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SUBJECT: Forwards supplemental info in support of referenced FPL ltrs
 re exemption request for fire zones 79-partial, 81, 84-
 partial, 86, 88-partial, 89-partial & 131.

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L-98-172
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- Fire Rating of
Raceway Fire Barriers in the Outdoor Fire Area
Excluding the Turbine Building - Summary

By letter L-96-318 dated December 12, 1996, Florida Power & Light Company (FPL) requested an exemption from the requirements of 10 CFR Part 50 Appendix R subsection III.G.2.a for raceway fire barriers in outdoor fire zones at Turkey Point, excluding the Open Turbine Building. The exemption request was supplemented by additional information provided in FPL letters L-97-182 dated July 31, 1997, L-97-256 dated October 31, 1997, L-97-306 dated December 17, 1997, and L-98-143 dated June 2, 1998. NRC approval of FPL's request for exemption for fire zones 47, 54, 113, 114, 115, 116, 118, 119, 120, and 143 was issued on February 24, 1998.

The purpose of this letter is to provide the NRC a summary document (attached) containing the information provided in the FPL letters referenced above in support of the exemption request for fire zones 79-partial, 81, 84-partial, 86, 88-partial, 89-partial and 131.

Should there be any questions, please contact us.

Very truly yours,


R. J. Hovey
Vice President
Turkey Point Plant

OIH

Attachment 100008

cc: L. A. Reyes, Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point

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Supplemental Information to Exemption

Request for Selected Outdoor Fire Zones

Section III.G.2 of 10 CFR 50 Appendix R provides the specific requirements for fire protection of safe shutdown capability. Specifically, one of the following means of ensuring that one of the redundant trains required to achieve and maintain hot shutdown is free of fire damage, shall be provided:

- a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier;
- b. Separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustible or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area; or
- c. Enclosure of cable and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

In exemptions dated March 27, 1984, and August 12, 1987, the NRC approved the use of 1-hour rated fire barriers in lieu of 3-hour barriers in certain outdoor areas at Turkey Point Units 3 and 4. In addition, the NRC found that, for certain outdoor areas not protected by automatic fire detection and suppression systems, separation of cables and equipment and associated nonsafety circuits of redundant trains by a horizontal distance of 20 feet free of intervening combustibles provided an acceptable level of fire safety.

Based on the results of the industry's Thermo-Lag fire endurance testing program, FPL concluded that the outdoor Thermo-Lag fire barrier designs cannot achieve a 1-hour fire resistive rating but can achieve a 30-minute fire resistive rating when exposed to a test fire that follows the ASTM E-119 standard time-temperature curve. Because of these test results, in a letter dated June 15, 1994 (L-94-146), FPL requested an exemption to use 30-minute fire barriers for outdoor applications in lieu of the 1-hour fire barriers previously approved. However, the exemption request was withdrawn by letter dated June 28, 1996 (L-96-148). The withdrawal was based on subsequent fire endurance and hose stream test results, which revealed the 30-minute fire barrier rating could not be met for all Turkey Point specific outdoor conduit configurations. The test results are addressed in a letter dated December 12, 1996 (L-96-318), and is part of the basis for the FPL requested approval of 25-minute raceway fire barriers discussed below.

In a letter dated December 12, 1996 (L-96-318), FPL submitted an exemption request for outdoor areas, excluding the turbine building area. FPL requested that the NRC approve the use of 25-minute raceway fire barriers for these outdoor applications in lieu of the 1-hour fire barriers which were previously approved (refer to NRC Safety Evaluations (SEs) dated March 27, 1994, and August 12, 1987). This request was based on the following: (1) the fire loading and potential fire severity are low; (2) there are minimal ignition sources; (3) transient ignition sources and combustibles are controlled in these zones; and (4) manual fire fighting equipment is readily accessible to the zones.

The NRC reviewed and approved FPL's proposed exemption for fire zones 47, 54, 113, 114, 115, 116, 118, 119, 120 and 143. As stated in the exemption dated February 24, 1998:

"For fire zone 47 (Unit 4 CCW) and fire zone 54 (Unit 3 CCW room), the use of a 25-minute fire rated electrical raceway fire barrier system in lieu of a 1-hour fire barrier system as required by Section III.G.2 of Appendix R to 10 CFR Part 50 provides an adequate level of fire safety, poses no undue risk to public health and safety, meets the underlying purpose of the rule and is, therefore, acceptable.

