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AUTH.NAME AUTHOR AFFILIATION
UHRIG,R.E. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
EISENHUT,D.G. Division of Licensing

SUBJECT: Forwards Rev 1 to App R exemption request section, "Summary of App R Analysis by Fire Area," effective 830630. Encl revises 830412 fire protection submittal.

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[illegible] Nov 1 to Apr [illegible] expected [illegible] Sections "Summary [illegible] analysis by fire area" [illegible] effective [illegible] fire protection [illegible]

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BOX 14000, JUNO BEACH, FL 33408

FLORIDA POWER & LIGHT COMPANY

August 24, 1983
L-83-453

Office of Nuclear Reactor Regulations
Attention: Mr. Darrell G. Eisenhut, Director
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Eisenhut:

Re: St. Lucie Unit No 1
Docket No. 50-335
Appendix R Exemption Requests - Revision 1

In a letter dated April 12, 1983 (L-83-227) Florida Power & Light Co. submitted a Fire Protection submittal which contained several sections. Please find enclosed revision 1 to that submittal which revises the section entitled, "The Summary of Appendix R Analysis by Fire Area".

Should you have any questions concerning this letter please do not hesitate to contact us.

Very truly yours,

Robert E. Uhrig
Vice President
Advanced Systems and Technology

REU/RJS/PPC/sms

Attachment

cc: J. P. O'Reilly, Region II
Harold F. Reis, Esquire

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FLORIDA POWER & LIGHT CO.

ST. LUCIE UNIT 1

DOCKET NO. 50-335

APPENDIX R

EXEMPTION REQUESTS

REVISION I

EFFECTIVE: JUNE 30, 1983

FIRE AREA "A"

This fire area includes fire zones 77 (Train "A" Electric Penetration Area), 59 (Battery Room "A"), 60 ("A" Switchgear Room), and 44A ("A" Cable Penetration Area Extension) as shown on the attached drawings. Essential equipment within this fire area is shown in the attached essential equipment list.

The following exemptions to Appendix R to 10CFR50 are requested:

Exemption A1

An exemption is requested from Section III-G.2.a of Appendix R for wall penetration No. 11 in the east, 3-hour fire barrier at fire zone 77, elevation 19.00 ft, because no fire damper is provided in the ventilation duct.

Evaluation A1

1) Ionization smoke detection is provided in the Fire Area.

2) The duct penetration through the east barrier of fire zone 77 is being provided with a fire stop of approved 3 hour rating.

3) Fire damage to the duct located in Fire Area "J" is precluded because the heavy gage duct (which is 14 gage as compared to the 22 gage of a 3-hour rated fire damper), and heavy duty support, metal heat transmission and dissipation characteristics and metal closure angles applies to the duct on both sides of the barrier would serve to render the ductwork impervious to expansion deformation or heat failure for periods of expected fire duration. While localized high off-gas temperatures can be expected in the immediate vicinity of a fire, air mixture dilution temperature at the duct, which is 18 ft above the floor, is not expected to reach high temperatures. As the ventilation duct remains intact it is considered an extension of the Fire Barrier and thus the overall fire resistance integrity continues undiminished. R1

4) There is no more than 5 ft of duct in Fire Area "J" between penetration Nos. 11 and 19. In this area the duct is continuous with no registers and has a fire damper in penetration No. 19.

5) Fire Area "J" has very limited combustible loading.

6) Fire Area "J" is a high radiation area and therefore personnel access is limited, thus reducing the probability of transient combustibles being introduced.

Conclusion A1

Based on our evaluation, the existing fire barrier provides adequate separation. The installation of a fire damper in the ventilation duct at penetration No. 11 would not augment or materially enhance the safety of the plant, since it would not aid in preventing fire migration between Fire Areas "A" and "J". Therefore, we conclude, this is an acceptable exemption to Appendix R to 10CFR50, Section III-G.2.a.

Exemption A2

An exemption is requested from Section III-G.2.a of Appendix R for ceiling penetration Nos. 62-3, 4 and 5 in fire zones 59 and 60 because no fire dampers or penetration fire seals are provided.

Evaluation A2

1) Fire Zone 59 has negligible combustible loading.

2) Fire Zone 60 is provided with ionization smoke detection. Fire Zone 59 is being provided with ionization smoke detection. R1

3) Fire Area "A" as well as the outdoor area above the fire barrier is lightly trafficked, thus reducing the probability of transient combustibles being introduced.

4) Roof-top fires are not a significant hazard based on the lack of combustible storage and heat dissipation from fires in transient combustibles. Where concentrations of combustible material, such as oil in plant transformers or diesel generator fuel oil storage tanks, are in the plant yard adequate spacial separation from important plant facilities is provided and the flow of combustible liquids is directed to or confined a safe distance from important plant facilities as outlined in the Fire Hazard Analysis Report. R1

5) A steel missile shield enclosure for each roof-top ventilator provides additional fire protection.

Conclusion A2

Based on our evaluation, the existing fire barrier provides adequate separation of these fire areas. The installation of fire dampers or penetration fire seals in the ventilation exhausts at penetration Nos. 62-3, 4 and 5 would not augment or materially enhance the safety of the plant. Therefore, we conclude, this is an acceptable exemption to Appendix R to 10CFR50, Section III-G.2.a.

FIRE AREA "B"

This fire area is fire zone 57 (cable spread room) as shown on the attached drawings. Essential equipment within this fire area is shown in the attached essential equipment list.

The following exemption from Appendix R to 10CFR50 is requested:

Exemption B1

An exemption is requested from Section III-G.2a of Appendix R because a 3-hour rated fire door is not provided at the entry on the west wall of this fire area, on elevation No. 43.00 feet, and no fire damper or penetration fire seal is provided in the HVAC exhaust.

