for which ampacity derating does not apply.

FPL RESPONSE - ITEM IV.B.1

All Turkey Point raceways containing power cables and protected by Thermo-Lag barriers fall within the scope of the NEI program for ampacity derating. Conduits requiring protection with Thermo-Lag 330-1, for both one and three hour fire rated categories, and containing power cables at Turkey Point have been evaluated. After applying a 10% derating factor (based on TSI/ITL ampacity derating tests, as discussed in FPL's letter L-93-75 dated April 6, 1993 - Reference 4) for all Thermo-Lag enclosed conduits, the remaining worst case ampacity derating margin is 55%. This provides a substantial margin over the circuit's ampacity requirements. The NRC is presently evaluating the testing and test methodology performed and proposed by NEI. When the NRC has completed its review and the testing is completed and accepted, FPL will evaluate the results relative to each application of Thermo-Lag at Turkey Point.

NRC REQUESTED INFORMATION - ITEM IV.B.2

For the barriers you have determined fall within the scope of the NUMARC [currently NEI] program, describe what additional testing or evaluation you will need to perform to derive valid ampacity derating factors.

FPL RESPONSE - ITEM IV.B.2

All Turkey Point raceways containing power cables protected by Thermo-Lag barriers fall within the scope of the NEI program for ampacity derating. Because FPL calculations have demonstrated the availability of substantial margins over circuit ampacity requirements (i.e., the worst case ampacity derating margin is 55%), no additional testing or further evaluation is anticipated.

NRC REQUESTED INFORMATION - ITEM IV.B.3

For the barrier configurations that you have determined will not be bounded by the NUMARC [currently NEI] test program, describe your plan for evaluating whether or not the ampacity derating test relied upon for the ampacity derating factors used for those electrical components protected by Thermo-Lag 330-1 (for protecting the safe-shutdown capability from fire or to achieve physical independence of electrical systems) are correct and applicable to the plant design. Describe all corrective actions needed and submit the schedule for completing such actions.

FPL RESPONSE - ITEM IV.B.3

All Turkey Point raceways containing power cables protected by Thermo-Lag barriers fall within the scope of the NEI program for ampacity derating. Because of the availability of substantial margins over circuit ampacity requirements (i.e., the worst case ampacity derating margin is 55%) shown in FPL calculations, no additional testing or further evaluation is anticipated.

NRC REQUESTED INFORMATION - ITEM IV.B.4

In the event that the NUMARC [currently NEI] fire barrier tests indicate the need to upgrade existing in-plant barriers or to replace existing Thermo-Lag barriers with another fire barrier system, describe the alternative actions you will take (and the schedule for performing those actions) to confirm that the ampacity derating factors were derived by valid tests and are applicable to the modified plant design.

FPL RESPONSE - ITEM IV.B.4

FPL has no current plans to replace the raceway fire barrier material with another type. Specific ampacity derating testing will be included in the testing being performed by NEI that will add additional thicknesses of Thermo-Lag. Due to the low thermal resistance of Thermo-Lag in the non-fire application, a substantially different ampacity derating is not anticipated. However, as

identified in the previous correspondence, ampacity margins at Turkey Point Units 3 and 4 using design and construction criteria, are sufficiently large to encompass proposed ampacity derating well over that presently tested. If it is found that alternative materials need to be utilized, the ampacity derating resulting from the use of that material will be a design input into the acceptability of that raceway fire barrier system.

NRC REQUESTED INFORMATION - ITEM V.B

Describe the specific alternatives available to you for achieving compliance with NRC fire protection requirements in plant areas that contain Thermo-Lag fire barriers. Examples of possible alternatives to Thermo-Lag based upgrades include the following:

1. Upgrade existing in-plant barriers using other materials.

2. Replace Thermo-Lag barriers with other fire barrier materials or systems.

3. Reroute cables or relocate other protected components.

4. Qualify 3-hour barriers as 1-hour barriers and install detection and suppression systems to satisfy NRC fire protection requirements.

