November 19, 1985

Docket Nos. 50-348
and 50-364

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Mr. R. P. McDonald
Senior Vice President
Alabama Power Company
Post Office Box 2641
Birmingham, Alabama 35291

Dear Mr. McDonald:

SUBJECT: TECHNICAL EXEMPTION FROM THE REQUIREMENTS OF 10 CFR 50 APPENDIX R FOR THE JOSEPH M. FARLEY NUCLEAR PLANT UNITS 1 AND 2

By letter dated March 13, 1985, you advised that a second review was conducted of the fire areas in Unit 2 and of the fire areas shared by Units 1 and 2. The review was made in light of IE Notice 84-09 and Generic Letter 83-33. As a result you requested certain technical and schedular exemptions pursuant to 10 CFR 50.12(a). The exemption requests are included in a document entitled "J. M. Farley Nuclear Plant, 10 CFR 50 Appendix R Fire Hazards Analysis Reevaluation: February 1985." By letters dated June 26 and July 19, 1985, you provided additional information supplementing the March 13, 1985 request.

We have completed our review of your exemption requests and responded by our letter dated August 28, 1985 to your schedular requests. With respect to the technical exemptions requested, we grant only the thirty-three exemptions specifically identified in the enclosed safety evaluation. These specifically identified exemptions which we grant, in conjunction with your proposed modifications, will provide a level of safety equivalent to the technical requirements of Section III.G. of Appendix R to 10 CFR 50 in the specific fire areas identified.

For those remaining sixteen exemption requests identified specifically in the enclosed safety evaluation, you have agreed to provide us with additional technical information and to make some additional plant fire protection modifications. On this basis, we defer granting exemptions as identified specifically in the enclosed safety evaluation pending receipt of your submittal and completion of our subsequent review.

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

Sincerely,

Original Signed by
Hugh L. Thompson, Jr.
Hugh L. Thompson, Jr., Director
Division of Licensing

Enclosures:
1. Notice of Exemption
2. Safety Evaluation

cc w/enclosures:
See next page

			AD:OR:DL GLainas 10/25/85	D:DL HThompson 10/4/85
ORB#1:DL CParrish 10/17/85	ORB#1:DL EReeves:cr 10/17/85	ORB#5:DL JStang 10/21/85	BC-ORB#1:DL SVarga 10/25/85	OELD W. Shields 10/30/85

Mr. R. P. McDonald
Alabama Power Company

Joseph M. Farley Nuclear Plant

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UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of ALABAMA POWER COMPANY (Joseph M. Farley Nuclear Plant Units Nos. 1 and 2)	)	Docket Nos. 50-348 and 50-364

EXEMPTION

I.

The Alabama Power Company (the licensee) is the holder of Facility Operating License Nos. NPF-2 and NPF-8 which authorized operation of the Joseph M. Farley Nuclear Power Plant Unit Nos. 1 and 2. These licenses provide, among other things, that they are subject to all rules, regulations and Orders of the Commission now or hereafter in effect.

The facility comprises two pressurized water reactors at the licensee's site located near the City of Dothan, Alabama.

II.

On November 19, 1980, the Commission published a revised Section 10 CFR 50.48 and a new Appendix R to 10 CFR 50 regarding the fire protection features of nuclear power plants (45 FR 76602). The revised Section 50.48 and Appendix R became effective on February 17, 1981. Section 50.48(c) established the schedules for satisfying the provisions of Appendix R. Section III of Appendix R contains fifteen subsections, lettered A through O, each of which specifies requirements for a particular aspect of the fire protection features at a nuclear power plant. Only one of the fifteen subsections, III.G, is the subject of this exemption request.