Evaluation B1

1) Outdoor exposure fires are not postulated in the plant yard based on the lack combustible storage adjacent to buildings. Where concentrations of combustible materials (such as oil in the Turbine Generator Building) exist, fire detection and automatic suppression systems are provided and the flow of combustible liquids is confined as outlined in the Fire Hazard Analysis Report.

2) The doorway and exhaust is over 20 ft abovegrade which permits heat dissipation.

3) Ionization type smoke detection and an automatic Halon 1301 suppression system is provided in this fire area.

4) A postulated fire involving in-situ or transient combustibles in Fire Area "B" would not affect the nonessential Turbine-Generator Building because of the large physical separation and the heat dissipation effects of the atmosphere.

5) The hot shutdown panel, which provides alternate shutdown capability for a fire in this area, is located in fire zone 56 of Fire Area "C". These fire areas will be totally separated by a 3-hour rated fire barrier.

Conclusion B1

A fire in Fire Area "B" will not impair the availability of the hot shutdown panel (A-Train) and therefore, establishes an alternative shutdown capability which meets the criteria of Appendix R, Section III-L. The installation of a fire door and damper and penetration fire seal in the west wall of Fire Area "B" would not augment or materially enhance the safety of the plant. Therefore, we conclude that this is an acceptable exemption from Appendix R to 10CFR50, Section III-G.2.a.

FIRE AREA "C"

This fire area includes fire zones 55W (Cable Loft), 78 (Train B Electrical Penetration Area), 43*; 44*, 54* (RAB Personnel Areas), 56 (Train B Switchgear Room), and 58 (Train B Battery Room), as shown on the attached drawings. Essential equipment within this fire area is shown in the attached essential equipment list.

The following exemptions to Appendix R to 10CFR50 are requested:

Exemption C1

An exemption is requested from Section III-G.2.a of Appendix R for exterior wall and roof penetrations because no fire dampers or penetration fire seals or doors are provided.

Evaluation C1

1) Fire Area "C" is provided with ionization smoke detection.

2) Outdoor exposure fires are not postulated in the plant yard based on the lack of combustible storage adjacent to buildings and on the height of penetration above grade which allows for heat dissipation. Where concentrations of combustible material, such as oil in plant transformers or diesel generator fuel oil storage tanks, are in the plant yard adequate spacial separation from important plant facilities and/or fire suppression systems are provided and the flow of combustible liquids is directed to or confined a safe distance from important plant facilities as outlined in the Fire Hazard Analysis Report.

3) A postulated fire involving in-situ or transient combustibles in Fire Area "C" does not require 3 hour fire rated dampers or penetration fire seals or doors due to the non-essential nature of the Turbine Generator Building and large physical separation, the yard area and the additional dissipation of heat to the atmosphere.

Conclusion C1

Based on our evaluation, the existing fire barrier provides adequate separation. The installation of fire dampers, penetration fire seals and doors at exterior penetrations would not augment or materially enhance the safety of the plant since they would not aid in the preventing fire migration through the fire barrier. Therefore, we conclude, this is an acceptable exemption to Appendix R to 10CFR50, Section III-G.2.a.

Exemption C2

An exemption is requested from Section III-G.2.a of Appendix R for the hatch at Column RAJ/RA5 because a steel hatch cover of 1/4 inch minimum thickness is being provided at elevation 19.5 feet.

Evaluation C2

1) The hatch cover is located in the fire barrier between Fire Areas "C" and "O", both of which have ionization smoke detection.

2) A 1/4 inch minimum thickness steel hatch cover is provided.

3) Fire damage to the hatch cover is precluded because the metal thickness, heat transmission and dissipation characteristics serve to render the cover impervious to deformation or heat failure for periods of expected fire duration. While localized high off-gas temperatures can be expected in the immediate vicinity of a fire, air mixture dilution and the cooling effect of manually applied hose stations will mitigate the effects and duration of a fire.

Conclusion C2

Based on our evaluation, the provision of a 1/4 in. minimum thickness steel hatch cover provides adequate separation of fire area. The use of materials of greater fire resistance for the hatch cover would not augment or materially enhance the safety of the plant since it would not aid in preventing fire migration between Fire Areas "O" and "C". Therefore, we conclude, this is an acceptable exemption to Appendix R to 10CFR50, Section III-G.2.a.

Exemption C3

An exemption is requested from Section III-G.2.a of Appendix R for the entries to the holdup tanks on elevation 19.50 ft (zone 41) because no fire doors are provided.

Evaluation C3

1) Fire Area "C" is provided with ionization smoke detection.

2) Fire zone 41 contains negligible combustible load.

3) The entries to fire zone 41 are inside labyrinthine entry corridors with wire mesh access doors.

4) The holdup tanks contain several thousand gallons of water which would tend to rapidly dissipate heat generated by a fire in Fire Area "C" through the tank walls into the contained water.

5) There is no continuity of combustibles in fire zone 41, which will mitigate the propagation of fire from Fire Area "C" to adjacent Fire Area "E".

Conclusion C3

Based on our evaluation the existing fire barrier provides adequate separation. The installation of fire doors at the entries to holdup tank room would not augment or materially enhance the safety of the plant since they would not aid in preventing fire migration through the entries. Therefore, we conclude, this is an acceptable exemption to Appendix R to 10CFR50, Section III-G.2.a.

FIRE AREA "D"

This fire area is the A-Train Electrical Equipment Room located within the confines of fire zone 57* as shown on the attached drawings. Essential equipment is listed in the attached essential equipment list.

This fire area is totally enclosed in 3 hour fire rated barriers, providing separation from the redundant B-Train electrical equipment in Fire Area "B". This fire area meets the criteria of Appendix R, Section III-G.2.a.

