March 27, 1984

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Docket Nos. 50-250
and 50-251

Mr. J. W. Williams, Jr.
Vice President - Nuclear Energy Department
Florida Power and Light Company
Post Office Box 14000
Juno Beach, Florida 33408

Dear Mr. Williams:

Subject: Exemption Requests for Turkey Point Plant Unit Nos. 3 and 4 - 10 CFR 50, Appendix R, Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979

The Commission has issued the enclosed Exemption from certain requirements of Appendix R to 10 CFR 50 in response to your letter dated April 8, 1983, as supplemented on May 12, June 6 and September 30, 1983.

The location, fire zone, pertinent section of Appendix R and disposition of the exemption requests are summarized as follows:

1. Unit No. 4 Component Cooling Water Area - Fire Zone 47:
   III.G.2, requests exemption from the requirements of 20 feet separation and installation of total area coverage automatic fire suppression systems. Granted

2. Unit No. 3 Component Cooling Water Area - Fire Zone 54:
   II.G.2, same as Item 1. Granted

3. Unit No. 4 Ground Floor Vestibule Containment Area - Fire Zone 79:
   III.G.2, requests exemption from the requirement for installation of automatic fire detection and suppression systems. Granted

4. Shared Auxiliary Feedwater Pump Area - Fire Zone 84:
   III.G.2, same as Item 3. Granted

5. Shared Condensate Storage Area - Fire Zone 89:
   III.G.2, same as Item 3. Granted

6. Unit No. 4 Main Steam Platform - Fire Zone 114:
   III.G.2, same as Item 3. Granted

7. Unit No. 3 Main Steam Platform - Fire Zone 115:
   III.G.2, same as Item 3. Granted

8. Unit No. 4 Feedwater Platform and Below - Fire Zone 113:
III.G, requests exemption from the requirements for separation of redundant safe shutdown equipment by a 1-hour rated fire barrier and automatic fire suppression system in areas. Granted

9. Unit No. 3 Feedwater Platform and Below - Fire Zone 116:
III.G, same as Item 8. Granted

10. Unit No. 4 Intake Area - Fire Zone 119:
III.G, requests exemption from the requirement for installation of automatic fire suppression systems. Granted

11. Unit No. 3 Intake Area - Fire Zone 120:
III.G, same as Item 10. Granted

12. Shared Diesel Generator Radiator Room - Fire Zone 131:
III.G, requests exemption from the requirement for total enclosure of one diesel radiator room by 3-hour rated fire barriers. Granted

13. Unit No. 3 Residual Heat Removal Equipment Room - Fire Zones 11, 12 and 13 (Fire Area B):
III.G, requests exemption from the requirements for 1-hour rated fire barrier for protection of redundant safe shutdown cables and equipment and automatic fire suppression capability throughout these areas. Granted

14. Unit No. 4 Residual Heat Removal Equipment Room - Fire Zones 14, 15 and 16 (Fire Area C):
III.G, same as Item 13. Granted

15. Unit No. 4 Charging Pump Area - Fire Area N:
III.G.2, requests exemption from the requirements for installation of an automatic fire suppression system in the entire fire area and 3-hour rated fire door. Granted

16. Unit No. 3 Charging Pump Area - Fire Area O:
III.G.2, same as Item 15. Granted

17. Unit No. 4 Containment Building - Fire Area P:
III.G, requests exemption from the requirement for installation of a non-combustible radiant energy shield between redundant safe shutdown equipment and cables separated by a distance of less than 20 feet. Granted

18. Unit No. 3 Containment Building - Fire Area Q:
III.G, same as Item 17. Granted

19. Shared Control Room - Fire Area MM:
III.G.3, requests exemption from the requirement for installation of a fixed suppression system. Granted

20. Unit No. 3 and Unit No. 4 Emergency Lighting in Containments:
III.J, requests exemption from the requirement for 8-hour battery powered lighting units inside containment. Granted

21. Unit No. 3 and Unit No. 4 Oil Collection Systems:
III.O, requests exemption from the requirement for an oil collection tank sized to hold lube oil inventory of all 3 reactor coolant pump motors. Granted

22. Unit No. 3 and Unit No. 4 Exterior Wall Penetrations:
III.G, requests exemption from the requirement for installation of 3-hour fire rated doors and dampers. Not Needed

In granting the above exemption requests, we have determined that the level of protection currently provided in the areas and the proposed modifications are equivalent to the level of protection required by Section III.G, III.J and III.O of Appendix R. The details of our evaluation and bases for our findings are contained in the enclosed Safety Evaluation and Exemption.

A copy of the Exemption is being filed with the Office of the Federal Register for publication.

Sincerely,

Original signed by
Steven A. Varga

Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Enclosures:
1. Exemption
2. Safety Evaluation

cc w/enclosures:
See attached list

ORB #1	ORB #1	ORB #1	OELD	AD:DL	ORB#5:DL
CParrish/jm	DMcDonald	S Varga	W. Shields	G Lainas	TWambach
3/ 6 /84	3/ 7 /84	3/20 /84	2/22 /84	3/23/84	3/20/84

J. W. Williams, Jr.
Florida Power and Light Company

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Units 3 and 4

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7590-01

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
FLORIDA POWER AND LIGHT COMPANY	)	Docket Nos. 50-250 and 50-251
	)	
(Turkey Point Plant Unit Nos. 3 and 4)	)	

EXEMPTION

I.

Florida Power and Light Company (the licensee) is the holder of Facility Operating License Nos. DPR-31 and DPR-41 which authorize the operation of the Turkey Point Plant, Unit Nos. 3 and 4 (the facilities) at steady-state power level not in excess of 2200 megawatts thermal. The facilities are pressurized water reactors (PWRs) located at the licensee's site in Dade County, Florida. The licenses provide, among other things, that the facilities are subject to all rules, regulations and orders of the Commission now or hereafter in effect.

II.

Section 50.48 of 10 CFR Part 50 requires that licensed operating reactors be subject to the requirements in Appendix R of 10 CFR Part 50. Appendix R contains the general and some of the specific requirements for fire protection programs at licensed nuclear facilities. On February 17, 1981, the fire protection rule for nuclear power plants, 10 CFR 50.48 and Appendix R, became effective. This rule required all licensees of plants licensed prior to January 1, 1979, to submit by March 19, 1981: (1) plans and schedules for

meeting the applicable requirements of Appendix R, (2) a design description of any modifications proposed to provide alternative safe shutdown capability pursuant to Paragraph III.G.3 of Appendix R, and (3) exemption requests for which the tolling provision of Section 50.48(c)(6) was to be invoked. The licensee responded to these requirements by letter dated February 4, 1981, and supplemented by letters dated March 19, 1981, November 9, 1981, July 1, 1982 and October 22, 1982.

By letter dated March 19, 1981, the licensee requested exemptions from Sections III.G, III.J, and III.O of Appendix R to 10 CFR 50. However, we denied exemption requests on Section III.J for lack of specificity and III.G for those areas where the justification was based only on previous approval in the fire protection Safety Evaluation (SE). We indicated that the licensee needs to either meet the requirements of Section III.G for previously closed areas, or provide a detailed fire hazard analysis supporting an alternative approach. In the fire protection SE, we reported the following open items:

Item 3.1.2/3.2.3, Fire Water Supply

Item 3.2.4, Auxiliary Building Corridor

Item 3.2.5, Cable Spreading Room

Item 6.0, Fire Brigade Size

By letters dated February 4, 1981 and March 19, 1981, the licensee committed to meet our guidelines for fire brigade size and requirements of Section III.A for the fire water supply. The remaining open items are resolved in the following evaluation. We, therefore, consider all open items to be resolved.

By letter dated July 1, 1982 and supplemented on October 22, 1982, the licensee requested additional exemptions from Section III.G and III.J of Appendix R. In our draft Safety Evaluation (SE), we recommended granting five

of the exemption requests and denying fifteen. The licensee was evaluating fire protection from the "design basis fire" approach instead of the "protective features" approach.

By letter dated April 8, 1983 and supplemented on May 12, June 6, and September 30, 1983, the licensee superseded the previous submittals and utilized the protective features approach in evaluating fire protection for the Turkey Point facilities.

III.

The April 8, 1983 submittal, as supplemented on May 12, June 6, and September 30, 1983, requested twenty-two exemptions from Appendix R to 10 CFR 50 (twenty from III.G, one from III.J and one from III.O).

Unit 4 Component Cooling Water Area (Fire Zone 47)

Unit 3 Component Cooling Water Area (Fire Zone 54)

The licensee requests exemptions from Section III.G.2 to the extent it requires 20 feet of separation and the installation of total area coverage automatic fire suppression systems.