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By letter dated March 13, 1985, the licensee submitted the results of their Appendix R fire hazards analysis reevaluation, dated February 1985 for review. The licensee contends that the reevaluation was prompted by the interpretations to Appendix R promulgated in IE Notice 84-09 and Generic Letter 83-33. Therefore, based on the results of this reevaluation the licensee requested forty nine additional exemptions from the specific provisions of Section III.G of Appendix R for certain fire areas in Unit 2 and for certain areas shared by Units 1 and 2. By letters dated June 26, and July 19, 1985, the licensee provided additional information clarifying and revising their justifications with regard to their technical exemption requests. The Commission previously granted an exemption on December 30, 1983 for certain system cables or components located within the containment buildings of Units 1 and 2.

Section III.G.2 of Appendix R requires that one train of cables and equipment necessary to achieve and maintain safe shutdown be maintained free of fire damage by one of the following means:

(1) Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier;

(2) Separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area; or

(3) Enclosure of cable and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

If these conditions are not met, Section III.G.3 requires an alternative shutdown capability independent of the fire area of concern. It also requires a fixed fire suppression system to be installed in the fire area of concern if it contains a large concentration of cables or other combustibles. These alternative requirements are not deemed to be equivalent; however, they provide equivalent protection for those configurations in which they are accepted.

Because it is not possible to predict the specific conditions under which fires may occur and propagate, the design basis protective features are specified in the rule rather than the design basis fire. Plant specific features may require protection different from the measures specified in Section III.G. In such a case, the licensee must demonstrate, by means of a detailed fire hazards analysis, that existing protection in conjunction with proposed modifications will provide a level of safety equivalent to the technical requirements of Section III.G of Appendix R.

In summary, Section III.G is related to fire protection features for ensuring that systems and associated circuits used to achieve and maintain safe shutdown are free of fire damage. Fire protection configurations must either meet the specific requirements of Section III.G or an alternative fire protection configuration must be justified by a fire hazard analysis.

Our general criteria for accepting an alternative fire protection configuration are the following:

- The alternative assures that one train of equipment necessary to achieve hot shutdown from either the control room or emergency control stations is free of fire damage.
- The alternative assures that fire damage to at least one train of equipment necessary to achieve cold shutdown is limited such that it can be repaired within a reasonable time (minor repairs with components stored on-site.
- Modifications required to meet Section III.G would not enhance fire protection safety above that provided by either existing or proposed alternatives.
- Modifications required to meet Section III.G would be detrimental to overall facility safety.

III.

The licensee identified forty-nine specific fire areas which would require exemptions based on their reevaluation of Unit 2 fire areas and shared fire areas with Unit 1. Based on our review of the licensee's submittals as well as site visits by the Region 2 assigned fire protection engineer and the assigned NRR Project Manager, we issued a safety evaluation finding that the licensee's alternate fire protection configuration in thirty-three of the forty-nine fire areas where exemptions or modifications were requested represent an equivalent level of safety to that achieved by compliance with Section III.G of Appendix R, 10 CFR 50. The remaining sixteen exemptions requested will be subject to our further review pending submittal of additional justifications by the licensee.

IV.

Accordingly, the Commission has determined pursuant to 10 CFR Part 50.12, that these technical exemptions are authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest. The Commission hereby approves the requested exemptions from Appendix R of 10 CFR 50 Section III.G. as specifically identified in the Safety Evaluation dated November 19, 1985, which is available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C., and at the Local Public Document Room, located at the George S. Houston Memorial Library, 212 W. Burdeshaw Street, Dothan, Alabama.

Pursuant to 10 CFR 51.32, the Commission has determined that the issuance of the Exemption will have no significant impact on the environment (50 FR 46847, November 13, 1985).

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Hugh L. Thompson, Jr., Director
Division of Licensing
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
this 19th day of November 1985

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

ENCLOSURE 2

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO EXEMPTION FROM 10 CFR 50, APPENDIX R
ALABAMA POWER COMPANY
JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NOS. 1 AND 2
DOCKETS NOS. 50-348 AND 50-364

1.0 INTRODUCTION

By letter dated March 13, 1985, the licensee submitted the results of their Appendix R fire hazards analysis re-evaluation, dated February 1985 for review. The licensee contends that the reevaluation was prompted by the interpretations to Appendix R promulgated in IE Notice 84-09 and Generic Letter 83-33. Therefore, based on the results of this re-evaluation the licensee requested forty-nine additional exemptions from the specific provisions of Section III.G of Appendix R for fire areas in Unit 2 and fire areas shared by Units 1 and 2. The Commission previously granted an exemption on December 30, 1983, for certain system cables or components located within the containment buildings of Units 1 and 2.