FIRE AREA "E"

This fire area includes fire zones 46 (Containment Purge), 47 (AB Switchgear Room), 49 (RAB Volume Control Tank), 48 (RAB Letdown Heat Exchanger), 61 (RAB HVAC Equipment Room), 41 (RAB Holdup Tank), 55E (Corridor east of column line RAH), 50 (Demineralizers), 51 (Drumming Station), 52 (Boric Acid Concentrators), 62 (Resin Addition Tank) and 80 (Steam Generator Blowdown Tank) as shown on the attached drawings. Essential equipment within this fire area is shown on the attached list.

The following exemptions from Appendix R to 10CFR50 are requested:

Exemption E1

An exemption is requested from Section III-G.2.a of Appendix R for the hatch at Column RAC/RA4 because a steel hatch cover of 1/4 inch minimum thickness is being provided at elevation 19.50 feet.

Evaluation E1

1) The hatch cover separates Fire Areas "E" and "O", both of which have ionization smoke detection.

2) A 1/4 inch minimum thickness steel hatchcover is provided.

3) Fire damage to the hatch cover is precluded because the metal thickness, heat transmission and dissipation characteristics serve to render the cover impervious to deformation or heat failure for periods of expected fire duration. While localized high off-gas temperatures can be expected in the immediate vicinity of a fire, air mixture dilution and the cooling effect of manually applied hose streams will mitigate the effects and duration of a fire.

Conclusion E1

Based on our evaluation, the provision of a 1/4 in. minimum thickness steel hatch cover provides adequate separation of fire areas. The use of materials of greater fire resistance for the hatch cover would not augment or materially enhance the safety of the plant since it would not aid in the preventing fire migration between Fire Areas "E" and "O". Therefore, we conclude, this is an acceptable exemption to Appendix R to 10CFR50, Section III-G.2.a.

Exemption E2

An exemption is requested from Section III-G.2.a of Appendix R because no fire doors or dampers or penetration fire seals are provided at exterior wall penetrations.

Evaluation E2

1) Outdoor exposure fires are not postulated in the plant yard based on the lack of combustible storage adjacent to buildings. Where concentrations of combustible material (such as oil in the Turbine Generator Building) exist, fire detection and automatic suppression systems are provided and the flow of combustible liquids is confined as outlined in the Fire Hazard Analysis Report.

2) A postulated fire involving in-situ or transient combustibles in Fire Area "E" would not affect the non-essential yard area because of the heat dissipation effects of the atmosphere.

Conclusion E2

Based on our evaluation, the existing fire barrier provides adequate separation. The installation of the fire doors, dampers and fire seals in exterior wall penetrations would not augment or materially enhance the safety of the plant. Therefore, we conclude that this is an acceptable exemption from Appendix R to 10CFR50, Section III-G.2.a.

Exemption E3

An exemption is requested from Section III-G.2.a of appendix R for the entries to the holdup tanks (zone 41) because no fire doors are provided.

Evaluation E3

See Evaluation C3

Conclusion E3

See Conclusion C3

FIRE AREA "F"

This fire area is fire zones 70, 71, 73 and 82 (Control Room Envelope) as shown on the attached drawings. Essential equipment within this fire area is shown in the attached list.

The following exemptions to Appendix R to 10CFR50 are requested:

Exemption F1

An exemption is requested from Section III-G.2.a of Appendix R for exterior wall penetrations because no fire dampers or penetration seals are provided.

Evaluation F1

1) Outdoor exposure fires are not postulated in the plant yard based on the lack of combustible storage adjacent to buildings. Where concentrations of combustible material (such as oil in the Turbine Generator Building) exist, fire detection and automatic suppression systems are provided and the flow of combustible liquids is confined as outlined in the Fire Hazard Analysis Report.

2) The penetrations are over 50 ft above grade which permits heat dissipation.

3) Ionization type smoke detection is provided in this fire area.

4) A postulated fire involving in-situ or transient combustibles in Fire Area "F" would not affect the non-essential Turbine Generator Building because of the large physical separation and the heat dissipation effects of the atmosphere.

Conclusion F1

Based on our evaluation, the existing barrier provides adequate separation. The installation of fire dampers or penetration seals in exterior walls of Fire Area "F" would not augment or materially enhance the safety of the plant. Therefore we conclude that this is an acceptable exemption from Appendix R to 10CFR50, Section III-G.2.a.

Exemption F2

An exemption is requested from Section III-G.3 of Appendix R because no fixed fire suppression system is provided.

Evaluation F2

1) The Hot Shutdown Panel, which provides alternate shutdown capability for a fire in this area, is located in fire zone 56 of Fire Area "C". These fire areas are totally separated by a 3 hour rated fire barrier.

2) Fire Area "F" is provided with ionization type smoke detection.

3) Accessible fire hose stations are located in the Turbine Building near Control Complex entries to facilitate manual firefighting capability. R1

4) The Fire Area is continuously manned with senior operations personnel including the Nuclear Watch Engineer, who is the Fire Team Leader.

5) Portable fire extinguishes are strategically located throughout the Control Room for first aid fire fighting. This includes water type, carbon dioxide and dry chemical units.

Conclusion F2

Based on our evaluation, the existing fire protection is adequate. The installation of a fixed fire suppression system would not augment or materially enhance the safety of the plant. Therefore we conclude that this is an acceptable exemption from Appendix R to 10CFR50, Section III-G.3.

FIRE AREA "G-G"

This fire area is the yard area including previously designated fire areas 10 (Gas Storage Building), 11 (Misc. Oil Storage Buildings) 12 (Water Plant), 42 (Chemistry Personnel Building), 79 (Raw Water Storage Tanks) and 81 (Area between RAB and RCB). This fire area contains no essential equipment or cables and Appendix R Section III-G does not apply.

Fire Area "H-H"

This fire area is the Diesel Generator Building 1A previously designated as Fire Area 6. Essential equipment within this fire area is shown in the attached essential equipment list.