Fire Zone 47 is outdoors and separated from other plant areas by 3-hour fire rated walls. This area contains 3 redundant component cooling water (CCW) pumps for Unit No. 4. Control cables for each pump are located in a common enclosure. The licensee proposes to reroute the local controls for one pump to achieve 20 feet of separation free of intervening combustibles. This area also contains manholes and duct banks which contain redundant intake cooling water cables. The licensee proposes to install 2-inch curbs around each covered manhole to preclude flammable liquid spills from entering.

The fuel load in the area is low and manual hose stations and portable fire extinguishers are available. The licensee proposes to install an automatic wet pipe sprinkler system, an additional open head deluge sprinkler

system activitated by Ultra Violet (UV) fire detectors and early warning fire detection systems throughout the area.

Fire Zone 54 contains the 3 redundant component cooling water pumps for Unit No. 3. It is similar to Zone 47 except it does not contain manholes and duct banks. The proposed modifications for Zone 47 are applicable to Zone 54 with the exception of the modifications for the manholes.

For the protection of redundant cables and equipment separated by less than 20 feet free of intervening combustibles, Section III.G.2 requires automatic suppression and detection throughout the area in conjunction with 1-hour fire barriers to separate one train of components.

The committed additional open head deluge sprinkler system will be activated by UV fire detectors. The UV fire detectors will respond to fires within milliseconds to activate the deluge sprinkler system. Because the in-situ fuel load in the zones is low and the licensee has committed to install additional automatic fire detection and suppression systems, which will provide fast total coverage of the CCW pumps, we have reasonable assurance that one train of CCW pumps will remain free of fire damage. The 12 feet separation between the CCW pumps will provide adequate passive protection until the deluge sprinkler system is activated and extinguishes the fire. There is also adequate time for the fire brigade to intervene.

Based on the above evaluation, the existing protection combined with the proposed modifications provides a level of fire protection in the Unit 3 and Unit 4 Component Cooling Water Pump Areas (Fire Zones 47 and 54) equivalent to the technical requirements of Section III.G of Appendix R. Therefore, the exemptions are granted.

Ground Floor Vestibule Unit 4 Containment Area (Fire Zone 79)

Auxiliary Feedwater Pump Area (Fire Zone 84)

Condensate Storage Area Unit 3 (Fire Zone 89)

Main Steam Platform Unit 4 (Fire Zone 114)

Main Steam Platform Unit 3 (Fire Zone 115)

The licensee requests exemptions from Section III.G.2 to the extent it requires the installation of automatic fire detection and suppression systems.

Fire Zone 79 is located outside and the fuel load in the zone is light. Manual hose stations and portable fire extinguishers are available. Redundant safe shutdown cables with less than 20 feet of separation, free of intervening combustibles, are installed in this area. The licensee proposes to either separate the Train B redundant cables from the Train A cables by 20 feet, free of intervening combustibles, or wrap the Train B cables in an approved 1-hour fire rated barrier until 20 feet of separation, free of intervening combustibles, is achieved.

Fire Zone 84 is an outside area which houses all three auxiliary feedwater pumps and redundant safe shutdown cables are routed through the area. Portable fire extinguishers, standpipe and hose stations are available. The licensee proposes to provide alternative shutdown capability for the auxiliary feedwater pumps by installing two 100% capacity standby steam generator feed pumps independent of this area capable of operation upon a loss of offsite power. In addition, the licensee will either reroute one train of redundant cables to achieve 20 feet of separation, free of intervening combustibles, or wrap one train of cables in an approved 1-hour fire rated barrier until 20 feet of separation, free of intervening combustibles, is achieved.

Fire Zone 89 is an open area with limited combustibles containing the condensate storage tank, transfer pumps and safe shutdown related equipment and cables. Portable fire extinguishers, standpipe and hose stations are available. The licensee proposes to either separate one train of redundant cables by 20 feet, free of intervening combustibles, or wrap one train in an approved 1-hour fire rated barrier until 20 feet of separation, free of intervening combustibles, is achieved.

Fire Zones 114 and 115 are outside areas which contain the main steam isolation and atmospheric dump valves. Portable fire extinguishers, standpipe and hose stations are available.

These areas do not comply with Section III.G because automatic suppression and detection systems are not installed in the areas.

For redundant cables in the areas, other than the specific cables proposed to be changed, it is our opinion that the possibility of a fire of sufficient magnitude to affect redundant systems is slight due to the open area and height of cables above the floor. Therefore, we have reasonable assurance that one train will be maintained free of fire damage. In addition, we agree with the licensee's conclusion that the fire protection modifications proposed along with the physical arrangemnt of Fire Zones 79, 84, 89, and 114 and 115 will provide sufficient protection for the redundant safe shutdown equipment in this area and full compliance with the specific provisions of Section III.G would not add significantly to overall fire protection of the plant.

Based on the above evaluation, the existing protection combined with the proposed modifications provide a level of fire protection equivalent to the technical requirements of Section III.G of Appendix R. Therefore, the exemptions are granted.

Fire Zones 113 and 116 - Unit 4 and Unit 3 Respectively

Feedwater Platform

The licensee requests an exemption from III.G to the extent that it requires redundant safe shutdown equipment be protected by a 1-hour rated fire barrier and the installation of automatic fire suppression systems in the areas.

Zones 113 and 116 are the feedwater platforms for Unit 4 and Unit 3, respectively. They contain safe shutdown equipment and associated cables for their respective units. Portable fire extinguishers, standpipe and hose stations are available. The licensee proposes to install early warning fire detection in both zones. The licensee also proposes to either separate one train of redundant cables in each fire zone to achieve 20 feet separation, free of intervening combustibles, or wrap one train of redundant cables in an approved 1-hour fire rated barrier until 20 feet separation, free of intervening combustibles, is achieved.

These areas do not comply with Section III.G because redundant Auxiliary Feedwater (AFW) components are not separated by 1-hour fire barriers and automatic fire suppression systems have not been installed in the areas.

These areas are outdoors. Redundant cables are separated by 20 feet, free of intervening combustibles, or will be rerouted and the redundant AFW valves are separated vertically by approximately 8 feet in both areas with a minimum of a ¼" inch thick steel platform installed between the redundant valves. It is our opinion that due to the open area, separation and protection of the redundant cables, early warning fire detection and the configuration of the redundant AFW valves between the feedwater platform, the possibility of a fire of sufficient magnitude to affect redundant AFW systems

components is slight. Therefore, we have reasonable assurance that one train will be maintained free of fire damage.

Based on the above evaluation, the existing protection combined with the proposed modifications and commitments provides a level of fire protection equivalent to the technical requirements of Section III.G of Appendix R. Therefore, the exemptions are granted.

Unit 4 Intake Area (Fire Area 119)

Unit 3 Intake Area (Fire Zone 120)

The licensee requests exemptions from Section III.G to the extent that it requires the installation of automatic fire suppression systems.

The Unit Nos. 3 and 4 intake structures are contiguous and are designated Fire Zones 119 and 120. The zones contain the intake cooling water pumps and associated cables. The licensee proposes to wrap the 4C and 3C power and control cables from the embedded conduit to the motor terminal block of the pumps. In addition, the local control stations for the 4B, 4C, 3B and 3C pumps will be enclosed with a 1-hour fire rated barrier. The floor has numerous openings to the intake water and combustibles are limited to lubricating oil in the steel motor housings. The oil provides unpressurized lubrication. The oil has a flashpoint of greater than 400°F. These zones do not contain hot surfaces to ignite the oil. Fire protection in the zones consist of manual hose stations and portable fire extinguishers. The licensee proposes to install early warning fire detectors in that portion of the zones containing the intake cooling water pumps.

These areas do not comply with Section III.G because automatic suppression systems are not installed in the zones.

These areas are open without a ceiling. We find this arrangement will prevent the accumulation of hot stratified gases from anticipated fires.

Redundant cables and equipment are separated by 28 feet or will be enclosed in a 1-hour fire rated barrier. It is our opinion that due to the open area, separation of redundant equipment and early warning fire detection, the possibility of a fire of sufficient magnitude to affect redundant systems prior to the arrival of the fire brigade is slight. Therefore, we have reasonable assurance that one train of equipment will be maintained free of fire damage.

Based on the above evaluation, the existing protection combined with the proposed modifications provides a level of fire protection equivalent to the technical requirements of Section III.G of Appendix R. Therefore, the exemptions are granted.

Diesel Radiator Room (Fire Zone 131)

The licensee requests an exemption from Section III.G to the extent that it requires the total enclosure of one Diesel Radiator Room by 3-hour rated fire barriers.