For fire zone 113 (Unit 4 feedwater platform), fire zone 116 (Unit 3 feedwater platform), fire zone 119 (Unit 4 intake structure), and fire zone 120 (Unit 3 intake structure), the use of 25-minute fire barriers to separate cables and equipment and associated nonsafety circuits of redundant trains until a horizontal distance of 20 feet free of intervening combustibles is attained provides an adequate level of fire safety, poses no undue risk to public health and safety, meets the underlying purpose of the rule and is, therefore, acceptable.

For fire zone 115 (Unit 3 main steam platform) and fire zone 114 (Unit 4 main steam platform), the use of 25-minute fire barriers to separate cables and equipment and associated nonsafety circuits of redundant trains until a horizontal distance of 20 feet free of intervening combustibles is attained provides an adequate level of fire safety, poses no undue risk to public health and safety, meets the underlying purpose of the rule and is, therefore, acceptable.

For fire zone 143 (Unit 3 emergency diesel generator roof) and fire zone 118 (control and auxiliary building roof), the use of 25-minute fire barriers to separate cables and equipment and associated nonsafety circuits of redundant trains until a horizontal distance of 10 feet free of intervening combustibles is attained provides an adequate level of fire safety, poses no undue risk to public health and safety, meets the underlying purpose of the rule and is, therefore, acceptable."

Additionally, the NRC reviewed and disapproved (refer to the exemption dated February 24, 1998) the proposed exemption request for fire zone 106R. The NRC concluded, due to the uncertain combustibility and indeterminate fire classification of the built-up asphalt roof with respect to the use of 25-minute fire rated barriers to separate cables and equipment and associated nonsafety circuits of redundant trains until a horizontal distance of 10 feet free of intervening combustibles is attained, the underlying purpose of the rule is not met.

However, as stated by the NRC (refer to the exemption dated February 24, 1998), generic acceptability of FPL's exemption request (dated December 12, 1996) from requirements of 10 CFR Part 50, Appendix R, Section III.G.2.a, could not be approved without a plant-specific zone-by-zone fire hazards analysis for fire zones 79-partial, 81, 84-partial, 86, 88-partial, 89-partial and 131. Additional information submitted by FPL in letters dated July 31, 1997, October 31, 1997, and December 17, 1997 supplements the original exemption request dated December 12, 1996.

Subsequently, in a letter dated June 2, 1998, FPL concurred with the NRC recommendation to not address generic acceptability of the use of separation or radiant energy shields as part of the exemption approval. FPL has committed to protect safe shutdown circuits in fire zones 79-partial, 81, 84-partial, 86, 88-partial, 89-partial and 131 with 25-minute rated fire barriers, except for fire zone 79 where separation already is credited under existing exemptions as granted by NRC letter dated March 27, 1984.

Additionally, FPL has committed to protect safe shutdown circuits within 50 feet of a major combustible in fire zones 79-partial, 81, 84-partial, 86, 88-partial, 89-partial and 131 with 1-hour rated fire barriers. The major combustibles located inside or in close proximity of the Unit 3 and 4 turbine buildings are as follows: Units 3 and 4 Main, Startup, and Auxiliary Transformers, Units 3 and 4 Turbine Lube Oil Reservoirs, Units 3 and 4 Turbine Lube Oil Transfer Skids, Units 3 and 4 Hydrogen Seal Oil Skids.

FPL submits the following in support of exemption requests for fire zones 79-partial, 81, 84-partial, 86, 88-partial, 89-partial and 131.

Zone 79 (Area West of Unit 4 Containment) East of Column Line Jc

Fire zone 79 is the outdoor grade elevation 18 foot zone located West of the Unit 4 Containment, between the Containment and the Turbine Building and extending to the Control Building. Cable tray runs are routed through the zone from 18 feet to 20 feet above grade and partially covered by the Unit 4 Main Steam Platform, approximately 35 feet above grade. Fire zone 79 contains an Access Control Enclosure. The table below lists the safe shutdown functions for circuits which require fire barrier protection in Fire zone 79.