FPL RESPONSE - ITEM V.B

Based on an initial review of the Turkey Point Appendix R safe shutdown electrical circuits, it has been determined that some of the circuits no longer require special protection because of the additional redundant equipment installed during the 1990-91 Dual Unit Outage Emergency Power System (EPS) enhancement project. Therefore, in an effort to resolve those issues raised by NRC Bulletin 92-01 and Generic Letter 92-08, FPL is performing a detailed engineering review of those electrical circuits presently protected by Thermo-Lag material. The objective of this review is to confirm that the protected circuits are required for Appendix R safe shutdown. This review is expected to reduce the number of raceways requiring protection.

Critical design parameters and test data information will be extracted from the NEI Application Guide. The assessments for fire barrier ratings will be based on entire raceway assemblies (i.e., horizontal runs, vertical runs, elbows, bends, couplings, etc.), where practical. Specific components (e.g., junction boxes) will be evaluated separately where they were not tested with the raceway assemblies. For any identified Thermo-Lag fire barrier rating deficiency, a number of alternatives will be considered which may include:

1. Replacing the Thermo-Lag material with a alternate material meeting the barrier fire rating requirements;

2. Upgrading the existing Thermo-Lag barrier to meet the required fire barrier rating;

3. Determining the feasibility of repair for the circuit function consistent with the requirements of Appendix R;

4. Rerouting the circuit to provide the required physical separation;

5. Installing fire suppression/detection;

6. Implementing compensatory measures or manual actions for specific areas, where redundant equipment is not available to meet the requirements of Appendix R; and

7. Preparing and submitting to the NRC an exemption request from the requirements of 10 CFR 50, Appendix R.

Note that an exemption request for outdoor fire areas has been submitted by FPL to the NRC (Reference 11) and is under NRC review. The FPL exemption seeks NRC approval to allow the use of 30 minute outdoor Thermo-Lag fire barriers for safe shutdown functions that are located more than 50 feet from major in-situ combustibles. The open plant layout of Turkey Point, negligible fire loading and outdoor heat dissipation characteristics lend themselves to such consideration. The NRC has requested additional information from FPL with regards to this exemption request (Reference 12). FPL is currently developing a response to this NRC request.

The output of the FPL approach including any required modifications will ensure that one train of systems necessary to achieve and maintain safe shutdown will remain free from fire damage.

NRC REQUESTED INFORMATION - ITEM VI.B

Submit an integrated schedule that addresses the overall corrective action schedule for the plant. At a minimum, the schedule should address the following aspects for the plant:

1. Implementation and completion of corrective actions and fire barrier upgrades for fire barrier configurations within the scope of the NUMARC program,

2. Implementation and completion of plant-specific analyses, testing, or alternative actions for fire barrier outside the scope of the NUMARC program.

FPL RESPONSE - ITEM VI.B

FPL has been actively pursuing a resolution of the Thermo-Lag issue since the first quarter of 1993. Those activities that have been completed to date include the following:

1. FPL has been closely supporting NEI in the development of Thermo-Lag testing program.

2. FPL is nearing completion of a re-evaluation of circuits that are required to be protected. This evaluation is demonstrating that fewer circuits require Thermo-Lag than previously evaluated (refer to the FPL responses to Items III.B.2 and V.B), and therefore the magnitude of the Thermo-Lag issue has been substantially reduced.

The schedules forwarded with this amended response supersede and replace those activities and schedule dates contained within the previous FPL correspondence L-93-75 dated April 6, 1993, L-94-24 dated February 7, 1994, and L-94-104 dated April 29, 1994. Activities which are currently underway or scheduled for completion are detailed below for both indoor and outdoor Thermo-Lag installations:

Indoor Fire Areas

1. FPL has initiated a review of engineering documents and quality records and has performed selected destructive examinations in an effort to verify indoor Thermo-Lag barrier configurations. A review and verification of critical parameters for the indoor Thermo-Lag installations is presently being performed. Barrier ratings for the indoor Thermo-Lag configurations that are bounded by the testing referenced within the NEI Application Guide will be finalized by March 31, 1995. A plan to address those indoor Thermo-Lag barrier configurations not covered by the testing referenced within the NEI Application Guide will also be developed by March 31, 1995.

