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L-2004-176
10 CFR 50.12
10 CFR 50.48
10 CFR Part 50 Appendix R

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

Subject: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Request for Exemption -
Automatic Suppression in the Mechanical Equipment
Room (Fire Zone 097) and Control Room Roof (106R)

The purpose of this letter is to request, in accordance with the provisions of Title 10 Code of Federal Regulations subsection 50.12 (10 CFR 50.12), an exemption from certain requirements of 10 CFR Part 50 Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," for Turkey Point Units 3 and 4. The exemption request is provided as an attachment to this letter.

Specifically, Florida Power & Light Company (FPL) requests an exemption from the requirements of 10 CFR Part 50 Appendix R subsection III.G.3 for automatic suppression in the Mechanical Equipment Room (Fire Zone 097) and for suppression and detection in the subsection of the Control Building that contains the Control Room Roof (Fire Zone 106R) at Turkey Point. These fire zones contain Control Room Heating, Ventilation and Air Conditioning (HVAC) equipment and are considered functional extensions of the Control Room. These exemptions, if granted, will confirm Fire Zones 097 and 106A as alternative shutdown areas pursuant to Appendix R subsection III.G.3, similar to the current licensing basis for the Control Room.

The requested exemption satisfies the requirements of 10 CFR 50.12 in that it is authorized by law, will not present an undue risk to the public health and safety, is consistent with the common defense and security, and involves special circumstances.

Very truly yours,

A handwritten signature in black ink, appearing to read "Terry O. Jones" followed by a flourish.

Terry O. Jones
Vice President
Turkey Point Nuclear Plant

OIH

Attachment

A006

cc: Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point

ATTACHMENT TO
L-2004-176

EXEMPTION REQUEST
FOR TURKEY POINT UNITS 3 AND 4

Exemption from the Automatic Suppression Requirement for the Mechanical Equipment
Room (Fire Zone 097) and Control Room Roof (106R)

I. Introduction

The purpose of this submittal is to request, in accordance with the provisions of Title 10 Code of Federal Regulations Section 50.12 (10 CFR 50.12), "Specific Exemptions", an exemption for the Mechanical Equipment Room (Fire Zone 097) and Control Room Roof (Fire Zone 106R) at Turkey Point Units 3 and 4 from provisions of Section III.G.3 of Appendix R to 10 CFR Part 50. Appendix R sets forth certain fire protection features pertinent to satisfying Criterion 3 of Appendix A to Part 50. The Section of Appendix R referenced above addresses specific requirements for the protection of safe shutdown capability against fire.

This exemption request supersedes previously granted exemptions for Fire Zone 106R pursuant to Appendix R Section III.G.2.a at Turkey Point Units 3 and 4, as delineated herein. This exemption request does not supersede the exemption from separation and protection requirements granted by the NRC in May 4, 1999, for Fire Zone 106R.

II. Discussion

A. Background

Pursuant to 10 CFR 50.48(a), each operating nuclear power plant must have a plan to satisfy Criterion 3, "Fire protection," of Appendix A to 10 CFR Part 50. Under the terms of 10 CFR 50.48(b), "Appendix R . . . establishes fire protection features required to satisfy Criterion 3 of Appendix A . . . with respect to certain generic issues . . ." In particular, Section III.G.3 of Appendix R addresses fire protection features for assuring alternative or dedicated shutdown capability. Specifically, Section III.G.3 requires that fire detection and a fixed fire suppression system be installed in the area, room, or zone under consideration.

As detailed below, Florida Power & Light Company (FPL) requests an exemption from the application of certain requirements of Section III.G.3 for the reasons stated in the specified bases.

NRC in its April 16, 1984 response to the FPL October 7, 1983 (L-83-516) submittal accepted proposed modifications to provide alternate shutdown capability in accordance with Sections III.G.3 and III.L of Appendix R for the Control Room, Cable Spreading Room and North-South Breezeway. For all other plant areas, including the Mechanical Equipment Room and Control Room Roof, FPL proposed modifications and/or exemptions such that the safe shutdown capability is in accordance with Sections III.G.1 and III.G.2 of Appendix R.

The Mechanical Equipment Room and Control Room Roof contain air conditioning facilities that are functionally integral with the Control Room and, therefore, are included in the same fire area (Fire Area MM). NRC in its August 12, 1987 response to the FPL April 25, 1986 (L-86-164) submittal granted exemption per Section III.G.2 from fire detection and fixed suppression in outdoor areas, including the Control Room Roof. Exemption from separation and protection requirements was also granted for the Control Room Roof by NRC letter dated May 4, 1999. No exemption was requested for the Mechanical Equipment Room. However, safe shutdown capability for fire in either of these areas credits use of the alternate shutdown panels. Therefore, safe shutdown capability for a fire in these areas should be based on Appendix R Section III.G.3 rather than Sections III.G.1 and III.G.2.