The following exemptions to Appendix R to 10CFR50 are requested:

Exemption H-H 1

An exemption is requested from Section III-G.2.a of Appendix R for labyrinth entries, and penetrations in the exterior fire barrier walls because no fire rated doors, penetration seals or fire dampers are provided.

Elevation H-H 1

1) The fire area is lightly trafficked, thus minimizing the probability of introducing transient combustibles.

2) The fire area has thermal fire detection and a pre-action sprinkler system.

3) Outdoor exposure fires are not postulated in the plant yard based on the lack of combustible storage adjacent to buildings.

4) Fire Area "H-H" is separated from Fire Area "I-I" by a full height 3 hour rated (18 inch) interior fire barrier.

5) Possible oil flow a rupture of any of the oil containing vessel in this fire area will be confined and/or safely directed away from important plant structures by floor drains. Although highly unlikely, any oil escape would be through the lowest level of egress where it would be directed away from the premises by the site drainage arrangements.

6) All exterior penetrations are missile protected.

Concusion H-H 1

Based on our evaluation, the exterior fire barrier wall, and 24 inch thick reinforced concrete exterior walls with labyrinth entries provide adequate separation. The provision of fire rated, doors, penetration seals and dampers would not augment or materially enhance the safety of the plant since it would not aid in the preventing of fire migration between Fire Areas "H-H" and "I-I" therefore, we conclude, this is an acceptable exemption to Appendix R to 10CFR50, Section III-G.2.a.

Fire Area "I-I"

This fire area is the Diesel Generator Building 1B previously designated as Fire Area 7. Essential equipment within this fire area is shown in the attached essential equipment list.

The following exemptions to Appendix R to 10CFR50 are requested:

Exemptions I-I 1

An exemption is requested from Section III-G.2.a of Appendix R for labyrinth entries, and penetrations in the exterior fire barrier walls because no fire rated doors, penetration seals or fire dampers are provided.

Evaluation I-I 1

1) The fire area is lightly trafficked, thus minimizing the probability of introducing transient combustibles.

2) The fire area has thermal fire detection and a preaction sprinkler system.

3) Outdoor exposure fires are not postulated in the plant yard based on the lack of combustible storage adjacent to buildings.

4) Fire Area "I-I" is separated from Fire Area "H-H' by a full height; 3 hour rated (18 inch) interior fire barrier.

5) Possible oil flow from a rupture of any of the oil containing vessels in this fire area will be confined and/or safely directed away from important plant structures by floor drains. Although highly unlikely, any oil escape would be through the lowest level of egress where it would be directed away from the premises by the site drainage arrangements.

6) All exterior penetrations are missile protected.

7) The diesel building air intake is over 60' from its redundant counterpart.

Concusion I-I 1

Based on our evaluation, the exterior fire barrier wall, and 24 inch thick reinforced concrete exterior walls with labyrinth entries provide adequate separation. The provision of fire rated, doors, penetration seals and dampers would not augment or materially enhance the safety of the plant since it would not aid in the preventing of fire migration between Fire Areas "H-H" and "I-I" therefore, we conclude, this is an acceptable exemption to Appendix R to 10CFR50, III-G.2.a.

FIRE AREA "J"

This fire area includes fire zones 33, 45 (RAB Pipe Tunnel) and 62B (RAB ECCS Ventilation Equipment) as shown on the attached drawings. Essential equipment within this fire area is shown in the attached essential equipment list.

The following exemptions from Appendix R to 10CFR50 are requested:

Exemption J1

An exemption is requested from Section III-G.2.a of Appendix R for penetration No. 11 on elevation 19.50 ft because no fire damper is provided in the ventilation duct.

Evaluation J1

This exemption is evaluated as Exemption No. A1 in Fire Area "A".

Conclusion J1

See Conclusion A1 of Fire Area "A".

Exemption J2

An exemption is requested from Section III-G.2.a of Appendix R for penetration No. 13 on elevation 42.00 ft because no fire damper or penetration fire seal is provided in the ventilation duct.

Evaluation J2

1) Fire Area "J" contains low combustible loading.

2) Outdoor exposure fires are not postulated in the plant yard based on the lack of combustible storage adjacent to buildings. Where concentrations of combustible material (such as oil in the Turbine Generator Building) exist, fire detection and automatic suppression systems are provided and the flow of combustible liquids is confined as outlined in the Fire Hazard Analysis Report.

3) The duct penetration is located over 35 feet above grade which permits heat dissipation.

Conclusion J2

Based on our evaluation, the existing fire barrier provides adequate separation. The installation of a fire damper in the ventilation duct and a penetration fire seal at penetration No. 13 would not augment or materially enhance the safety of the plant. Therefore, we conclude, that this is an acceptable exemption from Appendix R to 10CFR50, Section III-G.2.a.

Exemption J3

An exemption is requested from Section III-G.2.a of Appendix R for penetration No. 5 on elevation -0.5 ft because no penetration fire seal or fire damper is provided in the ventilation duct.

Evaluation J3

This exemption is evaluated as Exemption No. L2 in Fire Area "L".

Conclusion J3

See Conclusion L2 of Fire Area "L".

Exemption J4

An exemption is requested from Section III-G.2. a of Appendix R for watertight doors RA-7 and 8 because the fire rating of the custom manufactured doors is not Underwriters Laboratory listed.

Evaluation J4

1. The water tight doors separate Fire Areas which have low in-situ combustibles and as radiation areas, have limited personnel access, which reduces the probability of introducing transient combustibles.

2. The doors are solid steel, minimum of 1/4 inch thickness.

3. Fire damage to the doors is precluded because the metal thickness, heat transmission and dissipation characteristics serve to render the doors impervious to deformation or heat failure for periods of expected fire duration. While localized high off-gas temperatures can be expected in the immediate vicinity of a fire, air mixture dilution and the cooling effect of manually applied hose streams will mitigate the effects and duration of a fire.