This area houses radiators and cooling fans for both units' diesel generators. The in-situ combustibles are insignificant and portable fire extinguishers, standpipe and hose stations are available. The licensee proposes to install a partial height (10 feet high) 3-hour fire rated barrier between the radiators for the Unit 3 and 4 diesel generators; provide curbing 2 inches high directly against the west side of the diesel generator radiators; and reroute, independent of the area or separate with a 3-hour fire rated barrier, control cables for Diesel Generator 3 Breaker to Bus 4A.

This area does not comply with Section III.G because redundant diesel radiator rooms are not enclosed by complete 3-hour fire rated barriers.

There are no in-situ combustibles in this area and any exposure fires would be of limited severity and duration. The proposed 3-hour fire barrier

between the redundant cooling fans will protect one unit from a floor level fire in the redundant unit. Because the west wall of the area is open to the atmosphere, rising hot gases will be vented and dissipated before redundant equipment is damaged. This combination of features compensates for the lack of a complete 3-hour fire barrier.

Based on the above evaluation and proposed modifications, the protection provided for the diesel generator radiator area provides a level of fire protection equivalent to the technical requirements of Section III.G of Appendix R. Therefore, the exemption is granted.

Fire Zones 11, 12, and 13 (Fire Area B) Unit 3 Residual Heat Removal Area

Fire Zones 14, 15, and 16 (Fire Area C) Unit 4 Residual Heat Removal Area

The licensee requests an exemption from Section III.G to the extent that it requires 1-hour rated fire barrier for protection of redundant safe shutdown cables and equipment and the installation of automatic fire suppression capability throughout these areas.

These two areas are essentially identical areas consisting respectively of the Unit 3 and Unit 4 residual heat removal (RHR) pumps and heat exchangers in the Auxiliary Building.

For analysis purposes, because of the unprotected openings in the floor/ceiling assemblies, the licensee has combined these zones into one fire area. Each area contains redundant RHR pumps, heat exchangers, associated components and other safe shutdown cables. The combustible loading is limited to the oil and grease associated with pumps and motor operated valves in the areas. The licensee proposes the following Unit 4 modifications: Upgrade perimeter walls and ceilings of Fire Area B to a 3-hour barrier by sealing all

piping and other penetrations and by installing 3-hour rated fire doors and dampers in all doorways and ventilation duct penetrations; upgrade the partial height wall between Zones 12 and 13 by sealing all penetrations to a 3-hour rating; upgrade the wall between Zone 11 and Zones 12 and 13 by sealing all penetrations to a 3-hour rating with the exception of the 5' by 8' access way to Zone 13; provide fire detection in Zones 11, 12, and 13; and provide 1-hour rated protection for RHR Pump 3A power and control cables routed through Zone 13.

The licensee proposes the following Unit 3 modifications: Upgrade perimeter walls and ceiling of Fire Area C to 3-hour barriers by sealing all piping and other penetrations and by installing 3-hour rated fire doors and dampers in all doorways and ventilation duct penetrations, respectively; upgrade partial height wall between Fire Zones 15 and 16 by sealing all penetrations in the partial height wall to a 3-hour rating and; upgrade the wall between Zones 14, 15 and 16 by sealing all penetrations to a 3-hour rating with the exception of the 5' by 8' access way to Zone 16.

These areas do not comply with Section III.G because complete 3-hour barriers are not used to separate the redundant equipment.

In the RHR area, the licensee proposes to provide a 16 feet, partial height, 3-hour fire barrier to separate the redundant RHR pumps in each fire area. In addition, the licensee proposes to provide early warning fire detection in each area. The only significant in-situ combustible in the fire area is grease and the pump motor lubricating oil. We agree with the licensee that the probability of ignition of the oil is low because the lubricating oil has a high flashpoint (approximately 450°F) and that sufficiently hot surfaces do not exist in this fire area to cause the ignition of the lube oil. Because of the low in-situ fuel load and early warning fire detection, we have

reasonable assurance that the partial height barrier will provide adequate protection for the RHR pumps for anticipated fires in the areas and that one train of RHR systems will be maintained free of fire damage.

Based on the above evaluation, the existing protection combined with the proposed modifications, provides a level of fire protection equivalent to the technical requirements of Section III.G of Appendix R. Therefore, the exemptions are granted.

Unit 4 Charging Pump Room (Fire Area N)

Unit 3 Charging Pump Room (Fire Area O)

The licensee requests exemptions from Section III.G.2 to the extent it requires the installation of an automatic fire suppression system in the entire fire area and the installation of fire doors.

These two areas are essentially identical areas consisting of the Unit 4 and Unit 3 charging pumps. The areas are separated from other plant areas by 3-hour fire rated barriers. Fire protection in each area consists of early warning fire detection, manual hose stations and portable fire extinguishers. The combustible loading in these areas is light.

The licensee proposes the following modifications: Upgrade perimeter walls in each area to 3-hour rated barriers by sealing all piping and other penetrations and by installing 3-hour rated doors and dampers in doorways and ventilation penetrations respectively, protect conduits and reroute or protect control cables for charging pumps 4B and 3B with 1-hour rated protection and protect the 4A and 3A charging pump cables; protect the local control stations for charging pumps 4B and 3B by providing an enclosure fabricated from 1-hour rated materials or relocate outside of this fire area; reroute in conduit and protect with 1-hour rated materials, the cables for LCV-4-115B, and LEV-3-115B, wherever the separation from cables for MOV-4-350 and MOV-3-350 is

less than 20 feet, free of intervening combustibles; provide a water suppression system in each area with coverage protecting the charging pumps, associated cables and valves and all combustibles in the area. The activation of the automatic water suppression system will not adversely affect the operation of the charging pumps.

This area does not comply with Section III.G because the proposed automatic suppression systems do not protect the entire fire areas.

It is our opinion that due to the configuration and protection provided for the charging pumps and the low in-situ fuel load, the proposed partial suppression system provides reasonable assurance that one train will be maintained free of fire damage.

Based on the above evaluation, the existing protection combined with the proposed modifications, provides a level of fire protection equivalent to the technical requirements of Section III.G of Appendix R. Therefore, the exemptions are granted.

Fire Area P - Containment Building - Unit 4

Fire Area Q - Containment Building - Unit 3

The licensee requests exemptions from Section III.G to the extent that it requires the installation of a noncombustible radiant energy shield between redundant safe shutdown equipment and cables separated by a distance of less than 20 feet.

Each Containment Building is essentially open and considered to be one fire area. Access is available via the personnel air lock, emergency air lock and the access hatch. No hose stations or automatic suppression is provided; however, portable fire extinguishers are available and ionization type fire detectors are installed. Redundant shutdown equipment and cables are located

in the containments. Combustibles consist of lubricating oils and cables. Controlled access limits the possibility of transient combustibles.

The licensee proposes the following modifications to Unit 4: Reroute the control cables for valve AOV-4-460 through the West Penetration Area and maintain the separation in excess of 20 feet from the cables for valves AOV-4-200 A, B and C as far as physically possible; reroute the control cables for valve AOV-4-387 through the West Penetration Area and maintain the separation in excess of 20 feet from the cables for valve HCV-4-137 as far as physically possible; reroute the control cables for AOV-4-310A through the West Penetration Area and maintain the separation in excess of 20 feet from the cables for valve AOV-4-310B as far as physically possible; and provide a minimum of 20 feet of separation for cables between two trains of reactor coolant system hot and cold leg temperature instrumentation, wherever physically possible. Route the two trains through separate penetration areas; provide 1-hour rated protection to the conduit for LT-4-460 to the maximum extent possible, in the pressurizer missile shield wall area where separation from conduits for LT-4-459 is less than 20 feet; provide dedicated portable emergency lighting outside the containment for containment entry to facilitate manual operation of the valves; and install radiant energy shields to separate the charging line isolation valve and associated cabling.

The licensee proposes the following modifications to Unit 3: Reroute the control cables for valve AOV-3-460 through the West Penetration Area and maintain the separation in excess of 20 feet from the cables for valves AOV-3-200A, B and C; reroute the control cables for AOV-3-310A through the West Penetration Area and maintain the separation in excess of 20 feet from the cables for valve AOV-3-310B; provide a minimum of 20 feet of separation for cables between two trains of reactor coolant system hot and cold leg

temperature instrumentation, where physically possible. Route the two trains, when provided, through separate penetration areas; provide 1-hour rated protection on the conduit for LT-3-460 to the maximum extent possible in the pressurizer missile shield wall area where separation from conduits for LT-3-459 is less than 20 feet; provide dedicated portable emergency lighting units outside the containment for containment entry to facilitate manual operation of valves; and install radiant energy shields to separate the charging line, isolation valves and associated cabling.