B. Requested Exemption

Section III.G.3 of Appendix R to 10 CFR Part 50 requires that fire detection and a fixed fire suppression system be installed in the area, room, or zone under consideration. FPL requests exemption from Section III.G.3 requirements as follows:

- 1) Exemption from having fixed suppression in the Mechanical Equipment Room (Fire Zone 097).
- 2) Exemption from having fire detection and fixed suppression on the Control Room Roof (Fire Zone 106R).

C. Exemption Fire Zone Descriptions

A detailed description of the combustible loading, installed essential equipment and fire detection and suppression features for the fire zones which are included in the exemption request is provided in PTN UFSAR Appendix 9.6A, Section 4.MM. In addition, FPL proposes to install area detection in the Mechanical Equipment Room to satisfy the fire detection requirements of Section III.G.3 and supplement the existing air duct detector.

D. Bases for Requested Exemption

The requested exemption is consistent with the requirements of 10 CFR 50.12 and should be granted. First, in accordance with Section 50.12(a)(1), it is clear from the discussion herein that the exemption sought by FPL for Turkey Point is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security.

(1) Authorized by Law. This authority is confirmed by past Commission practice since the promulgation of Appendix R, under which the Commission has granted numerous exemptions from Appendix R requirements. In its Staff Requirements Memorandum dated June 27, 1994, "Options for Resolving the Thermo-Lag Fire Barrier Issues," the Commission reaffirmed this practice as specifically applied to exemptions involving the use of Thermo-Lag as a fire barrier. In that letter, the Staff stated that the Commission would consider specific exemptions from certain technical requirements of Appendix R, "provided the licensee submits a technical basis that demonstrates the in-plant condition provides an adequate level of fire safety."

(2) No Undue Risk. The proposed exemptions from Appendix R requirements pose no undue risk to the public health and safety because an adequate level of fire protection is maintained. As discussed in the Engineering Assessment Section, the existing fire barriers at Turkey Point, together with fire protection measures, low combustible loading, administrative controls, and the unique outdoor nature of the Control Room Roof, satisfy the underlying intent of the rule, to assure that plant shutdown can be accomplished in the event of a fire. As such, adequate protection of the public health and safety is provided.

(3) Consistent with the Common Defense and Security. Common defense and security issues are not implicated by the proposed exemption because no safeguards issues or equipment are affected by the request.

Second, consistent with the requirements of Section 50.12(a)(2), special circumstances are present. In particular, as discussed below, special circumstances exist within the terms of Sections 50.12(a)(2)(ii) and (iii).

Section 50.12(a)(2)(ii) -- Application of the regulation in the particular circumstances either would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule;

Compliance with the rule provides assurance that a fire in a nuclear power plant will not disable the capability to safely shut down the plant. The particular aspects of the regulations pertinent to this exemption request concern the protection of components associated with achieving and maintaining safe shutdown conditions. As discussed in the Engineering Assessment Section, the existing fire barriers at Turkey Point, together with fire protection measures, low combustible loading, and administrative controls in place satisfy the underlying intent of the rule. The granting of the exemptions is consistent with preserving safe shutdown capability by assuring, through appropriate use of fire barrier material and separation, that shutdown capability will be maintained. Application of the regulation in the particular circumstances is not necessary to achieve the underlying purpose of the rule.

Section 50.12(a)(2)(iii) -- Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated;

The costs of regulatory compliance contemplated when Appendix R was adopted were limited to those related to the installation of fire barrier material to meet specific Appendix R requirements. At that time, the Commission did not contemplate additional expenses that reactor licensees might incur to replace degraded barrier material that was once reasonably relied upon by the NRC and its licensees as qualified. FPL has spent more than ten million dollars on outdoor fire barriers at Turkey Point in order to satisfy the originally contemplated Appendix R barrier material requirements. FPL estimates that an additional expenditure of approximately one-quarter million dollars would be necessary to install fixed suppression in the Mechanical Equipment Room and fire detection and fixed suppression in the Control Room Roof area to meet the requirements of Appendix R. Thus, strict compliance by FPL with the Commission's fire protection regulations would result in costs significantly in excess of those originally contemplated.

III. Engineering Assessment

The scope and technical justification for the exemption request for the Mechanical Equipment Room and Control Room Roof is presented in this subsection. Technical justification for granting the exemption request is based on characteristics of outdoor areas, types and quantities of in situ combustible materials, control of transient combustible materials, fire protection features and providing adequate protection to ensure that, in the event of a fire, at least one train of safe shutdown equipment and components is available.