The in situ combustible inventory consists primarily of cables routed in cable trays through this fire zone between 18 feet and 20 feet above grade. Cables in cable trays are either coated with a fire propagation retardant (Flamastic 71A or 77) or qualified to the requirements of IEEE-383, 1974. Additionally, there are no major combustibles located within 50 feet of Fire zone 79. Transient combustible material is administratively controlled within this fire zone by the Transient Combustible and Flammable Substances Program.

Various fire-mitigating features exist for Fire zone 79. Fire extinguishers and standpipe hose stations are accessible to Fire zone 79. Fire zone 79 is remote from major combustibles and the total overall combustible loading from both in situ and transient sources in this area is negligible. Fire zone 79 is an open outdoor area, which prevents the stratification of hot gases or other products of combustion from affecting redundant cables should a fire occur.

FPL requested and was granted (reference 1) exemption from that portion of Section III.G.2.b of Appendix R to 10 CFR Part 50 which requires automatic fire detection and fire suppression systems in the area where the cables and equipment of redundant trains are separated by a horizontal distance of 20 feet or more.

FPL requested and was granted (reference 1) exemption from that portion of Section III.G.2.c of Appendix R to 10 CFR Part 50, which requires automatic fire detection and fire suppression systems in the area where cables and equipment of redundant trains are separated by a fire barrier having a one-hour rating.

It is FPL's position with respect to the previously approved exemption (discussed above) and to existing safe shutdown equipment and circuitry within Fire zone 79, that use of a 25-minute electrical raceway fire barrier system in place of a 1-hour rated fire protection barrier provides reasonable assurance that one safe shutdown train and associated circuits used to achieve and maintain safe shutdown is free of fire damage. This position is based on Fire zone 79 fire protection features; the outdoor nature of the fire zone preventing the stratification of hot gases and ceiling jet layers, the minimal transient and in situ

combustible load, and the remote location from a major combustible source (> 50 feet). These features provide reasonable assurance that any fire would be small and that the required post-fire safe shutdown equipment protected by the 25-minute electrical raceway fire barrier system would remain free of fire damage until the fire burned itself out or was detected by plant personnel and adequately controlled and suppressed by the plant fire brigade.

The 25-minute electrical raceway fire barrier system will not be incorporated where FPL intends to credit physical separation of redundant components in Fire zone 79, as stated in FPL letter L-97-182, dated July 31, 1997. Cables and raceways pertinent to redundant equipment for which physical separation is credited are listed in Attachment A to L-97-182.

Fire Zone 81 (Unit 4 Main and Startup Transformers and Unit 3 Turbine Lube Oil Reservoir Area)

Fire zone 81 is the Unit 4 Main and Startup Transformer zone located on the 18 foot elevation north of the Unit 4 Switchgear Rooms. This is an outdoor zone containing the Unit 4 Main Transformer and Startup Transformer and Unit 3 Turbine Lube Oil Reservoir. The table below lists the safe shutdown functions for circuits which require fire barrier protection in Fire zone 81. Other equipment within this fire zone includes Turbine Building Cooling Water Heat Exchangers and Pumps, and associated valves and piping.

The in situ combustible inventory consists of cables routed in cable trays or combustible liquids enclosed in stationary containers (i.e., major combustibles: Lube Oil Storage Tanks or Main and Startup Transformers). The other combustible loads in these zones are attributed to the combustible liquids and were evaluated under Appendix A to BTP 9-5.1. The in situ combustible loading contributed by the cable is considered insignificant due to the outdoor nature of these zones. Similarly, in situ combustible liquids are high flash point liquids, they are contained in containers equivalent to NFPA 30 containers and automatic fire suppression systems have been provided.

FPL requested and was granted (reference 2) exemption from the provisions of Section III.G.2.b of Appendix R to 10 CFR Part 50 that requires fire detection and automatic fire suppression systems for cables and equipment and associated non-safety circuits of redundant trains that are separated by a horizontal distance of 20 feet or greater with no intervening combustibles. Specifically, exemption was requested from providing fire detection and automatic fire suppression systems throughout outdoor fire zones for the required redundant safe shutdown related cables having 20 feet or greater horizontal separation.