Conclusion J4

Based on our evaluation, the provisions of 1/4 inch thick steel doors provides adequate separation of fire areas. The use of materials of greater fire resistance for the watertight doors would not augment or materially enhance the safety of the plant since it would not aid in preventing fire migration between fire areas. Therefore, we conclude, this is an acceptable exemption to Appendix R to 10CFR50, Section III-G.2.a.

FIRE AREA "K"

This fire area is the Reactor Containment Building previously designated as Fire Area 26. Essential equipment within this fire area is shown in the attached essential equipment list.

The following exemption tc appendix R to 10CFR50 is requested:

Exemption K1

An exemption is requested from Section III-G.2.d of Appendix R because the containment cables and associated non-safety circuits of redundant trains are not in all cases separated by 20 ft.

Evaluation K1

1) A new Reactor Cooling Pump Oil Collection System is provided to collect pressurized and unpressurized leaks from each of the Reactor Coolant Pump Lube Oil Systems. This installation will confine the major portion of combustible inventory to a separate oil collection tank in accordance with Appendix R, Section III-O. The remaining combustible loading in the fire area is light.

2) Fire detection is provided at various key locations of consequence. | R1

3) Redundant safety-related equipment is protected from exposure to localized combustible sources by spatial separation and/or the use of existing barriers/partitions (i.e. concrete walls, floors and ceilings) having greater than three hours fire resistive rating.

   Separation is provided to maintain independence of electrical circuits and equipment so that the protective function required during any design basis event can be accomplished. The degree and method of separation varies with the potential hazards in a particular area. This is accomplished by use of spatial separation, barriers, and radiant energy shields where required.

4) Electrical cables are concentrated at the Penetration Areas at Elev 23.00 ft between Column Lines 6 and 8. The cables trays are immediately separated and routed to the several items of equipment. | R1

   Radiant energy shields are being provided between safety-related A and B cables trays in the cable penetration area to provide separation.

5) All cables in Fire Area "K" are coated with Flamemastic fire protective coating system.

6) Fire Area "K" is a high radiation area and personnel access is limited, thus minimizing the probability of introducing transient combustibles.

7) The large free volume (2.5 million cubic feet) of Fire Area "K" allows for dissipation of hot off-gas temperatures and reduces the effect of stratified hot gases at essential components.

8) All instrument cable trays are covered.

Conclusion K1

Based on our evaluation, the existing features in Fire Area "K" provide adequate separation for a fire in transient or in-situ combustibles. Additional modification would not augment or materially enhance the safety of the plant since it would not aid in the prevention of fire damage to redundant components essential for safe shutdown. Therefore, we conclude, this is an acceptable exemption to Appendix R to 10CFR50, Section III-G.2.d.

Exemption K2

An exemption is requested from Section III-O of Appendix R because the Oil Collection System is not capable of collecting lube oil from all four of the reactor coolant pump lube oil systems.

Evaluation K2

1) Per design specifications, components inside containment have a maximum allowable surface temperature during normal operation of 150°F, thus reducing the probability of starting a fire.

   Oil used:

Flash Point	- 450°F
Fire Point	- 480°F
Ignition Point	- 530°F

R1

2) The RCP oil collection system is required to be Seismic Category II per R.G. 1.29, paragraph C.2.

3) A design basis accident and a fire are not postulated to occur simultaneously.

4) Under normal operating conditions, it would be impractical to assume that all RCP oil systems would fail at once. Therefore, a tank to contain all RCP oil is not necessary.

5) Each RCP oil system has an alarm which will sound in the control room if approximately 15 gallons of oil is lost from the oil system. This alarm requires operator action.

6) NRC response, March 21, 1979; SER, required the following:

Reactor Coolant Pumps

We have requested that an oil collection system be provided for each of the reactor coolant pumps. The licensee has deferred action on this recommendation pending the final resolution of an EPRI study, "Evaluation and Test of Improved Fire Resistant Fluid Lubricants for Water Reactor Coolant Pump Motors." If a suitable lubricant is not found, the licensee will provide a system to suppress potential fires or provide for the removal of potential oil leakage to a safe location by December 1980. No additional information is required from the licensee (5.10).

This requires only for the removal of potential oil Leakage and only to a safe location. R1

7) The RCP oil collection tank is capable of holding 225 gallons which exceeds the total capacity of one pump (190 gal.) plus reasonable leakage from the remaining pumps.

Conclusion K2

Based on our evaluation, the existing RCP oil collection system provides adequate capability for collecting lube oil from all potential pressurized and unpressurized leakage sites in the reactor coolant pump lube oil systems.

Additional modifications would not augment or materially enhance the safety of the plant since it would not aid in the prevention of fire damage to redundant components essential for safe shutdown. Therefore, we conclude, this is an acceptable exemption to Appendix R to 10 CFR 50, Section III.O.

FIRE AREA "L"

This fire area is fire zones 31 and 32 (Shutdown Heat Exchanger Room) as shown on the attached drawings. Essential equipment within this area is shown in the attached essential equipment list.

The following exemptions from Appendix R to 10CFR50 are requested:

Exemption L1

An exemption is requested from Section III-G.2.a of Appendix R because a full height 3 hr rated fire barrier is not provided between the redundant shutdown heat exchangers.

Evaluation L1

1) The shutdown heat exchangers are 16 ft apart edge to edge and are separated by a 7 ft high 3 hour fire rated partition. R1

2) This fire area contains a negligible in-situ combustible load and as a radiation area has limited personnel access, which reduces the probability of introducing transient combustibles.

3) This fire area is being provided with ionization type smoke detectors.