Section III.G.2 of Appendix R requires that one train of cables and equipment necessary to achieved and maintain safe shutdown be maintained free of fire damage by one of the following means:

a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier.

b. Separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

c. Enclosure of cables and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

In summary, Section III.G is related to fire protection features for ensuring the systems and associated circuits used to achieve and maintain safe shutdown are free of fire damage. Fire protection configurations must either meet the specific requirements of Section III.G or an alternative fire protection configuration must be justified by a fire hazard analysis.

If these conditions are not met, Section III.G.3 requires an alternative shutdown capability independent of the fire area of concern. It also requires that a fixed suppression system be installed in the fire area of

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concern if it contains a large concentration of cables or other combustibles. These alternative requirements are not deemed to be equivalent; however, they provide equivalent protection for those configurations in which they are accepted.

Because it is not possible to predict the specific conditions under which fires may occur and propagate, the design basis protective features are specified in the rule rather than the design basis fire. Plant specific features may require protection different than the measures specified in Section III.G. In such a case, the licensee must demonstrate, by means of a detailed fire hazards analysis, that existing protection or existing protection in conjunction with proposed modifications will provide a level of safety equivalent to the technical requirements of Section III.G. of Appendix R.

Our general criteria for accepting an alternative fire protection configuration are the following:

- The alternative assures that one train of equipment necessary to achieve hot shutdown from either the control room or emergency control stations is free of fire damage.
- The alternative assures that fire damage to at least one train of equipment necessary to achieve cold shutdown is limited such that it can be repaired within a reasonable time (minor repairs with components stored on-site).
- Modifications required to meet Section III.G would not enhance fire protection safety above that provided by either existing or proposed alternatives.
- Modifications required to meet Section III.G would be detrimental to overall facility safety.

By letters dated June 26, 1985 and July 19, 1985, the licensee provided additional information clarifying and revising their justifications with regard to their technical exemption requests from the provisions of 10 CFR 50 Appendix R for Train B inside cable chases, auxiliary building-fire area 2-009, Unit 2 auxiliary building elevations 83'-0", 100'-0" and 121'-0" - fire area 2-001 and service water intake structure - fire area 72. This additional information was incorporated into our review.

Based on our evaluation of the licensee's February 1985, 10 CFR 50 Appendix R Fire Hazards Analysis Re-evaluation, the additional information provided for fire areas 2-009, 2-001 and 72, and a site visit during the week of July 29, 1985, we concluded that the licensee's alternate fire protection configuration in the following plant fire areas represented an equivalent level of safety to that achieved by compliance with Section III.G of Appendix R:

- Diesel Generator Building Train A Switchgear Room - Fire Area 56A (Exemption Request 1-1)