FPL requested and was granted (reference 2) exemption from the provision of Section III.G.2.c of Appendix R to 10 CFR Part 50 that requires installation of fire detection and automatic fire suppression systems for cables and equipment and associated non-safety circuits of one redundant train that is enclosed in a fire barrier having a one-hour rating. Specifically, exemption was requested from providing fire detection and automatic fire suppression systems throughout outdoor fire zones for the required redundant safe shutdown related cables enclosed in a fire barrier having a one-hour rating where separation of 20 feet or more cannot be provided.

Fire protection of safe shutdown capability for Fire zone 81 is provided at a number of levels. Portable fire extinguishers, hose stations and fire hydrants are provided for use in these zones. There are fixed water

spray systems for the Transformers and Lube Oil Reservoir actuated by thermal detection. The open outdoor nature of these zones would prevent the stratification of hot gases or other products of combustion from affecting redundant cables should a fire occur. Based on the discussed fire-mitigating features, any fire involving the protected major combustibles within Fire zone 81 would be automatically detected, and cause initiation of the fixed water spray system with a fire pump start causing indication in the Control Room. The fixed water spray system would contain the fire until adequately controlled and suppressed by the plant fire brigade.

Considering the above, it is FPL's position that strict application of Appendix R, Section III.G.2.b and III.G.2.c requirements to the fire protection of redundant safe shutdown cables and equipment in the identified outdoor fire zones is not necessary to achieve the underlying purpose of the rule, i.e., fire protection of safe shutdown capability. FPL has committed to protect safe shutdown circuits within 50 feet of a major combustible with 1-hour rated fire barriers. The location of major combustibles (Main and Startup Transformer, Lube Oil Reservoir) within Fire zone 81 require all safe shutdown circuits within Fire zone 81 be protected with 1-hour rated fire barriers. Additionally, it is FPL's position with respect to safe shutdown equipment and circuitry within Fire zone 81, the use of a 1-hour rated fire protection barrier provides reasonable assurance that one safe shutdown train and associated circuits used to achieve and maintain safe shutdown is free of fire damage.

Fire Zone 84 (Units 3 and 4 Auxiliary Feedwater Pump Area) East of Column Line Jc

Fire zone 84 is the Unit 3 and 4 Auxiliary Feed Water Pump zone located on the 18 foot elevation north of Unit 3 Steam Generator Feed Pump Room. Fire zone 84 is an open outdoor area, partially covered by the Unit 3 Main Steam Platform, which is approximately 35 feet above grade. The zone is bounded on the east by the Unit 3 Containment and on the remaining three sides by chain link fencing or missile shield grating. The D.C. Enclosure Building is located within this fire zone and contains non-safety related D.C. electrical equipment. The table below lists the safe shutdown functions for circuits which require fire barrier protection in Fire zone 84.

The in situ combustible inventory for this outdoor zone consists of cable in trays which pass through the zone between 13 feet and 21 feet above grade, and lubricating oil contained in the steel reservoirs of the three Auxiliary Feedwater Pump turbines. Cables in cable trays in this zone are either coated with a fire propagation retardant (Flamastic 71A or 77) or are qualified to the requirements of IEEE-383, 1974. The height above a grade level exposure fire combined with the fire retardant characteristics of the cables and coatings, and the open nature of this outdoor area serve to effectively exclude these cables from contributing to the fire load for this zone. Transient combustible material is administratively controlled within this fire zone by the Transient Combustible and Flammable Substances Program.

Each Auxiliary Feedwater Pump turbine has an independent lubrication system containing approximately 24.5 gallons of lubricating oil. The oil system is of steel construction, seismically designed and qualified. During plant operation the oil system is not normally pressurized or operating, only on conditions of off-normal operation, accident or testing will the system be in operation. The design features of the Auxiliary Feedwater Pump oil system and the limited periods when the system would be operating are such that the potential for a fire from this in situ source is considered very unlikely.