4) A fire on either side of the fire partition involving either in-situ and/or transient combustibles could not directly impinge upon or radiate heat to the essential equipment on the opposite side. While localized high off-gas temperatures can be expected in the vicinity of a fire, air mixture dilution temperatures which would stratify in the upper level of this area would not reach a point capable of jeopardizing the operation of the redundant heat exchanger. R1

Conclusion L1

Based on our evaluation the existing 7 ft high 3 hour fire rated partition provides adequate separation of the redundant heat exchangers. Providing a full height 3 hour fire barrier in lieu of the existing partition would not augment or materially increase the safety of the plant since a single fire would not cause damage to the redundant heat exchangers. Therefore, we conclude that this is an acceptable exemption from Appendix R to 10CFR50. Section III-G.2.a. R1

Exemption L2

An exemption is requested from Section III-G.2.a of Appendix R for penetrations 6, 7, 8, 16, 17 and 22 through the barrier between Fire Areas "L" and "O" and for penetration 5 through the fire barrier between Fire Areas "L" and "J" because no penetration fire seals or fire dampers are provided in the ventilation ducts.

Evaluation L2

1) Fire Area "L" has negligible in-situ combustibles and as a radiation area has limited personnel access, which reduces the probability of introducing transient combustibles.

2) Fire Area "O" is provided with ionization type smoke detection. Fire Area "L" is being provided with similar detection.

3) The major component of the combustible load outside Fire Area "L" consists of horizontal cable trays which are a minimum of 8 ft above the floor. A fire in this area would be quickly detected and mitigated by first aid manual standpipe hose application. While localized high off-gas temperatures could be produced in the area of a fire, air mixture dilution temperatures which might enter Fire Area "L" would stratify in the upper levels of this area and would not reach a point capable of jeopardizing the operation of the heat exchangers.

Conclusion L2

Based on our evaluation the existing fire barrier provides adequate separation. The installation of fire dampers in the ventilation ducts at penetrations 5, 6, 7, 8, 16, 17 and 22 or penetration fire seals would not augment or materially increase the safety of the plant since they would not provide material protection for the heat exchangers. Therefore, we conclude that this is an acceptable exemption from Appendix R to 10CFR50, Section III-G.2.a.

Exemption L3

An exemption is requested from Section III-G.2.a of Appendix R for watertight door RA-7 and 61 because of fire rating of the custom manufactured door is not Underwriters Laboratory listed.

Evaluation L3 - See Evaluation J4(RA-7) and Evaluation M2(RA-61).

Conclusion L3 - See Conclusion J4(RA-7) and Conclusion M2(RA-61).

FIRE AREA "M"

This fire area is fire zones 34 and 35 (RAB ECCS Room) as shown on the attached drawings. Essential equipment within this fire area is shown in the attached essential equipment list.

The following exemptions to Appendix R to 10CFR50 are requested:

Exemption M1

An exemption is requested from Section III-G.2.a of Appendix R because a full height 3 hour rated fire barrier is not provided between the redundant shutdown cooling pumps.

Evaluation M1

1) Fire Area "M" is provided with ionization smoke detectors.

2) The Fire area has a very low combustible loading.

3) Fire Area "M" is a radiation area and therefore personnel access is limited which reduces the probability of introducing transient combustibles.

4) The redundant LPSI Pumps are physically over 20 ft apart, edge to edge.

5) Redundant equipment and cable essential for safe shutdown in this fire area are separated by a 20 ft high, 3 hour fire rated partition from Column RAI to RAG (reducing to 9.5 ft high from Column RAG to RAE).

6) A postulated fire on either side of the 20 ft high 3 hour fire rated partition involving transient or in-situ combustibles would not directly impinge upon or radiate heat to the essential equipment on the opposite side. While localized high off-gas temperatures can be expected in the immediate vicinity of a fire, air mixture dilution temperatures would not reach a level detrimental to the normal operation of the LPSI Pumps.

7) Cable indicated in the attached list, extending above the fire rated partition, is being protected or relocated. R1

Conclusion M1

Based on our evaluation, the existing 20 ft high 3 hour fire rated partition provides adequate separation of redundant trains. The extension of the partition to full height, would not augment or materially enhance the safety of the plant since it would not aid in the containment of a fire to one train of equipment required for the shutdown. Therefore, we conclude, this is an acceptable exemption to Appendix R to 10CFR50, Section III-G.2.a.

Exemption M2

An exemption is requested from Section III-G.2.a of Appendix R for watertight doors RA-4, 5, 6 and 61 because the fire rating of the custom manufactured doors is not Underwriters Laboratory listed. R1

Evaluation M2

1) The watertight doors separate Fire Areas M and O and M and L (Door 61). Fire Area M and L, as radiation areas, have limited personnel access, which reduces the probability of introducing transient combustibles. Fire Areas L, M and O have a smoke detection system for early warning of a fire condition. R1

2) The door is solid steel, minimum of 1/4 inch thickness.

3) Fire damage to the door is precluded because the metal thickness, heat transmission and dissipation characteristics serve to render the door impervious to deformation or heat failure for periods of expected fire duration. While localized high off-gas temperatures can be expected in the immediate vicinity of a fire, air mixture dilution and the cooling effect of manually applied hose streams will migitate the effects and duration of a fire.

Conclusion M2

Based on our evaluation, the provisions of 1/4 inch thick steel doors provides adequate separation of fire areas. The use of materials of greater fire resistance for the watertight doors would not augment or materially enhance the safety of the plant since it would not aid in preventing fire migration between fire areas. Therefore, we conclude, this is an acceptable exemption to Appendix R to 10CFR50, Section III-G.2.a.

FIRE AREA "N"

This fire area is fire zones 38, 75, 76 and 36A (charging Pump Area) as shown on the attached drawings.Essential equipment in this area is shown in the attached essential equipment list.