- Diesel Generator Building Foyer and Train B Switchgear Room - Fire Area 56B and C (Exemption Request 1-2)
- Control Room HVAC Equipment Room Auxiliary Building Elevation 175'-0" - Fire Area 51 (Exemption Request 1-6)
- Unit 2 Auxiliary Building Cable Chase Train A - Fire Area 2-031 (Exemption Request 1-7)
- Unit 2 Auxiliary Building to Diesel Building Cable Tunnel Train A - Fire Area 2-075 (Exemption Request 1-8 and 2-24)
- Unit 2 Auxiliary Building Cable Chase Train B - Fire Area 2-030 (Exemption Request 2-25)
- Unit 2 Auxiliary Building Switchgear Room Train B - Fire Area 2-021 (Exemption Request 2-10)
- Unit 2 Auxiliary Building Control Rod Drive Mechanism Switchgear Room - Fire Area 2-023 (Exemption Request 2-14)
- Unit 2 Auxiliary Building to Diesel Building Cable Tunnel Train B - Fire Area 2-076 (Exemption Request 2-26)
- Service Water Valve Box Approximately 450 Feet Northwest of the Service Water Intake Structure - Fire Area SWGA (Exemption Request 1-13)
- Unit 2 Train "A" Battery Room Auxiliary Building Elevation 121'-0" - Fire Area 2-017 (Exemption Request 2-1)
- Unit 2 Auxiliary Building Elevation 155'-0" and 175'-0" - Fire Area 2-043 (Exemption Request 2-2)
- Unit 2 Auxiliary Building Communication Room 2202 - Fire Area 2-015 (Exemption Request 2-3)
- Unit 2 Auxiliary Building Stairwell No. 2 - Fire Area 2-S02 (Exemption Request 2-4)
- Unit 2 Auxiliary Building Cable Chase Train A - Fire Area 2-008 (Exemption Request 2-5)
- Service Water Valve Box No. 1 Approximately 50 Feet North of Unit 2 Auxiliary Building - Fire Area 2SVB1 (Exemption Request 2-6)
- Service Water Valves Box No. 2 Approximately Seven Feet North of Valve Box No. 1 - Fire Area 2SVB2 (Exemption Request 2-7)
- Unit 2 Auxiliary Building Battery Room Train B - Fire Area 2-016 (Exemption Request 2-11)

- Unit 2 Auxiliary Building Elevation 139'-0" - Fire Area 2-041 (Exemption Request 2-12)
- Unit 2 Auxiliary Building Elevation 139'-0" - Fire Area 2-042 (Exemption Request 2-13)
- Unit 1 Auxiliary Building Elevation 139'-0" - Fire Area 1-041 (Exemption Request 2-16)
- Unit 1 Auxiliary Building Elevation 139'-0" - Fire Area 1-042 (Exemption Request 2-17)
- Unit 1 Train A Auxiliary Building Cable Chase - Fire Area 1-008 (Exemption Request 2-20)
- Unit 1 Train A Auxiliary Building Cable Chase - Fire Area 1-031 (Exemption Request 2-22)
- Unit 1 Auxiliary Building to Diesel Generator Building Cable Tunnel Train A - Fire Area 1-075 (Exemption Request 2-23)
- Unit 1 Auxiliary Building Switchgear Room Train B - Fire Area 1-021 (Exemption Request 2-27)
- Unit 1 Auxiliary Building Control Rod Drive Mechanism Switchgear Room Train B - Fire Area 1-023 (Exemption Request 2-28)
- Unit 1 Auxiliary Building to Diesel Generator Building Cable Tunnel Train B - Fire Area 1-076 (Exemption Request 2-29)
- Unit 1 Auxiliary Building Cable Chase Train B - Fire Area 1-030 (Exemption Request 2-30)
- Unit 2 Auxiliary Building Elevation 121'-0" - Fire Area 2-020 (Exemption Request 2-31)
- Unit 2 Train A DC Switchgear Room - Fire Area 2-018 (Exemption Request 2-32)
- Unit 2 Train B Switchgear Room - Fire Area 2-009 (Exemption Request 2-33)
- Unit 1 Train B Cable Chase - Fire Area 1-009 (Exemption Request 2-34)

As a result of the site visit, it was determined that for 16 of the 49 exemption requests additional technical information was required and some additional plant fire protection modifications (i.e., additional sprinkler protection and raceway fire barriers) were necessary in order to assure that the licensee's alternative fire protection configuration represented an equivalent level of safety to that achieved by compliance with Section III.G of Appendix R. Thus, the licensee committed to provide the necessary fire

protection modifications and the additional technical information to support the 16 outstanding exemption requests. Therefore, we have deferred our review and evaluation of the following exemption requests:

- Exemption Request 1-3 - Service Water Intake Structure - Fire Area 72
- Exemption Request 1-9 - Unit 2 Auxiliary Building Cable Chase Train B - Fire Area 2-030
- Exemption Request 1-10 - Unit 2 Auxiliary Building Switchgear Room Train B - Fire Area 2-021
- Exemption Request 1-11 - Unit 2 Auxiliary Building Control Rod Drive Switchgear Room - Fire Area 2-023
- Exemption Request 1-12 - Unit 2 Auxiliary Building to Diesel Building Cable Tunnel Train B - Fire Area 2-076
- Exemption Request 2-8 - Unit 2 Auxiliary Building Elevation 100 Ft - 0 in., Charging Pump Rooms and Storage Areas - Fire Area 2-005
- Exemption Request 2-9 - Unit 2 Auxiliary Building Electrical Penetration Room Train A - Fire Area 2-035
- Exemption Request 2-15 - Unit 2 Auxiliary Building Vertical Cable Chase - Fire Area 2-013
- Exemption Request 2-18 - Unit 2 Auxiliary Building, Electrical Penetrations Room Train B - Fire Area 2-034
- Exemption Request 2-19 - Auxiliary Building Train B Inside Cable Chase - Fire Area 2-009
- Exemption Request 2-21 - Unit 2 Auxiliary Building Cable Chase Train A - Fire Area 2-031
- Exemption Request 2-26 - Unit 2 Auxiliary Building to Diesel Building Cable Tunnel Train B - Fire Area 2-076
- Exemption Request 2-35 - Unit 2 Auxiliary Building Elevations 100 ft. - 0 in., 121 ft. - 0 in., 127 ft. - 0 in., 155 ft. - 0 in., and 175 ft. - 0 in. - Fire Area 2-006.
- Exemption Request 2-36 - Unit 2 Auxiliary Building Elevations 83 ft. - 0 in., 100 ft. - 0 in., and 121 ft. - 0 in. - Fire Area 2-001
- Exemption Request 2-37 - Unit 2 Auxiliary Building Elevations 100 ft. - 0 in., 121 ft. - 0 in., 130 ft. - 0 in., 130 ft. - 0 in., 139 ft. - 0 in., 155 ft. - 0 in., and 184 ft. - 0 in. - Fire Area 2-004

- Exemption Request 2-38 - Fire Areas in Unit 2 and Fire Areas Shared by Units 1 and 2 - Fireproofing of Structural Supporting Steel

Our evaluations of the licensee's alternate fire protection configurations and their justifications regarding the plant's alternative ability for specific redundant shutdown functions to achieve and maintain safe shutdown conditions for fire conditions which affect those fire areas documented by the 33 remaining exemption requests are as follows:

2.0 DIESEL GENERATOR BUILDING TRAIN-A SWITCHGEAR ROOM - FIRE AREA 56A

2.1 EXEMPTION REQUESTED

The licensee in their exemption request 1-1 requested an exemption from the technical requirements of 10 CFR 50 Appendix R Section III.G.2.C to the extent it requires enclosure of one train of redundant Unit 1 service water cabling by a one-hour-fire-rated barrier and the installation of automatic fire suppression system.

2.2 DISCUSSION

Fire zone 56A is located in the diesel generator building and is separated from all other areas of the plant by three-hour fire-rated walls and doors. This area contains Unit 1 service water Train A cable and equipment and redundant Unit 1 service water Train B cables. The redundant service water Train B cables are associated with the following valves:

VALVE NO.	FUNCTION	PRE-FIRE POSITION	REQUIRED POST-FIRE POSITION
Q1P16V538	Service Water Train B recirc. to pond	CLOSED	OPEN
Q1P16V545	Service Water Train B disch. to circ water canal	OPEN	CLOSED

The licensee's analysis of the effects of fire on the Train B valve circuits located in fire area 56A, shows that the subject Train B valves will not change from their pre-fire position but could become electrically inoperative. The post-fire repositioning of valves Q1P16V538 and Q1P16V545 is required to shift the service water discharge from the circulating water canal to the service water pond.