Control Room Roof (Fire Zone 106R)

Fire Zone 106R is an open-air section at the southwest corner of the Control Building Roof that contains the Control Room air conditioning condensing units. The location is shown on UFSAR Figure 9.6A-11. In situ combustible load in this zone consists of motors, cable and raceway protection associated with the three condensing units and materials used in the "tar and gravel" built-up roofing, structurally equivalent to a Class A design. Introduction of transient combustible materials is regulated by administrative controls. Redundant safe shutdown components and circuits are protected by at least 10 feet of separation or by 25-minute Thermo-Lag fire rated barrier. By NRC letter dated May 4, 1999, exemption from separation and protection requirements was granted for the Control Room Roof. This exemption request does not supersede the exemption from separation and protection requirements granted by the NRC in May 4, 1999.

The roof is at plant elevation 58'0", with normal access via stairs from the turbine deck at elevation 42'0". Three portable fire extinguishers at the turbine deck near the roof access stairs and three near the stairs at the mezzanine level (elevation 30'0") provide primary fire protection for the Control Building Roof. In addition, three accessible hose stations provide secondary fire protection so that hose stream water can be applied to any portion of the roof. One with a 75' hose is at the turbine deck near the stairs, another with 100' hose is at the turbine deck just southwest of the Control Building, and another with a 100' hose is by the stairs at the mezzanine level. By NRC letter dated August 12, 1987, exemption was granted per Section III.G.2 from fire detection and fixed suppression in outdoor areas, including the Control Room Roof. This submittal requests exemption from fire detection and automatic fire suppression for this area pursuant to 10 CFR 50, Appendix R, Section III.G.3, since the safe shutdown capability for a fire in this area credits use of the alternate shutdown panels.

Mechanical Equipment Room (Fire Zone 097)

Fire Zone 097 is a single room at the southwest corner of the Cable Spreading Room that contains the Control Room air handling fans and emergency air filtration system. The location is shown on UFSAR Figure 9.6A-10. The walls, floor and ceiling are 3-hour rated fire barriers. Access to the room is available via the Cable Spreading Room.

In situ combustible load consists of charcoal inside the filter housing, fan and damper motors and cable insulation. Introduction of transient combustible materials is regulated by administrative controls. An ionization-type detector is located inside the air conditioning duct downstream of the filter charcoal and fan motors, which constitute the major combustible inventory in the room. Only Control Room ventilation fans inside the duct operate continuously while other components are on emergency standby and are only operated during testing. The detector initiates an alarm in the Control Room. In addition, FPL proposes to install area detection in the Mechanical Equipment Room in accordance with NFPA 72 standard requirements that will also initiate an alarm in the Control Room.

Two portable fire extinguishers are located indoors, one in the Cable Spreading Room just outside the Mechanical Equipment Room door and another east of the Cable Spreading Room just outside the battery rooms. Two accessible portable fire extinguishers are located outdoors and west of the Cable Spreading Room, one at the mezzanine (elevation 30'0") and one at grade (elevation 18'0"). These provide primary fire protection for the Mechanical Equipment Room. In addition, area detection and fixed halon suppression facilities are installed in the Cable Spreading Room. There is an accessible hose station with a 100' hose at the mezzanine level just outside the west entrance to the Cable Spreading Room. This provides secondary fire protection for the Mechanical Equipment Room. Based on the existing and proposed fire protection features in the Mechanical Equipment Room and surrounding areas, exemption from automatic fire suppression is requested for this room pursuant to 10 CFR 50 Appendix R, Section III.G.3.

Conclusion

The information discussed above demonstrates that the existing and proposed fire protection features provide a level of fire protection consistent with the fire hazards, both in situ and transient, identified for these fire zones and that these features provide a high level of assurance that at least one train of safe shutdown equipment and cables will remain free of fire damage. FPL proposes to install area detection in the Mechanical Equipment Room to satisfy the fire detection requirements of Section III.G.3 and supplement the existing air duct detector. Additional protective features would not materially enhance the safety of the plant.

IV. Summary and Conclusion

Section III.G.3 of Appendix R to 10 CFR Part 50 addresses fire protection features for assuring alternative or dedicated shutdown capability. The exemption requested in Section II.B above, is consistent with 10 CFR 50.12 of the Commission's regulations in that it is authorized by law, will not present an undue risk to the public health and safety, is consistent with the common defense and security, and presents special circumstances. Accordingly, the requested exemption should be granted.