The technical requirements of Section III.G are not met because radiant energy barriers are not provided for redundant trains of safe shutdown equipment and cabling separated by less than 20 feet. The licensee proposes rerouting of cables or the installation of fire barriers and radiant energy shields for all the redundant equipment, except pressurizer equipment associated with operation and located within the missile shield wall. These areas are void of in-situ combustibles. These areas are inaccessible during plant operation. All cabling inside the missile shield walls are routed in conduit. Due to their configuration and location within the containment and to the restricted access of these sub-areas during plant operations, an exposure fire involving the accumulation of significant quantities of transient combustible materials is unlikely. Because there are only a few cables in these sub-areas and all cables are routed in conduit, a fire of sufficient magnitude to damage redundant cables or components is also unlikely.

Based on the above evaluation, the existing protection combined with the proposed modifications for the containment areas, provides a level of fire protection equivalent to the technical requirements of Section III.G of Appendix R. Therefore, the exemptions are granted.

Units 3 and Unit 4 Control Room (Fire Area MM)

The licensee requests an exemption from Section III.G.3 to the extent that it requires the installation of a fixed suppression system in the control room.

The control room is a continuously occupied space which houses controls and instruments necessary to remotely operate valves, pumps, motors, etc. required for plant operation. Most of these controls and instruments are mounted on centrally located panels. Redundant safe shutdown related cables are routed in the area to various control panels. Ionization type fire detectors are installed, portable fire extinguishers and hose stations are available. The licensee proposes to provide a single train alternative shutdown for each unit independant of this fire area.

This area does not comply with Section III.G, because the control room is not provided with fixed suppression. The control room is equipped with the area fire detectors, and is provided with both a hose station and fire extinguishers for manual fire fighting. The fire load in the area is low. In addition, the licensee proposes an alternate shutdown system with control capabilities for those systems necessary to maintain safe-shutdown capability which is independent of the main control room. The fire protection features currently installed in the control room and the continuous manning of the control room provide adequate defense-in-depth fire fighting capability for this area.

Based on the above evaluation, we conclude that the installation of a fixed fire suppression system will not significantly increase the level of fire protection in the control room. The existing protection combined with the proposed modifications provides a level of fire protection equivalent to

the technical requirements of Section III.G of Appendix R. Therefore, the exemption is granted.

Exterior Wall Penetrations

The licensee requests an exemption from installing 3-hour fire rated doors and dampers in exterior wall penetrations in the Auxiliary Building, Control Building, Diesel-Generator Building and Switchgear Building. We have reviewed the licensee's requests and find that the exterior walls in these buildings do not separate redundant safe shutdown equipment and no fire hazards exist within 50 feet of the buildings or automatic water curtains have been provided. Therefore, no exemptions from Section III.G of Appendix R are needed.

Emergency Lighting In Containment Units 3 and 4

The licensee has performed an analysis of the effects on safe shutdown capability following a fire. The analysis identified the equipment requiring manual operation to achieve cold shutdown which is located inside the containments.

The licensee requests an exemption from Section III.J to the extent that it requires 8-hour battery powered lighting units inside the containments to enable operator access to the shutdown cooling valves. The licensee proposes to provide dedicated portable emergency lighting for containment entry.

Because manual operation of the shutdown cooling return valves may not be needed for several hours after the loss of onsite power, the benefits provided by 8-hour emergency lighting units may be marginal. Since additional personnel will be available during this time frame to carry and position the lights, we agree with the licensee that dedicated portable lighting units will provide acceptable illumination for containment access and the installation of

In the RHR area, the licensee proposes to provide a partial height (16 feet) 3-hour fire barrier to separate the redundant RHR pumps in each fire area. In addition, the licensee proposes to provide early warning fire detection in each area. The only significant in-situ combustibles in the fire areas are grease and the pump motor lubricating oil. We agree with the licensee that the probability of ignition of the oil is low because the lubricating oil has a high flashpoint (approximately 450°F) and sufficiently hot surfaces do not exist in this fire area to cause the ignition of the lube oil.

Because of the low in-situ fuel load and early warning fire detection, we have reasonable assurance that the partial height barrier will provide adequate protection for the RHR pumps for anticipated fires in the areas and that one train of RHR systems will be maintained free of fire damage.

6.4 Conclusion

Based on the above evaluation, the existing protection combined with the proposed modifications provides a level of fire protection equivalent to the technical requirements of Section III.G, therefore, the exemptions should be granted.

7.0 Unit 4 Charging Pump Room (Fire Area N)
Unit 3 Charging Pump Room (Fire Area O)

7.1 Exemption Requested

The licensee requests exemptions from Section III.G.2 to the extent it requires the installation of an automatic fire suppression system in the entire fire area and installation of fire doors.

7.2 Discussion

These two areas are essentially identical areas consisting respectively of the Unit 4 and Unit 3 charging pumps. The areas are separated from other plant areas by 3-hour fire rated barriers with the exception of 2 radiation shield doors, one in each area. The doors are composed of lead and steel and are approximately 1 foot thick. Fire protection in each

area consist of early warning fire detection, manual hose stations and portable fire extinguishers.

Each area contains three redundant charging pumps. The pumps are installed approximately 12 feet on centers with approximately 24 feet between the end pumps.

The combustible loading in the areas is light, consisting of two cable trays containing cables which are provided with a fire propagation retardant coating or are qualified to the requirements of IEEE-383, 1974, lubricating oil contained within the steel pump assembly casing and grease contained in motor operated valves.

The licensee proposes the following modifications:

1. Upgrade perimeter walls in each area to 3-hour rated barriers by sealing all piping and other penetrations and by installing 3-hour rated doors and dampers in doorways and ventilation penetrations.

2. Protect conduits and reroute or protect control cables for Charging Pump 4B and 3B with 1-hour rated protection. The licensee will also protect the 4A and 3A Charging Pump Cables.

3. Protect the local control stations for Charging Pumps 4B and 3B by providing an enclosure fabricated from 1-hour rated materials, or relocate outside of this fire area.

4. Reroute in conduit and protect with 1-hour rated materials, the cables for LCV-4-115B, and LCV-3-115B, wherever the separation from cables for MOV-4-350 and MOV-3-350 is less than 20 feet and free of intervening combustibles.

5. Provide a water suppression system in each area with coverage protecting the charging pumps, associated cables, valves and all combustibles in the areas. The licensee has indicated that

activation of the automatic water suppression system will not adversely affect the operation of the charging pumps.

7.3 Evaluation

These areas do not comply with Section III.G because the proposed automatic suppression systems do not protect the entire fire areas.

The licensee proposes to install automatic sprinkler protection in each fire area to provide sprinkler coverage over each charging pump, all associated valves, cables and all combustibles in the area. It is our opinion that due to the configuration and protection provided for the charging pumps and the low in-situ fuel load, the proposed partial suppression system provides reasonable assurance that one train will be maintained free of fire damage.

7.4 Conclusion

Based on the above evaluation, the existing protection combined with the proposed modifications provides a level of fire protection equivalent to the technical requirements of Section III.G, therefore the exemptions should be granted.

8.0 Fire Area P - Containment Building - Unit 4
Fire Area Q - Containment Building - Unit 3

8.1 Exemption Requested

The licensee requests exemption from Section III.G to the extent that it requires the installation of a noncombustible radiant energy shield between redundant safe shutdown equipment and cables separated by a distance of less than 20 feet.

8.2 Discussion Fire Area P (Containment Building - Unit 4)
Discussion Fire Area Q (Containment Building - Unit 3)

Each Containment Building is essentially open and considered to be one fire area. There are three intermediate floor levels at the 14 ft., 30 ft., and 58 ft. elevations. Normal access is through the personnel

air lock, however, access for fire fighting is also available through the emergency air lock and the access hatch.

No hose stations are located inside containment, however, four portable fire extinguishers are available inside containment for use by the fire brigade. Ionization type fire detectors are installed in selected locations throughout containment. No automatic suppression is provided inside containment.

Redundant shutdown equipment inside containment includes both normal and emergency containment coolers, accumulator discharge valves, letdown isolation valves and excess letdown isolation valves, RHR inlet isolation valves, pressurizer heater and sprays, and various motor operator valves and instrumentation transmitters. Safe shutdown cable trays are generally located outside the secondary shield wall and run from about 5 ft. to 65 ft. above the floor. Barrier separation of redundant trains is not provided, however, all cables are covered with a fire retardant mastic material. Redundant cable trays are separated from each other by minimum horizontal and vertical distances of 1½ ft. and 4 ft., respectively.

Combustible material in the area consists of lubricating oil contained in various components, and fire retardant coated cables. Since access into containment is controlled and limited, the possibility of introducing transient combustibles is substantially reduced.