The doors separating the switchgear room and the diesel generator rooms are provided with removable transoms. The licensee indicated that the transoms associated with these doors are required to be removable in order to facilitate maintenance and equipment removal operations in this plant area.

Combustible materials in fire area 56A primarily consists of cable insulation. The fire loading associated with this area is approximately 122,000 BTU/Ft^2.

An automatic CO_2 suppression system protects individual switchgear in this area. Each CO_2 system actuation is accomplished by heat detectors in the switchgear. The systems have local prealarm and annunciation in the control room. Local manual initiation is available for each bus. An area smoke detection system is provided for this area. This system alarms locally and annunciates in the control room. In addition, yard hydrants with properly equipped hose houses are installed to the north and the south of the diesel building and a 1½ inch hose station is installed in the area.

The licensee justifies the acceptability of this exemption on the basis of the existing fire protection and their alternative shutdown actions associated with fire area 56A.

2.3 EVALUATION

The licensee's shutdown analysis has shown that the requirement to shift service water discharge from the circulating water canal to the service water pond is a long term one, not required for 24 hours, and can be accomplished by manually repositioning valves Q1P16V538 and Q1P16V545.

By letter dated March 13, 1985, the licensee committed to develop a detailed procedure, specifically for this fire area covering the manual operator actions required to assure the proper post-fire positioning of the subject service water valves and have it fully implemented by the end of the Unit 2 fourth refueling outage currently scheduled for the second quarter of 1986.

All other shutdown systems associated with fire area 56A have redundant counterparts in other fire areas or are located in plant areas which meet the requirements of 10 CFR 50 Appendix R, Section III.G.2. As a result, there is reasonable assurance that if a fire occurred in the diesel generator building Train A switchgear room, safe shutdown could be achieved and maintained.

The door/transom assemblies separating the switchgear room from the diesel generator rooms are installed in a manner which meets the installation criteria of NFPA-80, Fire Doors and Windows. These particular doors and their associated frames meet the Underwriter's Laboratories (UL) fire test criteria and bears a Class A UL label. However, since these transoms are removable, the subject door/transom assemblies cannot be listed as Class A by UL. The respective transoms have been certified by the door manufacturer as to being constructed of materials and in a manner similar to that of a Class A fire door. Therefore, based on the construction, the installation of these doors, and the configuration of the in-situ combustibles in the diesel generator building Train A switchgear room, there is reasonable assurance that if a fire occurred within this plant area, the fire would not propagate through the door openings protected by the subject door/transom assemblies and spread into the communicating diesel generator rooms.

2.4 CONCLUSION

Based on our evaluation, we conclude that the licensee's alternative fire protection and shutdown configuration will provide an acceptable level of fire protection to that required by the technical requirements of 10 CFR 50 Appendix R Section III.G.2, and that no additional fire protection features are required to satisfy the requirements of Section III.G.3. Therefore, the licensee's request for exemption for the diesel generator building Train A switchgear room (Fire Area 56A) should be granted.

3.0 DIESEL GENERATOR BUILDING FOYER AND TRAIN B SWITCHGEAR ROOM - FIRE AREA 56 ZONES B AND C

3.1 EXEMPTION REQUESTED

The licensee in their exemption request 1-2 requested an exemption from the technical requirements of 10 CFR 50 Appendix R Section III.G.2.c to the extent it requires enclosure of one train of redundant cable by a one-hour-fire-rated barrier and the installation of an automatic fire suppression system.

3.2 DISCUSSION

Fire Area 56 zones B and C are located in the diesel generator building and are separated from all other areas of the diesel generator building by three-hour fire-rated walls and doors. This area contains Unit 1 service water Train B cables and equipment, and redundant Unit 1 service water Train A cables. The redundant service water Train A cables are associated with the following valve:

VALVE NO.	FUNCTION	PRE-FIRE POSITION	REQUIRED POST-FIRE POSITION
Q1P16V539	Service Water Train A recirc to pond	CLOSED	OPEN

The analysis of the effects of fire on the Train A valve circuits located in fire area 56 Zones B and C, shows that the subject Train A valve will not change from its pre-fire position but could become electrically inoperative. The post-fire repositioning of valve Q1P6V539 is required to shift the service water discharge from the circulating water canal to the service water pond.