The following exemptions from Appendix R to 10CFR50 are requested:

Exemption N1

Exemption is requested from Section III-G.2.a of Appendix R since the redundant charging pumps are not separated by a full height 3 hour rated fire barrier.

Evaluation N1

1) Fire Area "N" is being provided with ionization type smoke detection.

2) The charging pumps are approximately 10 ft apart separated by a 7 ft high 3 hour fire rated partition, with labyrinth entries from the common access corridor.

3) This fire area contains a very low combustible loading and as a radiation area has limited personnel access, thus reducing the probability of introducing transient combustibles.

4) A fire on either side of the fire partitions involving in-situ and/or transient combustibles would not directly impinge upon or radiate heat to the essential equipment on the opposite side. While localized high off-gas temperatures can be expected in the vicinity of a fire, air mixture dilution temperatures which would stratify in the upper level of this area would not reach a point capable of jeopardizing the operation of the redundant charging pumps.

5) Cable indicated in the attached list, extending above the fire rated partition, is being protected or relocated.

Conclusion N1

Based on our evaluation, the 7 ft 3 hour fire rated partitions provide adequate separation of the redundant charging pumps. The extension of the walls to full height would not augment or materially enhance the safety of the plant since it would not provide additional protection for redundant charging pumps. Therefore, we conclude that this is an acceptable exemption from Appendix R to 10 CFR50, Section III-G.2.a.

Exemption N2

An exemption is requested from Section III-G-2.b of Appendix R because no sprinkler system is provided in the common access corridor (zone 36A).

Evaluation N2

1) Fire Area "N" has negligible in-situ combustibles and as a radiation area has limited personnel access, therefore reducing the probability of introducing transient combustibles.

2) The access corridor contains charging pump push button stations, separated by more than 20 ft with negligible intervening combustibles.

3) The charging pumps cubicle access corridor is being provided with an ionization type smoke detection system.

Conclusion N2

Based on our evaluation the existing separation and negligible combustible load provides adequate protection for the push buttons. The addition of an automatic sprinkler system would not augment or materially enhance the safety of the plant since it would not reduce the time required for fire extinguishment. Therefore, we conclude that this is an acceptable exemption from Appendix R to 10CFR50, Section III-G.2.b.

Exemption N3

An exemption is requested from Section III-G.2.a of Appendix R for watertight door RA-8 because the fire rating of the custom manufactured door is not Underwriters Laboratory listed.

Evaluation N3 - See Evaluation J4.

Conclusion N3 - See Evaluation J4.

FIRE AREA "O"

This fire area includes fire zones 27, 29, 36, 37, 39, 40 and 74 as shown on the attached drawings. Essential equipment within this fire area is shown in the attached essential equipment list.

The following exemptions to Appendix R ato 10CFR50 are requested:

Exemption O1

An exemption is requested from section III-G.2.a of Appendix R for penetrations 6, 7, 8, 16, 17 and 22 through the barrier between Fire Areas "L" and "O" because no penetration fire seals or fire dampers are provided in the ventilation ducts.

Evaluation O1 - See Evaluation L2

Conclusion O1 - See Conclusion L2

Exemption O2

An exemption is requested from Section III-G.2.a of Appendix R for the hatch at Column RAC/RA4 because a steel hatch cover of 1/4 inch minimum thickness is being provided at elevation 19.50 feet.

Evaluation O2 - See Evaluation E1

Conclusion O2 - See Conclusion E1

Exemption O3

An exemption is requested from Section III-G.2.a of Appendix R for the hatch at Column RAJ/RA5 because a steel hatch cover of 1/4 inch minimum thickness is being provided at elevation 19.50 feet.

Evaluation O3 - See Evaluation C2

Conclusion O3 - See Conclusion C2

Exemption O4

An exemption is requested from Section III-G.2.a of Appendix R for watertight doors RA-4, 5 and 6 because the fire rating of the custom manufactured doors is not Underwriters Laboratory listed.

Evaluation O4 - See Evaluation M-2

Conclusion O4 - See Conclusion M-2

FIRE AREA "P-P"

This fire area is the Fuel Handling Building previously desigated as Fire Area 64 through 69. This fire area contains no essential equipment or cables and Appendix R Section III-G does not apply.

FIRE AREA "Q-Q"

This fire area is the Turbine Building previously designated as Fire Area 13 through 25. This fire area contains no essential equipment or cables and Appendix R Section III-G does not apply.

FIRE AREA "R-R"

This fire area is the intake cooling water pump area previously designated as Fire Area 3. Essential equipment within this fire area is shown in the attached Essential Equipment List.

The following exemptions from Appendix R to 10CFR50 are requested:

Exemption R-R 1

An exemption from Section III-G.2.b of Appendix R is requested because no automatic suppression system is provided.

Evaluation R-R 1

1) This fire area is lightly trafficked, thus minimizing the probability of introducing transient combustibles.

2) The fire area has low combustible load and no continuity of combustibles.

3) The pumps are over 13 ft apart centerline to centerline. Cable and conduit is embedded in concrete but exposed for a short length at each pump.

4) A postulated fire involving in-situ and/or transient combustibles will be prevented from spreading at the pump level by the floor openings and curbs separating each pump.

5) The pump room is designed for natural ventilation which precludes the buildup of heat.

6) Fire Area R-R is being provided with a fire detection system. R1

Conclusion R-R1

Based on our evaluation, the existing arrangement provides adequate protection for the redundant Intake Cooling Water Pumps. The installation of an automatic suppression system would not augment or materially enhance the safety of the plant since the area design prevents the migration of a fire. Therefore, we conclude that this is an acceptable exemption from Appendix R to 10CFR50, Section III-G.2.b.

FIRE AREA "S-S"

This fire area is the Steam Trestle Area previously designated as Fire Area 1. Essential equipment within this fire area is shown in the attached essential equipment list.