The licensee proposes the following Unit 4 modifications:

1. Reroute the control cables for valve AOV-4-460 through the West Penetration Area and maintain the separation in excess of 20 feet from the cables for valves AOV-4-200 A, B and C as far as physically possible.

2. Reroute the control cables for valve AOV-4-387 through the West Penetation Area and maintain the separation in excess of 20 feet from the cables for valve HCV-4-137 as far as physically possible.

3. Reroute the control cables for AOV-4-310A through the West Penetration Area and maintain the separation in excess of 20 feet from the cables for valve AOV-4-310B as far as physically possible.

4. Provide a minimum of 20 feet of separation for cables between two trains of reactor coolant system hot and cold leg temperature instrumentation, wherever physically possible. Route the two trains, when provided, through separate penetration areas.

5. Provide 1-hour rated protection to the conduit for LT-4-460 to the maximum extent possible in the pressurizer missile shield wall area where separation from conduits for LT-4-459 is less than 20 feet.

6. Provide dedicated portable emergency lighting outside the containment unit for containment entry to facilitate manual operation of the valves.

7. The licensee will install radiant energy shields to separate the charging line isolation valve and associated cabling.

The licensee proposes the following Unit 3 modifications:

1. Reroute the control cables for AOV-3-460 through the West Penetration Area and maintain the separation in excess of 20 feet from the cables for valves AOV-3-200A, B, and C.

2. Reroute the control cables for AOV-3-310A through the West Penetration Area and maintain the separation in excess of 20 feet from the cables for valve AOV-3-310B.

3. Provide a minimum of 20 feet of separation for cables between two trains of reactor coolant system hot and cold leg temperature instrumentation where physically possible. Route the two trains, when provided, through separate penetration areas.

4. Provide 1-hour rated protection on the conduit for LT-3-460 to the maximum extent possible in the pressurizer missile shield wall area where separation from conduits for LT-3-459 is less than 20 feet.

5. Provide dedicated portable emergency lighting units outside the containment for containment entry to facilitate manual operation of valves.

6. The licensee will install radiant energy shields to separate the charging line, isolation valves and associated cabling.

8.3 Evaluation

The technical requirements of Section III.G are not met because radiant energy barriers are not provided for redundant trains of safe shutdown equipment and cabling is separated by less than 20 feet.

Section III.G calls for installation of a radiant energy shield between redundant safe shutdown equipment and cables that are closer to each other than 20 feet horizontal distance. The licensee has proposed to either reroute redundant cables and equipment to provide 20 feet of separation, free of intervening combustibles, or provide 1-hour fire rated barriers and radiant energy shields on all redundant cables in both units except for the redundant equipment associated with operation of the pressurizer, including the pressurizer heaters, PORVs, block valves and level transmitters located on or within the pressurizer missile shield walls. These areas are void of in-situ combustibles and are inaccessible during plant operation. All cabling inside the missile shield walls are routed in conduit. Due to the cable and equipment configuration and location within the containment and the restricted access of these sub-areas during plant operations, an exposure fire involving the

accumulation of significant quantities of transient combustible materials is unlikely. Because there are only a few cables in these sub-areas and all cables are routed in conduit, a fire of sufficient magnitude to damage redundant cables or components is also unlikely.

8.4 Conclusion

Based on the above evaluation, the existing protection for the containment areas provide a level of fire protection equivalent to the technical requirements of Section III.G of Appendix R. Therefore, the exemption should be granted.

9.0 Unit 3 and Unit 4 Control Room (Fire Area MM)

9.1 Exemption Requested

The licensee requests an exemption from Section III.G.3 to the extent that it requires the installation of a fixed suppression system in the control room.

9.2 Discussion

The control room is a continuously occupied space that houses controls and instruments necessary to remotely operate valves, pumps, motors, etc. required for plant operation. Most of these controls and instruments are mounted on centrally located panels. Redundant safe shutdown related cables are routed in the area to various control panels.

Ionization type fire detectors are located throughout the control room. No automatic fire suppression capability is provided. However, portable fire extinguishers, standpipes and hose stations are available for use throughout the control room.

The fire protection modification that the licensee proposes is to provide a single train alternative shutdown for each unit independent of this fire area.

9.3 Evaluation

This area does not comply with Section III.G because the control room is not provided with fixed suppression.

The control room is equipped with area fire detectors and is provided with both a hose station and fire extinguishers for manual fire fighting. The fire load in the area is low. In addition, the licensee has proposed an alternate shutdown system with control capabilities for those systems necessary to maintain safe-shutdown capability which is independent of the main control room. The fire protection features currently installed in the control room and the continuous manning of the control room provide adequate defense-in-depth fire fighting capability for this area.

9.4 Conclusion

Based on the above evaluation, we conclude that the installation of a fixed fire suppression system will not significantly increase the level of fire protection in the control room. Therefore, the exemption should be granted.

10.0 Exterior Wall Penetrations

The licensee requests an exemption from installing 3-hour fire rated doors and dampers in exterior wall penetrations in the Auxiliary Building, Control Building, Diesel-Generator Building and Switchgear Building. We have reviewed the licensee's requests and find that the exterior walls in these buildings do not separate redundant safe shutdown equipment and no fire hazards exist within 50 feet of the buildings or automatic water curtains have been provided. We find this acceptable, therefore, no exemptions from Section III.G of Appendix R are needed.

11.0 Emergency Lighting In Containment Units 3 and 4

11.1 Discussion

The licensee has performed an analysis of the effects on safe shutdown capability following a fire. The analysis identified that manual operation of accumulator stop valves MOV-3-8G5A, B and C and RHR inlet

isolation valves MOV-3-750 and 751 located inside containment would be required for cold shutdown.

The licensee requests an exemption from Section III.J to the extent that it requires 8-hour battery powered lighting units inside containment to enable operator access to the shutdown cooling valves. The licensee proposes to provide dedicated portable emergency lighting for containment entry.

11.2 Evaluation

Because manual operation of the shutdown cooling return valves may not be needed for several hours after the loss of onsite power, the benefits provided by 8-hour emergency lighting units may be marginal. We agree with the licensee that dedicated portable lighting units will provide acceptable illumination for containment access and the installation of 8-hour emergency lighting units inside containment will not greatly enhance safety.

11.3 Conclusion

The proposed dedicated portable lighting units provide a level of fire protection equivalent to the technical requirements of Section III.J. Therefore, the request for exemption should be granted.

12.0 Oil Collection System for Reactor Coolant Pumps (RCP)

12.1 Exemption Requested

An exemption is requested from Section III.O to the extent it requires an oil collection tank sized to hold the lube oil inventory of all three RCP motors.

12.2 Discussion

Each unit has three reactor coolant pumps with an oil collection system which drains to a vented closed collection tank. The quantity of lubricating oil in each pump is 200 gallons and the capacity of the oil

collection tank is 265 gallons. The components have been designed to be capable of withstanding a safe shutdown earthquake (SSE).

The collection tank is arranged such that if a failure of more than one RCP motor lube system occurred, the oil collection tank would overflow onto the lower containment floor. The lubricating oil used in the RCP motors has a flashpoint of approximately 450°F. There are no ignition sources at the floor level of the lower containment.

12.3 Evaluation

The RCP motor lube oil system does not comply with Section III.O because the oil collection tank is not sized to contain the entire lube oil system inventory. The oil collection tank is provided with sufficient capacity to hold the total lube oil inventory of one reactor coolant pump with margin and is designed so that any overflow will be drained to a safe area. We agree with the licensee that this combination of features is acceptable.

12.4 Conclusion

Based on the above evaluation, the existing RCP motor lube oil collection system provides a level of safety equivalent to the technical requirements of Section III.O and, therefore, the exemption should be granted.

III. SUMMARY AND CONCLUSIONS

Based on our evaluation, the following exemptions should be granted:

1. Unit 4 Component Cooling Water Area (Fire Zone 54)
2. Unit 3 Component Cooling Water Area (Fire Zone 53)
3. Unit 4 Ground Floor Vestibule Containment Area (Fire Zone 79)
4. Auxiliary Feedwater Pump Area (Fire Zone 84)
5. Units Condensate Storage Area (Fire Zone 89)
6. Unit 4 Feedwater Platform and Below (Fire Zone 113)
7. Unit 4 Main Steam Platform (Fire Zone 114)
8. Unit 3 Main Steam Platform (Fire Zone 115)

9. Unit 3 Feedwater Platform and Below (Fire Zone 116)
10. Unit 4 Intake Area (Fire Zone 119)
11. Unit 3 Intake Area (Fire Zone 120)
12. Diesel Generator Radiator Room (Fire Zone 131)
13. Unit 3 RHR Equipment Room (Fire Area B)
14. Unit 4 RHR Equipment Room (Fire Area C)
15. Unit 4 Charging Pump Area (Fire Area N)
16. Unit 3 Charging Pump Area (Fire Area O)
17. Unit 4 Containment Building (Fire Area P)
18. Unit 3 Containment Building (Fire Area Q)
19. Unit 3 and 4 Control Room (Fire Area MM)
20. Emergency Lights Inside Containment Units 3 and 4
21. Oil Collection System Units 3 and 4

Based on our evaluation, the exemption request for exterior wall penetrations is not needed.