2. The revised Appendix R safe shutdown circuit analyses for indoor raceways will be completed by March 31, 1995.

3. The modifications to upgrade the indoor Thermo-Lag safe shutdown raceways to meet the Appendix R barrier rating requirements will be identified by March 31, 1995.

4. If required, selected electrical raceway modifications may require a plant outage for implementation. Implementation of the required indoor raceway modifications are expected to be completed by the end of the Turkey Point Unit 3 1997 refueling outage.

Outdoor Fire Areas

As stated above in Item V.B, FPL has submitted an exemption request to the NRC to allow the use of 30 minute fire barriers for safe shutdown functions that are located more than 50 feet from major in-situ combustibles. This exemption request is presently being reviewed by the NRC (References 11 and 12). Since this exemption request has such a significant impact on the scope of the Turkey Point outdoor Thermo-Lag barrier evaluations, FPL is unable to provide an integrated schedule for resolution of the outdoor fire barriers at this time. As such, FPL will update this submittal to include the outdoor fire

barrier plan and schedule within 90 days after the NRC's review and approval of the FPL exemption.

NRC REQUESTED INFORMATION - ITEM VII.

Describe the sources of the information provided in response to this request for information (for example, from plant drawing, quality assurance documentation, walkdown or inspections) and how the accuracy and validity of the information was verified.

FPL RESPONSE - ITEM VII.

The majority of information contained in this request that describes the plant's configuration is from plant controlled design documents and drawings. The remaining information about the plant was obtained from plant walkdowns. All plant information has been independently verified.

REFERENCES

1. NRC Information Notice 92-46,"Thermo-Lag Fire Barrier Material Special Review Team Findings, Current Fire Endurance Tests, and Ampacity Calculation Errors," dated June 23, 1992.

2. NRC Bulletin 92-01,"Failure of Thermo-Lag 330 Fire Barrier System to Maintain Cabling in Wide Cable Trays and Small Conduits Free from Fire Damage," dated June 24, 1992; and Bulletin 92-01, Supplement 1,"Failure of Thermo-Lag 330-1 Fire Barrier System to Perform Its Specified Fire Endurance Function," dated August 28, 1992.

3. NRC Generic Letter 92-08,"Thermo-Lag 330-1 Fire Barriers," dated December 17, 1992.

4. FPL letter to the NRC L-93-75,"Response to Generic Letter 92-08, Thermo-Lag 330-1 Fire Barriers," dated April 6, 1993.

5. NRC letter to FPL,"Request for Additional Information Regarding Generic Letter 92-08, 'Thermo-Lag 330-1 Fire Barriers,' Pursuant to 10 CFR 50.54(f) -Turkey Point Units 3 & 4," dated December 20, 1993.

6. FPL internal letter JPNS-PTN-92-0882, T.P. Heisterman to A.T. Zielonka,"Turkey Points 3 & 4, Thermo-Lag 330-1 Inspection / Walkdown," dated August 14, 1992.

7. FPL letter to the NRC L-94-24,"Response to Request for Additional Information - Generic Letter 92-08, Thermo-Lag 330-1 Fire Barriers," dated February 7, 1994.

8. FPL letter to the NRC L-94-104, "Performance-Based Approach for Resolving Thermo-Lag Fire Barrier Issues," dated April 29, 1994.

9. NRC letter to FPL, "Follow-up to the Request for Additional Information Regarding Generic Letter 92-08 Issued Pursuant to 10 CFR 50.54(f) on December 20, 1993 - Turkey Point Units 3 & 4," dated September 19, 1994.

10. NEI Application Guide No. 0784-00001-TR-02, "Application Guide for Evaluation of Thermo-Lag 330 Fire Barrier Systems," Revision 1, dated July 7, 1994.

11. FPL letter to the NRC L-94-146, "Request for Exemption - Special Use of Thermo-Lag Fire Barriers in Outdoor Fire Area", dated June 15, 1994.

12. NRC letter to FPL, "Request for Additional Information Regarding the Request for Exemption - Special Use of Thermo-Lag Fire Barriers in Outdoor Fire Areas - Turkey Point Units 3 and 4", dated October 12, 1994.