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PLUNKETT, T.F. Florida Power & Light Co.
RECIP. NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Forwards info in addition to plant previous responses re GL
92-08, "Thermo-Lag 330-1 Fire Barriers."

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L-95-200
10 CFR 50.54(f)

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

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 dated May 19, 1995, 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 May 19, 1995 letter requested additional information concerning previous responses provided by FPL.

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,

T. F. Plunkett
Vice President
Turkey Point Plant

OIH

Attachments

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

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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

T. F. Plunkett

Subscribed and sworn to before me this

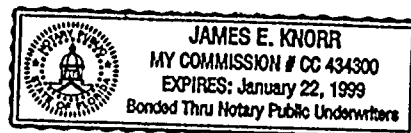
13th day of July, 1995.

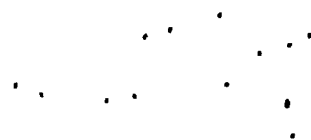
James E. Knorr
Name of Notary Public (Type or Print)

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

My Commission expires January 22, 1999
Commission No. 454500

T. F. Plunkett is personally known to me.





**RESPONSE TO THE FOLLOW-UP REQUEST FOR
ADDITIONAL INFORMATION - GENERIC LETTER 92-08
THERMO-LAG 330-1 FIRE BARRIERS**

NRC Question #1:

In the Request for Additional Information (RAI) of September 19, 1994, the NRC staff requested information regarding important barrier parameters, Thermo-Lag barriers outside the scope of the NEI program, ampacity derating, alternatives and schedules.

The Staff requested information describing the plant-specific corrective action plan for Thermo-Lag fire barriers outside the scope of the NEI program. In its response of December 16, 1994, the licensee stated that configurations consisting of banked conduits and some junction/pull boxes may be outside the scope of the NEI program. For those raceways, outside the scope of the NEI program, that continue to be required for Appendix R safe shutdown, the licensee stated that it will have the option of upgrading the assembly to meet a qualified test configuration or pursue other options. The licensee's response did not describe the evaluations or address the test program that will be used if these configurations are upgraded to meet the NRC's fire protection requirements.

NRC Action Request #1:

Please provide information describing the methodology for determining the acceptable upgrades for Thermo-Lag barriers installed at Turkey Point that are outside the scope of the NEI program.

FPL Response #1:

FPL is continuing to evaluate the ultimate need for the existing banked conduit and pull/junction boxes which are not installed in a like or similar manner to any recent independent testing. It is anticipated that a majority of these installations will be needed and thus require a fire barrier rating. It should be understood that these Thermo-Lag configurations, which are different than currently tested configurations, are a small percentage of the overall installed Thermo-Lag. Should upgrading of the fire barriers turn out to be a more cost effective resolution (than reroute, etc.), FPL would upgrade the installation in a manner consistent with installations for which

acceptable fire tests have confirmed the fire barrier systems rating.

In determining an acceptable upgrade for any of Turkey Point's Thermo-Lag installations, FPL will assure that the configurations are appropriately supported by test data (consistent with the testing guidelines provided in Section V of Enclosure 1 to Generic Letter 86-10, Supplement 1) from an independent laboratory. This will include the assurance that the baseline installation is consistent with the in-plant installation. FPL will then write new or augment existing installation procedures based on the installation methods used in the testing.

NRC Question #2:

The staff requested information regarding the specific alternatives that will be utilized for achieving compliance with NRC fire protection requirements in plant areas that contain Thermo-Lag fire barriers. In its response of December 16, 1994, (Item V.B), the licensee stated that one option was to implement compensatory measures for specific areas where redundant equipment is not available to meet the requirements of Appendix R. In Generic Letter 92-08, the staff advised licensees to implement, in accordance with plant procedures, compensatory measures until the fire barriers could be declared operable. The use of compensatory measures as a permanent solution to the Thermo-Lag issue is not consistent with the Staff Requirements Memorandum of June 27, 1994, which approved the NRC staff recommendation to return plants to compliance with existing NRC requirements.

NRC Action Request #2:

Please provide additional information concerning the use of compensatory measures for achieving compliance with NRC fire protection requirements at Turkey Point Units 3 and 4.