Date: March 27, 1984

Principal Contributor:
J. Stang

8-hour emergency lighting units inside the containments will not greatly enhance safety.

The proposed dedicated portable lighting units provide a level of fire protection equivalent to the technical requirements of Section III.J of Appendix R. Therefore, the request for exemption is granted.

Oil Collection System for Reactor Coolant Pumps

An exemption is requested from Section III.O to the extent it requires an oil collection tank sized to hold the lube oil inventory of all three RCP motors.

Each unit has three reactor coolant pumps with an oil collection system which drains to a vented closed collection tank. The quantity of lubricating oil in each pump is 200 gallons. The capacity of the oil collection tank is 265 gallons. The components have been designed to be capable of withstanding a safe shutdown earthquake (SSE).

The collection tank is arranged such that if a failure of more than one RCP motor lube system occurred, the oil collection tank would overflow onto the lower containment floor. The lubricating oil used in the RCP motors has a flashpoint of approximately 450°F. There are no ignition sources at the floor level of the lower containment.

The RCP motor lube oil system does not comply with Section III.O because the oil collection tank is not sized to contain the entire lube oil system inventory. The oil collection tank is provided with sufficient capacity to hold the total lube oil inventory of one reactor coolant pump with margin and is designed so that any overflow will be drained to a safe area. We agree with the licensee that this combination of features is acceptable.

Based on the above evaluation, the existing RCP motor lube oil collection system provides a level of safety equivalent to the technical requirements of Section III.O of Appendix R. Therefore, the exemption is granted.

IV.

SUMMARY

Based on our evaluation as detailed in Section III above and the Safety Evaluation dated March 27 , 1984, the following exemptions are granted.

Exemptions from Section III.G of Appendix R:

1. Unit 4 Component Cooling Water Area (Fire Zone 54)
2. Unit 3 Component Cooling Water Area (Fire Zone 53)
3. Unit 4 Ground Floor Vestibule Containment Area (Fire Zone 79)
4. Auxiliary Feedwater Pump Area (Fire Zone 84)
5. Units Condensate Storage Area (Fire Zone 89)
6. Unit 4 Feedwater Platform and Below (Fire Zone 113)
7. Unit 4 Main Steam Platform (Fire Zone 114)
8. Unit 3 Main Steam Platform (Fire Zone 115)
9. Unit 3 Feedwater Platform and Below (Fire Zone 116)
10. Unit 4 Intake Area (Fire Zone 119)
11. Unit 3 Intake Area (Fire Zone 120)
12. Diesel Generator Radiator Room (Fire Zone 131)
13. Unit 3 RHR Equipment Room (Fire Area B)
14. Unit 4 RHR Equipment Room (Fire Area C)
15. Unit 4 Charging Pump Area (Fire Area N)
16. Unit 3 Charging Pump Area (Fire Area O)
17. Unit 4 Containment Building (Fire Area P)

18. Unit 3 Containment Building (Fire Area Q)

19. Unit 3 and 4 Control Room (Fire Area MM)

Exemptions from Section III.O of Appendix R:

Emergency Lights Inside Containment Units 3 and 4

Exemptions from Section III.J of Appendix R:

Oil Collection System Units 3 nd 4

Based on our evaluation as detailed in Section III above and Safety Evaluation dated March 27 , 1984, the following exemption requests from Section III.G of Appendix R are not needed:

Exterior Wall Penetrations

V.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, the exemptions requested by the licensee's letters as referenced and discussed in III. and IV. above are authorized by law, will not endanger life or property or the common defense and security, are otherwise in the public interest, and are hereby granted.

The Commission has determined that the granting of these exemptions will not result in any significant environmental impact and that pursuant to 10 CFR 51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with this section.

A copy of the Safety Evaluation dated March 27, 1984 related to this action is available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. 20555 and at the Environmental and Urban Affairs Library, Florida International University,

Miami, Florida 33199. A copy may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Licensing.

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
this 27th day of March 1984.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO EXEMPTIONS FROM 10 CFR 50, APPENDIX R

FACILITY OPERATING LICENSE NOS. DPR-31 AND DPR-41

TURKEY POINT PLANT UNIT NOS. 3 AND 4

DOCKET NOS. 50-250 AND 50-251

I. INTRODUCTION

By letter dated March 19, 1981, the licensee requested exemptions from Sections III.G, III.J, and III.O of Appendix R to 10 CFR 50. By letter dated November 9, 1981, we granted the schedular requirements of Section III.A. However, we denied exemption requests on Section III.J for lack of specificity and III.G for those areas where the justification was based on previous approval in the fire protection Safety Evaluation (SE). We indicated that the licensee needs to either meet the requirements of Section III.G for previously closed areas, or provide a detailed fire hazard analysis supporting an alternative approach. In the fire protection SE, we reported the following open items:

Item 3.1.2/3.2.3., Fire Water Supply
Item 3.2.4, Auxiliary Building Corridor
Item 3.2.5, Cable Spreading Room
Item 6.0, Fire Brigade Size

By letters dated February 4, 1981 and March 19, 1981, the licensee committed to meet our guidelines for fire brigade size and requirements of Section III.A for the fire water supply. The remaining open items are resolved in the following evaluation. We, therefore, consider all open items to be resolved.

By letters dated July 1, 1982 and supplemented on October 22, 1982, the licensee requested additional exemptions from Section III.G, and III.J of Appendix R. In our draft Safety Evaluation (SE), we recommended granting five of the exemption requests and denying fifteen. The licensee was evaluating fire protection from the "design basis fire" approach instead of the "protective features" approach.

By letter dated April 8, 1983 and supplemented on May 12 and June 6, 1983, the licensee superceded the previous submittals and utilized the protective features approach in evaluating fire protection for the Turkey Point facility.

II. EVALUATION

By letters dated April 8, 1983 and supplemented on May 12, June 6, and September 30, 1983, the licensee requested twenty-two exemptions from Section III.G, one exemption from Section III.J and one exemption from Section III.O of Appendix R.

1.0 Unit 4 Component Cooling Water Area (Fire Zone 47) Unit 3 Component Cooling Water Area (Fire Zone 54)

1.1 Exemption Requested

The licensee requests exemptions from Section III.G.2 to the extent it requires 20 feet of separation and the installation of total area coverage automatic fire suppression systems.

1.2 Discussion

Fire Zone 47

This zone is located outdoors at the southeast corner of the Auxiliary Building at elevation 18'-0". The area is separated from other plant fire areas by 3-hour fire rated walls. The ceiling of this area is open to the atmosphere and contains a walking surface constructed of steel grating.

This area contains 3 redundant component cooling water pumps for Unit 4. The pumps are arranged in an "L" configuration. The pumps are spaced approximately 12 feet on centers. Power cables for each pump are routed in embedded conduit with the exception of a short length from the embedded conduit to the motor terminal box which is in flexible steel conduit. Control cables for each pump are located in a common enclosure. The licensee proposes to reroute the local controls for the Train B pump to achieve 20 feet of separation free of intervening combustibles.

This area also contains manholes and duct bank which contain redundant intake cooling water cables. The Train A and C pump cables are routed in a separate manhole and duct bank system from the Train B pump cables. The manholes are separated by a 4-inch concrete wall with no communication between the manholes. Each manhole is provided with a steel cover plate. To preclude flammable liquid spills from entering the manholes, the licensee proposes to install a 2-inch high curb around each manhole.

The fuel load in the area is low consisting of only two horizontal cable trays installed approximately 10 feet above the floor and one gallon of lubricating oil contained in each pump. There are no hot surfaces in the area to ignite the lubricating oil.

Manual hose stations and portable fire extinguishers are available.

The licensee proposes to install an automatic wet pipe sprinkler system to provide coverage for the component cooling water pumps and all combustibles in the area. By letter dated September 30, 1983, the licensee committed to install an additional open head deluge sprinkler system activated by Ultra Violet (UV) fire detectors. The licensee also stated that activation of the automatic suppression systems will not adversely affect the operation of the component cooling water pumps and also proposes to provide early warning fire detection systems throughout the area.