FPL requested and was granted (reference 1) exemption from the provision of Section III.G.2.b of Appendix R to 10CFR Part 50 that requires automatic fire detection and suppression for cables and equipment and associated circuits of redundant trains that are separated by a horizontal distance of 20 feet or greater. Specifically, exemption was requested from providing fire detection and automatic fire suppression for the required redundant safe shutdown related cables having 20 feet or greater horizontal separation.

FPL requested and was granted (reference 1) exemption from the provision of Section III.G.2.c of Appendix R to 10CFR Part 50 that requires installation of fire detectors and automatic fire suppression for cables and equipment and associated circuits of one redundant train that is enclosed in a fire barrier having a one-hour rating. Specifically, exemption was requested from providing fire detection and automatic fire suppression for the required redundant safe shutdown related cables enclosed in a fire barrier having a one-hour rating where separation of 20 feet or more cannot be provided.

Various fire-mitigating features exist for Fire zone 84. Fire extinguishers and a standpipe hose station are all accessible to Fire zone 84. Fire zone 84 is remote from major combustibles and the total overall combustible loading from in situ sources in this area is negligible. Fire zone 84 is an open outdoor area, which prevents the stratification of hot gases or other products of combustion from affecting redundant cables should a fire occur.

It is FPL's position with respect to the previously approved exemption (discussed above) and to existing safe shutdown equipment and circuitry within Fire zone 84, that use of a 25-minute electrical raceway fire barrier system in place of a 1-hour rated fire protection barrier provides reasonable assurance that one safe shutdown train and associated circuits used to achieve and maintain safe shutdown is free of fire damage. This position is based on the fire protection features in Fire zone 84; the outdoor nature of the fire zone preventing the stratification of hot gases and ceiling jet layers, the minimal transient and in situ combustible load, and the remote location from a major combustible source (> 50 feet). These features provide reasonable assurance that any fire would be small and that the required post-fire safe shutdown equipment protected by the 25-minute electrical raceway fire barrier system would remain free of fire damage until the fire burned itself out or was detected by plant personnel and adequately controlled and suppressed by the plant fire brigade.

Fire Zone 86 (Unit 3 Main and Startup Transformers)

Fire zone 86 is the Unit 3 Main and Startup Transformer zone located on the 18 feet elevation west and north of the Unit 3 Switchgear Rooms. This is an outdoor zone containing two Diesel Fuel Oil Transfer Pumps, and the Unit 3 Main Transformer and Startup Transformer. The table below lists the safe shutdown functions for circuits which require fire barrier protection in Fire zone 86.

The in situ combustible inventory consists of cables routed in cable trays or combustible liquids enclosed in stationary containers (i.e., major combustibles: Main and Startup Transformers). The other combustible loads in these zones are attributed to the combustible liquids and were evaluated under Appendix A to BTP 9-5.1. The in situ combustible loading contributed by the cable is considered insignificant due to the outdoor nature of these zones. Similarly, in situ combustible liquids are high flash point liquids, they are contained in containers equivalent to NFPA 30 containers and automatic fire suppression systems have been provided.

FPL requested and was granted (reference 2) exemption from the provisions of Section III.G.2.b of Appendix R to 10 CFR Part 50 that requires fire detection and automatic fire suppression systems for cables and equipment and associated non-safety circuits of redundant trains that are separated by a horizontal distance of 20 feet or greater with no intervening combustibles. Specifically, exemption was requested from providing fire detection and automatic fire suppression systems throughout outdoor fire zones for the required redundant safe shutdown related cables having 20 feet or greater horizontal separation.

FPL requested and was granted (reference 2) exemption from the provision of Section III.G.2.c of Appendix R to 10 CFR Part 50 that requires installation of fire detection and automatic fire suppression systems for cables and equipment and associated non-safety circuits of one redundant train that is enclosed in a fire barrier having a one-hour rating. Specifically, exemption was requested from providing fire detection and automatic fire suppression systems throughout outdoor fire zones for the required redundant safe shutdown related cables enclosed in a fire barrier having a one-hour rating where separation of 20 feet or more cannot be provided.