FPL Response #2:

In Item V.B of the NRC's letter of December 20, 1993, the Staff solicited alternatives for achieving compliance with NRC fire protection requirements in plant areas that contain Thermo-Lag fire barriers. FPL responded that implementation of compensatory measures or manual actions, for specific areas, would be considered as an option. "Compensatory measures" is a general term which includes any measure taken which is not directly codified in the regulation. The measures would achieve the same goal as the regulation, but by a different method. These methods could include a fire watch, surveillance cameras, alternative instrumentation, etc. FPL is not planning to implement this

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alternative. However, if any of these measures are subsequently selected and they do not directly comply with the methods prescribed by the regulations, then an exemption request would be submitted to obtain NRC concurrence with the approach.

NRC Question #3:

During a public meeting on March 14, 1995, with the licensees for the four lead plants for the resolution of Thermo-Lag issues, the staff responded to the question "Will the resolution of the ampacity derating concern be deferred until agreement is reached on the appropriate testing protocol (i.e., IEEE P848)?" The staff reiterated its position, which was previously stated in the September 1994 RAI, that the ampacity derating concern could be resolved independently of the fire endurance concerns. At this time the staff is not aware of any NEI initiative to address the ampacity derating issue. After a review of the tests performed under the draft IEEE standard P848, the staff transmitted comments which were designed to ensure the repeatability of test results to the IEEE Working Group responsible for the test procedure.

NRC Action Request #3:

The licensee is requested to submit its ampacity derating evaluations, including any applicable test reports in order to provide an adequate response to Generic Letter 92-08 reporting requirement 2.(c).

FPL Response #3:

FPL has previously discussed the large available margin in our installed configurations (References 1, 2, and 3). Our ampacity evaluations are conservative in that an additional 10% derating factor has been incorporated, for conduits, to account for the installation of Thermo-Lag material. After applying this 10% derating factor for all Thermo-Lag enclosed conduits, the remaining worst case excess ampacity derating margin is 55%. Therefore, results of the generic testing are not expected to adversely affect our conduit installations. Additionally, testing performed by Texas Utilities (Reference 4) indicates that our conduit ampacity derating values are reasonable.

FPL is still evaluating circuits in order to reduce the need for fire barriers. If manual actions (Station Blackout cross-tie) are used, then no wrapped tray is required for Appendix R purposes. During the evaluations, if there is a benefit in taking credit for a previously wrapped cable tray, an additional 22.6% derating factor has been incorporated to account for the installation of Thermo-Lag material. After applying this 22.6% derating factor to those few Thermo-Lag enclosed cable trays for which the evaluations have not been completed, the remaining worst case excess ampacity derating margin is 57%. Testing performed by Texas Utilities (Reference 4) indicates a 32% derating factor for 24 inch trays. Therefore, even using the 32% derating factor, Turkey Point would still have excess margin. Therefore, results of the generic testing are not expected to adversely affect any potential cable tray installations.

In a safety evaluation of ampacity issues related to Thermo-Lag barriers at Comanche Peak Steam Electric Station Unit #2 (Reference 5), the NRC has determined that a derating factor of 21% for conduits, 30% for single trays and 37.7% for two-tray stacked configurations is applicable for the addition of Thermo-Lag material. The use of these derating factors for Turkey Point raceways yields an excess ampacity margin for both the most limiting conduit (35%) and for single cable trays (37%). Turkey Point has excess ampacity margin using these NRC approved ampacity derating requirements for the Thermo-Lag installation.

FPL agrees that the ampacity issue is separable and independent from the fire endurance concerns. Discussions have been proceeding for over two years between the NRC staff and NEI on an applicable test procedure for ampacity and have taken place as recently as May 18, 1995 (Reference 6). FPL is not aware of an approved generic ampacity test protocol authorized for use by the NRC Staff.

NRC Question #4:

In its response of December 16, 1994, the licensee stated that conduit inside containment is wrapped with a 1-hour Thermo-Lag design and that the fire protection design inside containment need only meet 10 CFR Part 50, Appendix R, Section III.G.2.f for radiant energy shields. The regulation specifies that radiant energy shields be noncombustible. The NRC staff provided information and data regarding Thermo-Lag combustibility and test methods for determining the combustibility of materials in Information Notice 92-82, "Results of Thermo-Lag 330-1 Combustibility Testing" in Generic Letter 86-10, Supplement 1; and in a letter to NEI dated March 13, 1995. The staff also discussed the combustibility issue during public meetings on March 14, 1995, and March 29, 1995.