Fire Zone 54

This area is located outdoors at the northeast corner of the Auxiliary Building at elevation 18'-0". The area is separated from other plant areas by 3-hour fire rated walls. The ceiling of the area is open to the atmosphere and contains a walking surface constructed of steel grating.

The area contains three redundant component cooling water pumps for Unit 3. The pumps are arranged in an "L" shape configuration. The pumps are spaced approximately 12 feet on centers. Power cables for each pump are routed in embedded conduits with the exception of a short length from the embedded conduit to the motor terminal box which is in flexible steel conduits. Control cables for each pump are located in a common enclosure. The licensee proposes to reroute the local controls for the Train B pump to achieve 20 feet of separation free of intervening combustibles.

The fuel load is negligible consisting of 3 gallons of lubricating oil, 1 gallon in each component cooling water pump. There are no hot surfaces in the area to ignite the lubricating oil.

Manual hose stations and portable fire extinguishers are available.

1.3 Evaluation

For the protection of redundant cables and equipment separated by less than 20 feet, free of intervening combustibles, Section III.G.2 requires

automatic suppression and detection throughout the area in conjunction with 1-hour fire barriers to separate one train of components.

In our draft SER, we were concerned that the existing level of fire protection and proposed modifications in each zone would not provide adequate protection for the redundant component cooling water (CCW) pumps, because the proposed automatic wet pipe sprinkler system and smoke detectors may not provide fast total coverage of the CCW pumps. The fire zones are outdoors and smoke and heat from anticipated fires may be diverted from the smoke detectors and fusible links in the sprinkler heads; thereby delaying both the detection and extinguishment of a fire.

The committed additional open head deluge sprinkler system will be activated by UV fire detectors. The UV fire detectors will respond to fires within milliseconds to activate the deluge sprinkler system. Because the in-situ fuel load in the zones is low and the licensee has committed to install additional automatic fire detection and suppression systems, which will provide fast total coverage of the CCW pumps, we have reasonable assurance that one train of CCW pumps will remain free of fire damage. The 12 feet separation between the CCW pumps will provide adequate passive protection until the deluge sprinkler system is activated and extinguishes the fire. There is also available time for the fire brigade to intervene.

1.4 Conclusion

Based on the above evaluation, the existing protection combined with the proposed modifications provides a level of fire protection in the Unit 3 and Unit 4 Component Cooling Water Pump Areas (Fire Zones 47 and 54) equivalent to the technical requirements of Section III.G, therefore, the exemption should be granted.

2.0 Ground Floor Vestibule Unit 4 Containment Area (Fire Zone 79)
Auxiliary Feedwater Pump Area (Fire Zone 84)
Condensate Storage Area Unit 3 (Fire Zone 89)
Main Steam Platform Unit 4 (Fire Zone 114)
Main Steam Platform Unit 3 (Fire Zone 115)

2.1 Exemption Requested

The licensee requests exemptions from Section III.G.2 to the extent it requires the installation of automatic fire detection and suppression systems.

2.2 Discussion

Fire Zone 79

This zone is located outdoors at grade elevation west of the Unit 4 containment, between the Containment and the Turbine Building and extending to the Control Building. The zone is partially covered by the Unit 4 Main Steam Platform approximately 35 feet above grade. The fuel load in the zone is light, consisting of two cable trays routed through the zone between 18 to 20 feet above grade. Fire protection in the area consists of manual hose stations and portable fire extinguishers.

This zone contains redundant cables required for safe shutdown. The cables are installed with less than 20 feet of separation free of intervening combustibles. The licensee proposes to either separate the Train B redundant cables from the Train A cables by 20 feet, free of intervening combustibles, or wrap the Train B cables in an approved 1-hour fire rated barrier until 20 feet of separation, free of intervening combustibles, is achieved.

Fire Zone 84

This is an open area enclosed on the east by Unit 3 Containment and on the other three sides and top by chain link fencing. The area houses all three auxiliary feedwater pumps. No fire detection and no automatic fire suppression capability is installed in the area. Portable fire

extinguishers and standpipe and hose stations are available for use in the area. Redundant safe shutdown cables are routed through the area at least 13 ft. above grade level. The A and B auxiliary feedwater pumps are about 8½ feet apart and the B and C pumps are about 10 feet apart.

The following modifications are proposed for this area:

1. Provide alternative shutdown capability for the auxiliary feedwater pumps by installing two 100% capacity standby steam generator feed pumps independent of the zone and capable of operation upon a loss of offsite power.

2. Either reroute one train of redundant cables to achieve 20 feet of separation, free of intervening combustibles, or wrap one train of cables in an approved 1-hour fire rated barrier until 20 feet of separation free of intervening combustibles is achieved.

Fire Zone 89

This zone is on the 18 ft. elevation and contains the condensate storage tank and condensate transfer pumps. Safe shutdown related equipment in this zone consists of both condensate storage tanks, the Unit 3 steam supply valves for the auxiliary feedwater pumps, the Unit 3 pneumatic steam generator pressure transmitters and the steam generator blowdown isolation valves for Unit 3. In addition, redundant safe shutdown power and control cables are routed through the area. All cables are coated with a fire retardant mastic material or are qualified to the requirements of IEEE-383, 1974. This area is not enclosed and has no ceilings. No fire detection or automatic fire suppression capability is installed. Portable fire extinguishers, standpipes and hose stations are available for use throughout the area. Combustibles in this area is limited to lubricants contained in the various pumps and motors. The licensee proposes to either separate one train of redundant cables by 20 feet, free of intervening combustibles, or wrap one train in an approved 1-hour fire rated barrier until 20 feet of separation, free of intervening combustibles, is achieved.

Fire Zones 114 and 115

These are two outside areas at the 53½-ft. elevation. They contain the main steam isolation valves and the atmospheric dump valves. These redundant valves are separated from each other by about 28-ft. center-to-center. Safe shutdown cables enter the area in conduit through penetrations in the reinforced concrete platform. No fire detection or automatic fire suppression capability is installed in the area. Portable extinguishers, standpipes and hose stations are available for use throughout the area.

2.3 Evaluation

These areas do not comply with Section III.G because automatic suppression and detection systems are not installed in the areas.

These areas are open areas without ceilings. Redundant cables in these areas are separated by over 20-ft. and routed in steel conduit. The platform which forms the floor of Zones 114 and 115 is over 35-feet above grade. It is our opinion that due to the open area and height of cables above the floor, the possibility of a fire of sufficient magnitude to affect redundant systems is slight, and therefore we have reasonable assurance that one train will be maintained free of fire damage.

We agree with the licensee's conclusion that the fire protection modifications proposed along with the physical arrangement of Fire Zones 79, 84, 89, and 114 and 115 will provide sufficient protection for the redundant safe shutdown equipment in this area and full compliance with the specific provisions of Section III.G would not add significantly to the overall fire protection of the plant.

2.4 Conclusion

Based on the above evaluation, the existing protection combined with the proposed modifications provides a level of fire protection equivalent to the technical requirements of Section III.G, therefore the exemptions should be granted.

3.0 Fire Zones 113 and 116 - Unit 4 and Unit 3 Respectively Feedwater Platform

3.1 Exemption Requested

The licensee requests an exemption from Section III.G to the extent that it requires separation of redundant safe shutdown equipment by a 1-hour rated fire barrier and the installation of an automatic fire suppression system in the areas.

3.2 Discussion

Fire Zone 113 is the feedwater platform for Unit 4 at the 38-feet elevation. The feedwater platform contains the piping and associated valves for the feedwater and auxiliary feedwater systems which penetrate into the Reactor Containment Building. The area is bounded on two sides, north and west by concrete walls. The east side is bounded by the Unit 4 Reactor Containment Building. The remaining south side is open. The ceiling is concrete and the floor is checker plate. Safe shutdown equipment in the area consists of 6 auxiliary feedwater valves and their associated cables. The three Train A valves are located above the feedwater platform at elevation 42'-0". The Train B valves are located below the platform at elevation 30'-7" separated from the Train A valves by the ¼" steel platform.

Fire Zone 116 is the feedwater platform Unit 3 at elevation 38-feet. The feedwater platform contains the piping and associated valves for the feedwater and auxiliary feedwater systems which penetrate into the Reactor Containment Building. This area is bounded on two sides, north and west, by concrete walls. The east side is bounded by the Unit 3 Reactor Containment Building. The remaining south side is open. The area has a concrete ceiling and a checker plate floor. Safe shutdown equipment in the area consists of 6 auxiliary feedwater valves and their associated cables. The three Train A valves are located above the feedwater platform at elevation 42'. The Train B valves are located below the platform at elevation 30' separated from the Train A valves by the ¼-inch steel platform. No fire detection or automatic fire

suppression capability is provided in the areas. Portable fire extinguishers, standpipes and hose stations are provided throughout the area. The licensee will install early warning fire detection in both Fire Zones 113 and 116.