Fire protection of safe shutdown capability for Fire zone 86 is provided at a number of levels. Portable fire extinguishers, hose stations and fire hydrants are provided for use in these zones. There are fixed water spray systems for the transformers actuated by thermal detection. The open outdoor nature of these zones would prevent the stratification of hot gases or other products of combustion from affecting redundant cables should a fire occur. Based on the discussed fire-mitigating features, any fire involving the protected major combustibles within Fire zone 86 would be automatically detected, and cause initiation of the fixed water spray system with a fire pump start causing indication in the Control Room. The fixed water spray system would contain the fire until adequately controlled and suppressed by the plant fire brigade.

Considering the above, it is FPL's position that strict application of Appendix R, Section III.G.2.b and III.G.2.c requirements to the fire protection of redundant safe shutdown cables and equipment in the identified outdoor fire zones is not necessary to achieve the underlying purpose of the rule, i.e., fire protection of safe shutdown capability. FPL has committed to protect safe shutdown circuits within 50 feet of a major combustible with 1-hour rated fire barriers. The location of major combustibles (Main and Startup Transformers) within Fire zone 86 require safe shutdown circuits within the 50 foot radius of these in situ combustibles to be protected with 1-hour rated fire barriers. Additionally, it is FPL's position with respect to safe shutdown equipment and circuitry within Fire zone 86 that is greater than 50 feet from a major combustible, use of a 25-minute electrical raceway fire barrier system in place of a 1-hour rated fire protection barrier provides reasonable assurance that one safe shutdown train and associated circuits used to achieve and maintain safe shutdown is free of fire damage.

Fire Zone 88 (Unit 3 Switchgear/EDG Vestibule) East of Column Line Jc

Fire zone 88 is the Unit 3 ground floor vestibule area located to the northwest of the Unit 3 Condensate Storage Tank at elevation 18 foot and to the west of the EDG Building. This is an outdoor zone open on two sides containing two low pressure feedwater heaters. The table below lists the safe shutdown functions for circuits which require fire barrier protection in Fire zone 88.

The in situ combustible inventory consists primarily of cables routed in cable trays. Additionally, there are no major combustibles located within 50 feet of Fire zone 88. Transient combustible material is

administratively controlled within this fire zone by the Transient Combustible and Flammable Substances Program.

FPL requested and was granted (reference 2) exemption from the provisions of Section III.G.2.b of Appendix R to 10 CFR Part 50 that requires fire detection and automatic fire suppression systems for cables and equipment and associated non-safety circuits of redundant trains that are separated by a horizontal distance of 20 feet or greater with no intervening combustibles. Specifically, exemption was requested from providing fire detection and automatic fire suppression systems throughout outdoor fire zones for the required redundant safe shutdown related cables having 20 feet or greater horizontal separation.

FPL requested and was granted (reference 2) exemption from the provision of Section III.G.2.c of Appendix R to 10 CFR Part 50 that requires installation of fire detection and automatic fire suppression systems for cables and equipment and associated non-safety circuits of one redundant train that is enclosed in a fire barrier having a one-hour rating. Specifically, exemption was requested from providing fire detection and automatic fire suppression systems throughout outdoor fire zones for the required redundant safe shutdown related cables enclosed in a fire barrier having a one-hour rating where separation of 20 feet or more cannot be provided.

Various fire-mitigating features exist for Fire zone 88. Fire extinguishers and standpipe hose stations are accessible to Fire zone 88. A portion of this zone toward the turbine-generator is provided with a wet pipe sprinkler system. Fire zone 88 is remote from major combustibles and the total overall combustible loading from in situ sources in this area is negligible. Fire zone 88 is an open outdoor area, which prevents the stratification of hot gases or other products of combustion from affecting redundant cables should a fire occur.

It is FPL's position with respect to the previously approved exemption (discussed above) and to existing safe shutdown equipment and circuitry within Fire zone 88, that use of a 25-minute electrical raceway fire barrier system in place of a 1-hour rated fire protection barrier provides reasonable assurance that one safe shutdown train and associated circuits used to achieve and maintain safe shutdown is free of fire damage. This position is based on Fire zone 88 fire protection features; the outdoor nature of the fire zone preventing the stratification of hot gases and ceiling jet layers, the minimal transient and in situ combustible load, and the remote location from a major combustible source (> 50 feet). These features provide reasonable assurance that any fire would be small and that the required post-fire safe shutdown equipment protected by the 25-minute electrical raceway fire barrier system would remain free of fire damage until the fire burned itself out or was detected by plant personnel and adequately controlled and suppressed by the plant fire brigade.