NRC Action Request #4:

Please provide the methodology and schedule for resolution of the issue concerning the use of Thermo-Lag barriers as radiant energy shields at Turkey Point Units 3 and 4.

FPL Response #4:

For those raceways inside the containment buildings which do not meet the requirements of Appendix R, or the requirements of approved exemptions (Reference 7), FPL has completed evaluations of radiant energy shields using the NEI sponsored "Thermo-Lag 330-1 Combustibility Evaluation Methodology Plant Screening Guide". Since the NRC has not accepted this methodology on a generic basis, and FPL reviews have indicated that the methodology is applicable to our installations, FPL will present its position in an exemption request. Prior to requesting an exemption, FPL will perform walkdowns of the raceways in the containments and evaluate the continued requirement for a raceway fire barrier/radiant energy shield. These walkdowns will be performed during the next scheduled refueling outages of each unit. We plan to submit this exemption request (following walkdowns and evaluation) by the second quarter of 1996.

NRC Question #5:

An Appendix R exemption request concerning the use of Thermo-Lag fire barriers in outdoor areas at Turkey Point was submitted by the licensee on June 15, 1994. In a letter to the licensee dated October 12, 1994, the staff requested additional information regarding the exemption request. To date, the licensee has not submitted a response to the RAI.

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NRC Action Request #5:

Please provide a schedule for responding to the RAI.

FPL Response #5:

FPL plans to respond to the RAI by August 31, 1995. In order to ensure that the responses to the RAI are as complete as possible, it was necessary to work with Turkey Point's turbine-generator vendor and to perform additional detailed walkdowns of the affected areas. Following our response, we encourage the NRC to visit the site to see first hand the configurations and installation which are presented in the outdoor exemption request. FPL will segment the outdoor area in smaller sections to facilitate the NRC review process if the NRC Staff believes such a breakdown to be beneficial.

NRC Question #6:

In the RAI of December 26, 1994, the staff requested information describing the examinations and inspections that will be performed to obtain the important barrier parameters for Thermo-Lag configurations installed at Turkey Point. In its response of March 24, 1995, the licensee stated that walkdowns and destructive examinations, as discussed in the licensee's letter dated February 7, 1994, are being performed to verify installed configurations and important parameters. The licensee's letters of February 7, 1994, and March 24, 1995, did not describe the examinations and inspections that are being performed to verify the important barrier parameters.

NRC Action Request #6:

Please provide additional information describing the walkdowns and destructive examinations that are being performed to verify the important parameters for Thermo-Lag barriers installed at Turkey Point Units 3 and 4.

FPL Response #6:

Field walkdowns and destructive testing of selected Thermo-Lag fire barriers have been performed. A listing of the critical design and installation parameters evaluated in accordance with the NEI Application Guide, is provided below. These critical parameters have been evaluated to determine the fire barrier ratings, and include those parameters identified in Item II.A of the NRC "Request for Additional Information Regarding Generic Letter 92-08" dated December 20, 1993 that are applicable to the Turkey Point Thermo-Lag installations.

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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 and Box/Conduit Interface.

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 and Boxed Enclosure Location.

Six box-type assemblies and 48 linear feet of raceway have been inspected. They represent a cross-section of installation periods (different years of installation), and configurations. The conclusion of these examinations is that the installers were consistent in their installation practices and the installations are consistent with our installation procedure. This response meets FPL's commitment "to submit a supplemental report to confirm that the important fire barrier parameters and fire barrier configurations have been verified" as stated in our response of Question 2.D of the FPL letter dated March 24, 1995.

Also, as indicated in our March 24, 1995 letter (response to Question 2.D), based on a satisfactory resolution of the important fire barrier parameter issues and concerns related to the use of the NEI application guide, FPL will reassess and describe its plans for resolution of remaining Thermo-Lag issues and any changes to previously submitted plans and modification schedules. Given satisfactory and timely industry resolution of these issues, FPL expects to complete these activities by November 15, 1995.