The following exemption to Appendix R to 10CFR50 is requested:

Exemption S-S1

An exemption is requested from Section III-G.2.b of Appendix R for fire detection and automatic fire suppression because a detection and automatic fire suppression system is not provided.

Evaluation S-S1

1) The fire area is lightly trafficked thus minimizing the probability of introducing transient combustibles.

2) The fire area has a very low combustble loading with no continuity of combustibles.

3) Auxiliary Feed Water Pump C and its associated valves and cables is separated from its redundant counterparts, Auxiliary Feed Water Pumps A and B and their associated valves and cables, by 28 feet.

4) Pump C is located within a concrete dike wall and steel missile shield. Pumps A and B are located within a separate but similar enclosure.

5) This is an open-air structure, allowing for vertical heat dissipation to atmosphere from a fire involving in-situ and/or transient combustibles.

Conclusion S-S1

Based on our evaluation, the existing spacing, missile shields and negligible combustibles provide adequate separation. The installation of fire detection or an automatic suppression system would not augment or materially enhance the safety of the plant since it would not improve the natural separation already provided. Therefore, we conclude, this is an acceptable exemption to Appendix R to 10CFR50 Section III-G.2.b.

FIRE AREA "T-T"

This fire area is the Diesel Oil Storage Tanks previously designated as Fire Area 4. Essential equipment within this fire area is shown in the attached essential equipment list.

The following exemptions to Appendix R to 10CFR50 are requested:

Exemption T-T1

An exemption is requested from Section III-G.2.b of Appendix R for fire detection and an automatic fire suppression system because detectors and automatic fire suppression is not provided.

Evaluation T-T1

1) The area is lightly trafficked, thus minimizing the probability of introducing combustibles.

2) Adequate spacial separation from other plant equipment required for safe shutdown is provided.

3) Outdoor exposure fires are not postulated in the plant yard igniting the diesel oil based on the lack of combustible storage adjacent to the tanks.

4) Redundant tanks are 21 feet apart, shell to shell.

5) Redundant tanks are in separate 5.5 ft high concrete dikes.

6) Tank spacing and diking arrangement exceeds the requirements of the National Fire Code (NFPA 30).

7) NFPA 30 of the National Fire Codes does not require detection or automatic suppression for the diesel oil tanks as presently arranged.

8) An intertie is available to utilize the St Lucie Unit 2 Diesel Oil Storage Tanks.

Conclusion T-T1

Based on our evaluation the existing tank spacing and dikes provide adequate separation. The installation of fire detection and automatic suppression would not augment or materially enhance the safety of the plant since it would not improve the existing adequate separation provided. Therefore, we conclude, this is an acceptable exemption to Appendix R to 10CER50, Section III-G.2.f.

FIRE AREA "U-U"

This fire area is the component cooling area, previously designated as Fire Area 5. Essential equipment within this area is shown in the attached essential equipment list.

The following exemptions from Appendix R to 10CFR50 are requested:

Exemption U-U1

An exemption is requested from Section III-G.2.b of Appendix R because no detection or automatic fire suppression system is provided.

Evaluation U-U1

1) This area is lightly trafficked thus the probability of introducing transient combustibles is minimized.

2) The Fire Area has a very low combustible load with no continuity of combustibles.

3) Each Component Cooling Water Pump and Heat Exchanger is mounted on an 11.5 foot high concrete pedestal surrounded by open metal grate at elevation 23.5 feet. Pump and Heat Exchanger 1A are 11 feet from Pump 1C and 30 feet from Pump and Heat Exchanger 1B. Pump and Heat Exchanger 1B is also 11 feet from Pump 1C (distances measured from nearest edge to nearest edge). Power cables to pumps are located in buried conduit, with a short exposed section at each pump and motorized isolation valve. Failure of the motorized valves in any combination of positions will not affect system capability, therefore, cable to the valves is not addressed further.

4) The metal grate will prevent a pool fire at the pump level, and the existing separation is considered adequate for the pumps and cable (each capable of supplying 100 percent of the cold shutdown requirements) from an exposure fire 11.5 feet below.

Conclusion U-U1

Based on our evaluation, the existing arrangement provides adequate protection for the redundant Component Cooling Water Pumps. The installation of a detection and automatic fire suppression system would not augment or materially enhance the safety of the plant since no single fire would effect redundant equipment. Therefore, we conclude that this is an acceptable exemption to Appendix R to 10CFR50, Section III-G.2.b.

FIRE AREA "V-V"

This fire area is the Refueling Water Tank previously designated as Fire Area 6. Essential equipment within this fire area is shown in the attached essential equipment list.

The tank contains in excess of 400,000 gallons of water. The heat generated from an exposure fire would be rapidly dissipated through the tank wall into the contained water. Thus the tank is no subject to damage from the exposure fire.

This fire area meets the criteria of Appendix R to 10CRF50, Section III-G.1.

FIRE AREA "W-W"

This fire area contains the primary water tank previously designated as Fire Area 9. This fire area contains no essential equipment or cables and Appendix R Section III-G does not apply.

Fire Area "X-X"

This fire area is the Condensate Storage Tank Area previously designated as Fire Area 2. Essential equipment is shown in the attached essential equipment list.

The Condensate Storage Tank contains over 300,000 gallons of water. The heat generated from any exposure fire external to the tank would be rapidly dissipated through the tank wall into the contained water. Thus the tank is not susceptible to damage from external exposure fires.

This fire area meets the criteria of Appendix R to 10CFR50, Section III-G.1.

FIRE AREA "Y-Y"

This fire area is the RAB Roof and RAB blowdown heat exchanger previously designated as Fire Areas 72 and 63. This fire area contains no essential equipment or cables and Appendix R Section III-G does not apply.