Fire Zone 89 (Unit 3 Condensate Storage Tank Area) East of Column Line Jc

Fire zone 89 is the Unit 3 Condensate Storage Tank area located on the 18 foot elevation near the northwest corner of the Unit 3 Containment. This is an outdoor zone containing the Steam Generator Pressure Transmitters, Steam Generator Blowdown Isolation Valves and related equipment. The table below lists the safe shutdown functions for circuits which require fire barrier protection in Fire zone 89.

The in situ combustibles located in this fire zone consist of cables in two cable trays located 18 feet to 20 feet above grade level. Cables routed in these trays are either coated with a fire propagation retardant

(Flamastic 71A or 77) or are qualified to the requirements of IEEE-383, 1974. Additionally, there are no major combustibles located within 50 feet of Fire zone 89. Transient combustible material is administratively controlled within this fire zone by the Transient Combustible and Flammable Substances Program.

FPL requested and was granted (reference 1) exemption from that portion of Section III.G.2.b of Appendix R to 10 CFR Part 50 which requires the installation of fire detectors and automatic fire suppression for the required redundant safe-shutdown related cables having 20 feet or greater horizontal separation.

FPL requested and was granted (reference 1) exemption from that portion of Section III.G.2.c of Appendix R to 10 CFR Part 50 which requires the installation of fire detectors and automatic fire suppression for required redundant safe shutdown related cables provided with one-hour rated protection.

Various fire-mitigating features exist for Fire zone 89. Fire extinguishers and a standpipe hose station are accessible to Fire zone 89. Fire zone 89 is remote from major combustibles and the total overall combustible loading from in situ sources in this area is negligible. Fire zone 89 is an open outdoor area, which prevents the stratification of hot gases or other products of combustion from affecting redundant cables should a fire occur.

It is FPL's position with respect to the previously approved exemption (discussed above) and to existing safe shutdown equipment and circuitry within Fire zone 89, that use of a 25-minute electrical raceway fire barrier system in place of a 1-hour rated fire protection barrier provides reasonable assurance that one safe shutdown train and associated circuits used to achieve and maintain safe shutdown is free of fire damage. This position is based on Fire zone 89 fire protection features; the outdoor nature of the fire zone preventing the stratification of hot gases and ceiling jet layers, the minimal in situ combustible load, and the remote location from a major combustible source (> 50 feet). These features provide reasonable assurance that any fire would be small and that the required post-fire safe shutdown equipment protected by the 25-minute electrical raceway fire barrier system would remain free of fire damage until the fire burned itself out or was detected by plant personnel and adequately controlled and suppressed by the plant fire brigade.

Fire Zone 131 (Unit 3 EDG Radiator Room)

Fire zone 131 is the Units 3A and 3B Diesel Generator Radiator area located on the 18 foot elevation west of Units 3A and 3B Emergency Diesel Generator Rooms. This is an outdoor zone, bounded on three sides by a metal grating missile shield. The east wall and ceiling are concrete. Fire zone 131 contains the Units 3A and 3B Diesel Generator radiators and cooling fan and associated instruments, piping and valves. As listed on the table below, there are no safe shutdown functions for circuits which require fire barrier protection in Fire zone 131.

The in situ combustible located within this fire area consists of radiator fan belts and rubber hoses. There are no cable trays in this fire area. Additionally, there are no major combustibles located within 50 feet of Fire zone 131. Transient combustible material is administratively controlled within this fire zone by the Transient Combustible and Flammable Substances Program.

FPL requested and was granted (reference 1) exemption from the provisions of Section III.G.2.a of Appendix R to 10 CFR Part 50 which requires the separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a three-hour rating. Specifically, exemption was requested from total enclosure of one Unit 3 Diesel Generator Radiator Room by a three-hour rated fire barrier.