NRC Question #7:

The NRC staff also requested information describing the specific tests and analyses that will be performed, including a schedule, to verify the Thermo-Lag materials at Turkey Point. In its response of March 24, 1995, the licensee stated that it will perform chemical tests of 7 Thermo-Lag samples as part of the NEI generic chemical test program. The licensee also stated that NEI will submit to the NRC a written report that documents the results of the test program. At a public meeting with NEI on March 29, 1995, NEI informed the staff that it was considering several options for additional testing and analysis of both organic and inorganic Thermo-Lag 330-1 constituents. NEI will inform the staff about the revised program. Subject to staff review and acceptance of the revised NEI program, and the testing of a sufficient number of samples, the staff finds licensee participation in the NEI program acceptable for obtaining the data and information needed to evaluate the chemical consistency of Thermo-Lag 330-1 materials on a plant-specific basis. The licensee did not submit a schedule for verifying the Thermo-Lag materials at Turkey Point.

NRC Action Request #7a:

Please provide the requested schedule for completion. In addition, after completion of the chemical testing program, the licensee should submit a report independent of the NEI report that is specific to the Thermo-Lag materials installed at Turkey Point.

FPL Response #7a:

NUCON International, Inc., completed the chemical testing of the Turkey Point samples (Reference 8). Each of the sample results are within the acceptance criteria. An excerpt from the laboratory report is attached (Attachment 2). This response meets Turkey Point's commitment (Question 1.D) of the FPL letter of March 24, 1995, to submit a supplemental report to confirm that the effort has been completed and to provide the results of the tests and analyses. The NEI schedule for completion of the overall program is July 31, 1995.

NRC Action Request #7b:

The licensee should also submit its basis for determining that seven samples of Thermo-Lag are sufficient to ensure that the data obtained from the industry chemical test program is applicable to the total population of Thermo-Lag installed at Turkey Point.

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NRC Action Request #7b:

The licensee should also submit its basis for determining that seven samples of Thermo-Lag are sufficient to ensure that the data obtained from the industry chemical test program is applicable to the total population of Thermo-Lag installed at Turkey Point.

FPL Response #7b:

Five of the samples were taken from "vintage" Thermo-Lag and two from a more recent installation performed in 1990-1991. This provides a good cross-section of Thermo-Lag for Turkey Point. In conjunction with more than one hundred fifty samples obtained from all utilities, sufficient data is available to indicate a consistent product has been supplied to the industry, as well as Turkey Point, over the years.

REFERENCES

1. Plunkett to NRC Document Control Desk letter L-93-75, dated April 6, 1993; "Turkey Point Units 3 and 4 Docket Nos. 50-250 and 50-251, Response to Generic Letter 92-08, Thermo-Lag 330-1 Fire Barriers."
2. Plunkett to Callan letter L-94-24, dated February 7, 1994; "Turkey Point Units 3 and 4 Docket Nos. 50-250 and 50-251, Response to Request for Additional Information - Generic Letter 92-08, Thermo-Lag 330-1 Fire Barriers."
3. Plunkett to NRC Document Control Desk letter L-94-306, dated December 16, 1994; "Turkey Point Units 3 and 4 Docket Nos. 50-250 and 50-251, Response to Follow-Up to Request for Additional Information - Generic Letter 92-08, Thermo-Lag 330-1 Fire Barriers".
4. Summary of meeting [held on August 30, 1994] concerning Thermo-Lag with regard to cable functionality and ampacity derating at Comanche Peak Steam Electric Station, Units 1 and 2 (TAC NOS. M85536 and M85999), dated October 20, 1994.
5. Timothy J. Polich (NRC Project Manager) to Lance Terry (Texas Utilities, Comanche Peak Steam Electric Station Unit #2) letter, dated June 14, 1995; "Safety Evaluation of Ampacity Issues Related to Thermo-Lag Fire Barriers at Comanche Peak Steam Electric Station, Unit 2 (TAC NO. M85999)".
6. Berlinger to Sheron memo, dated May 22, 1995; Recording a telecon between the NRC and NEI on Ampacity Testing.
7. S.A. Varga of NRC to J.W. Williams letter, dated March 27, 1984; "Exemption Requests for Turkey Point Plant Unit Nos. 3 and 4 - 10CFR50, Appendix R, Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979". (Granted Exemptions for Fire Zones 47, 54, 79, 84, 89, 114, 115, 113, 116, 119, 120, 131, 11, 12, 13, 14, 15, 16, 45, 55, 59, 60 and 106).
8. NUCON International, Inc., "Pyrolysis Gas Chromatography Analysis of 7 Thermo-Lag Fire Barrier Samples, performed for Florida Power & Light Company, Turkey Point Plant", June 22, 1995.

ATTACHMENT 2 TO
L-95-200