The licensee proposes to either separate one train of redundant cables in each fire zone to achieve 20 feet separation, free of intervening combustibles, or wrap one train of redundant cables in an approved 1-hour fire rated barrier until 20 feet separation, free of intervening combustibles, is achieved.

3.3 Evaluation

These areas do not comply with Section III.G because redundant AFW components are not separated by 1-hour fire barriers and automatic fire suppression systems have not been installed in the areas.

These areas are outdoors. Redundant cables are separated by 20 feet, free of intervening combustibles, and the redundant AFW valves are separated vertically by approximately 12 feet in both areas with a minimum of a ¼-inch thick steel platform installed between the redundant valves. It is our opinion that due to the open area, separation and protection of the redundant cables, early warning fire detection and the configuration of the feedwater platform between the redundant AFW valves, the possibility of a fire of sufficient magnitude to affect redundant AFW systems components is slight. Therefore, we have reasonable assurance that one train will be maintained free of fire damage.

3.4 Conclusion

Based on the above evaluation, the existing protection combined with the proposed modifications and commitments provides a level of fire protection equivalent to the technical requirements of Section III.G, therefore the exemptions should be granted.

4.0 Unit 4 Intake Area (Fire Area 119)
Unit 3 Intake Area (Fire Zone 120)

4.1 Exemption Requested

The licensee requests exemption from Section III.G to the extent that it requires the installation of automatic fire suppression systems.

4.2 Discussion

The Unit 3 and 4 intake structures are contiguous and are designated Fire Zones 119 (Unit 4) and 120 (Unit 3) to differentiate between units. These fire zones are outside areas not bounded by walls or ceilings. The floor has numerous openings that communicate with the intake water, i.e., spills of any type will likely flow from the concrete deck to the water below. The in-situ combustible in these zones is limited to the lubricating oil contained in the steel motor housing. The oil provides unpressurized lubrication and has a flashpoint of greater than 400°F. These zones do not contain hot surfaces to ignite the oil. Fire protection in the zones consist of manual hose stations and portable fire extinguisher. The licensee proposes to install early warning fire detectors in that portion of the zones containing the Intake Cooling Water Pumps.

Intake Cooling Water Pumps 4A, 4B and 4C and 3A, 3B and 3C are installed in these zones respectively. The pumps are spaced 14 feet on center with 28 feet between the A and C pumps and 28 feet between the closest Unit 4 and Unit 3 pumps. The licensee proposes to wrap the 4C and 3C power and control cables from the embedded conduit to the motor terminal block of the pumps. In addition, the local control stations for the 4B and 4C and 3B and 3C pumps will be enclosed with a 1-hour fire rated barrier.

4.3 Evaluation

These areas do not comply with Section III.G because automatic suppression systems are not installed in the zones.

These areas are open without a ceiling. We find this arrangement will prevent the accumulation of hot stratified gases from anticipated fires. Redundant cables and equipment are separated by 28 feet or enclosed in a one-hour fire rated barrier. It is our opinion that, due to the open

area, separation of redundant equipment and early warning fire detection, the possibility of a fire of sufficient magnitude to affect redundant systems prior to the arrival of the fire brigade is slight. Therefore, we have reasonable assurance that one train of equipment will be maintained free of fire damage.

4.4 Conclusion

Based on the above evaluation, the existing protection combined with the proposed modifications provides a level of fire protection equivalent to the technical requirements of Section III.G, therefore the exemptions should be granted.

5.0 Diesel Radiator Room (Fire Zone 131)

5.1 Exemption Requested

The licensee requests an exemption from Section III.G to the extent that it requires the total enclosure of one Diesel Radiator Room by 3-hour rated fire barriers.

5.2 Discussion

This area houses radiators and cooling fans for both the Unit 3 and 4 diesel generators. The area is bounded on three sides by a metal grating missile barrier. The fourth (east) side consists of a reinforced concrete wall, and the concrete ceiling is 19 ft. above the floor. There is no fire detection or automatic fire suppression capability in the area. Portable fire extinguisher, standpipe and hose stations are available for use in the area. Safe shutdown related cable in the area are routed in underground duct banks and the in-situ fuel load in the zone is insignificant.

As presently arranged, any fire inside this area or a flammable liquid spill outside the area, which could flow into the area, would result in a fire exposing both redundant diesel radiators and cooling fans. To provide further protection for the equipment the licensee proposes to make the following fire protection modifications.

1. Install a partial height (10 feet high) 3-hour fire rated barrier between the radiators for the #3 and #4 diesel generators.

2. Provide curbing 2" high directly against the west side of the diesel generator radiators.

3. Reroute, independent of the area, or separate control cable for Diesel-Generator 3 Breaker to Bus 4A with a 3-hour fire rated barrier.

5.3 Evaluation

This area does not comply with Section III.G because redundant diesel radiator rooms are not enclosed by complete 3-hour rated barriers. The licensee proposes to install a partial height 3-hour rated barrier between the redundant cooling fans, and provide a curb to prevent liquid spills in adjacent areas from entering the radiator rooms.

There are no in-situ combustibles in this area and any exposure fires would therefore be of limited severity and duration. The proposed 3-hour barrier between the redundant cooling fans will protect one unit from a floor level fire in the redundant unit. Because the west wall of the area is open to the atmosphere, rising hot gases will be vented and dissipated before redundant equipment is damaged. This combination of features compensates for the lack of a complete 3-hour fire barrier.

5.4 Conclusion

Based on the above evaluation, the protection provided for the diesel generator radiator area provides a level of fire protection equivalent to the technical requirements of Section III.G therefore the exemption should be granted.

6.0 Fire Zones 11, 12, and 13 (Fire Area B) Unit 3 Residual Heat Removal Area
Fire Zones 14, 15, and 16 (Fire Area C) Unit 4 Residual Heat Removal Area

6.1 Exemption Requested

The licensee requests an exemption from Section III.G to the extent that it requires 1-hour rated fire barrier for protection of redundant safe shutdown cables and equipment and the installation of automatic fire suppression capability throughout these areas.

6.2 Discussion

These two areas are essentially identical areas consisting respectively of the Unit 3 and Unit 4 residual heat removal (RHR) pump and heat exchanger areas in the Auxiliary Building.

For analysis purposes, because of the unprotected openings in the floor/ceiling assemblies, the applicant has combined these zones into one fire area. Each contains both redundant RHR heat exchangers and associated valves and piping. Power and control cables for the motor operated valves associated with these RHR heat exchangers are located in these zones and other safe shutdown cables run through the areas in conduit.

Each room contains one of the redundant RHR pumps with its associated valves, controls, instrumentation, and power and control cables. The two rooms are separated from each other by a 16-foot high reinforced concrete partial height wall.

The combustible loading for these areas consists primarily of the oil and grease associated with the various pumps and motor operated valves. There is approximately two pounds of grease per motor operator for each of the motor operators in each area and one gallon of oil per residual heat removal pump.

The licensee proposes the following Unit 4 modifications:

1. Upgrade perimeter walls and ceilings of Fire Area B to a 3-hour barrier by sealing all piping and other penetrations and by

installing 3-hour rated fire doors and dampers in all doorways and ventilation duct penetrations.

2. Upgrade the partial height wall between Zones 12 and 13 by sealing all penetrations to a 3-hour rating.

3. Upgrade the wall between Zone 11 and Zones 12 and 13 by sealing all penetrations to a 3-hour rating with the exception of the 5' by 8' access way to Zone 13.

4. Provide fire detection in Zones 11, 12, and 13.

5. Provide a 1-hour rated protection for RHR Pump 3A power and control cables routed through Zone 13.

The licensee proposes the following Unit 3 modifications:

1. Upgrade perimeter walls and ceiling of Fire Area C to 3-hour barriers by sealing all piping and other penetrations and by installing 3-hour rated fire doors and dampers in all doorways and ventilation duct penetrations, respectively.

2. Upgrade partial height wall between Fire Zones 15 and 16 by sealing all penetrations in the partial height wall to a 3-hour rating.

3. Upgrade the wall between Zone 14 and Zones 15 and 16 by sealing all penetrations to a 3-hour rating with the exception of the 5' by 8' access way to Zone 16.

4. Provide fire detection in Fire Zones 14, 15, and 16.

6.3 Evaluation

These areas do not comply with Section III.G because complete 3-hour barriers are not used to separate the redundant equipment.