Various fire-mitigating features exist for Fire zone 131. A 10-foot high barrier of three-hour rated construction separates redundant diesel generator radiators and provides protection for one unit from a floor level fire in the redundant unit. The total overall combustible loading from in situ sources in this area is negligible. In the event of a fire, the west wall for this fire zone is open to the atmosphere, thereby allowing hot gases to vent and dissipate before redundant equipment is damaged. Hose stations, fire hydrants, and portable fire extinguishers are accessible.

It is FPL's position that the existing fire protection features for Fire zone 131 provide a level of fire protection consistent with the fire hazards identified in this fire zone. Fire protection features include; utilization of a partial height (10 feet high) three-hour rated fire barrier, negligible in situ fire load, and the outdoor nature of Fire zone 131. These features provide reasonable assurance that any fire would be small and that the required post-fire safe shutdown equipment would remain free of fire damage until the fire burned itself out or was detected by plant personnel and adequately controlled and suppressed by the plant fire brigade. These features provide a high level of assurance that at least one train of redundant safe shutdown equipment and cables will remain free of fire damage. This position is consistent with exemption from the provisions of Section III.G.2.a of Appendix R to 10 CFR Part 50, which was previously granted.

Turkey Point Units 3 and 4
Protected Safe Shutdown Circuits for Selected Outdoor Fire Zones

FIRE ZONE	SAFE SHUTDOWN FUNCTION
79	Feedwater supply
79	Mitigate Component Cooling Water Pump spurious loading
79	4KV Bus clearing and emergency/backup power supply
79	Normal Containment Cooling
79	Mitigate Condensate Pump spurious loading
79	Mitigate Heater Drain Pump spurious loading
79	Mitigate Intake Cooling Water Pump spurious loading
79	Steam Generator level indication
79	Reactor Coolant System pressure indication
79	Hot Leg temperature indication
79	Cold Leg temperature indication

79	Main Steam Isolation
79	Pressurizer relief isolation
79	480V power supply
79	DC Inverter Room air conditioning
81	4KV Emergency/backup power supply
84	Feedwater supply
84	Mitigate Component Cooling Water Pump spurious loading
84	Component Cooling Water supply to Reactor Coolant Pump thermal barrier
84	Reactor Coolant System volume and chemistry control
84	Pressurizer Auxiliary Spray control
84	4KV Bus clearing and emergency/backup power supply
84	Normal Containment Cooling
84	Containment instrument air supply
84	Mitigate Intake Cooling Water Pump spurious loading
84	Pressurizer level indication
84	Steam Generator level indication
84	Steam Generator pressure indication
84	Reactor Coolant System pressure indication
84	Cold Leg temperature indication
84	Hot Leg temperature indication
84	Main steam isolation
84	Pressurizer Heating control
84	Pressurizer power operated relief control
84	480V power supply
84	120VAC power supply
84	125VDC power supply
86	Mitigate Component Cooling Water Pump spurious loading
86	4KV Bus clearing and emergency/backup power supply

86	Normal Containment Cooling
86	Mitigate Intake Cooling Water Pump spurious loading
86	480V power supply
86	125VDC power supply
88	Feedwater supply
88	Mitigate Component Cooling Water Pump spurious loading
88	4KV Bus clearing and emergency/backup power supply
88	Normal Containment Cooling
88	Mitigate Intake Cooling Water Pump spurious loading
88	480V power supply
89	Auxiliary Feedwater flow control valve control
89	Mitigate Component Cooling Water Pump spurious loading
89	Bus clearing and emergency/backup power supply
89	Normal Containment Cooling
89	Mitigate Intake Cooling Water Pump spurious loading
89	480V power supply
131	No protected circuits in this fire zone

REFERENCES

- 1) Letter, S.A. Varga (NRC) to J.W. Williams, Jr. (FPL), "Exemption Requests for Turkey Point Plant Units 3 and 4 - 10 CFR 50 Appendix R Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," dated March 27, 1984.
- 2) Letter, S.A. Varga (NRC) to C.O. Woody (FPL), "Exemption from Requirements of Appendix R to 10 CFR 50 Section III.G.2 - Turkey Point Units 3 and 4," dated August 12, 1987.