The doors separating switchgear room and the diesel generator rooms are provided with removable transoms. The licensee indicated that the transoms associated with these doors are required to be removable in order to facilitate maintenance and equipment removal operations in this plant area.

Combustible materials in fire area 56 zones B and C primarily consists of cable insulation. The fire loading associated with these fire zones is approximately 129,000 BTU/Ft^2.

An automatic CO_2 fire suppression system protects individual switchgear in this area. Each CO_2 system actuation is accomplished by heat detectors in the switchgear. The systems have local prealarm and annunciation in the control room. Local manual initiation is available for each bus. An area smoke detection system is provided for this area. This system alarms locally and annunciates in the control room. In addition, yard hydrants with properly equipped hose houses are installed to the north and to the south of the diesel building and a 1½ inch water hose station is installed in the area.

The licensee justifies this exemption on the basis of the existing fire protection features and their alternative shutdown actions associated with fire area 56 zones B and C.

3.3 EVALUATION

The licensee's safe shutdown analysis has shown that the requirement to shift service water discharge from the circulating water canal to the service water pond is a long term one, not required for 24 hour, and can be accomplished by manually repositioning valve Q1P16V539.

By letter dated March 13, 1985, the licensee committed to develop a detailed procedure, specifically for this fire area covering the manual operator actions required to assure the proper post-fire positioning of the subject service water valve and have it fully implemented by the end of the Unit 2 fourth refueling outage, currently scheduled for the second quarter of 1986.

All other shutdown systems associated with fire area 56 zones B and C have redundant counterparts in other fire areas or are located in plant areas which meet the requirements of 10 CFR 50 Appendix R, Section III.G.2. As a result, there is reasonable assurance that if a fire occurred in the diesel generator foyer and Train B switchgear room, safe shutdown could be achieved and maintained.

The door/transom assembles separating the switchgear room and foyer from the diesel generator rooms are installed in a manner which meets the installation criteria of NFPA-80 Fire Doors and Windows. These particular doors and their associated frames meet the UL fire test criteria and bear a Class A UL label. However, since these transoms are removable the subject door/transom assemblies cannot be listed as Class A by UL. The respective transoms have been certified by the door manufacturer as to being constructed of materials and in a manner similar to that of a Class A fire door. Therefore, based on the construction and the installation of these doors and the configuration of the in-situ combustibles in the diesel generator building Train A switchgear room, we have reasonable assurance that if a fire occurred within this plant area, the fire would not propagate through the door opening protected by the subject door/transom assemblies and spread into the communicating diesel generator rooms.

3.4 CONCLUSION

Based on our evaluation, we conclude that the licensee's alternative fire protection and shutdown configuration, will provide an acceptable level of fire protection to that required by the technical requirements of 10 CFR 50 Appendix R Section III.G.2 and that no additional fire protection features are required to satisfy the requirements of Section III.G.3. Therefore, the licensee's request for exemption for the diesel generator building foyer and Train B switchgear room (Fire Area 56 Zones B and C) should be granted.

4.0 CONTROL ROOM HVAC EQUIPMENT ROOM AUXILIARY BUILDING EL 175'-0" - FIRE AREA 51

4.1 EXEMPTION REQUESTED

The licensee in their exemption request 1-6 requested an exemption from the technical requirements of 10 CFR 50 Appendix R Section III.G.2.c to the extent that it requires one train of redundant safe shutdown cable and equipment to be enclosed by a one-hour fire-rated barrier and the installation of an automatic fire suppression system.

4.2 DISCUSSION

Fire Area 51 consists of Unit 1 room 501 and Unit 2 room 2501 at el 175 ft-0 in. Floor and walls forming the area boundary are reinforced concrete. The floor of fire area 51 is three-hour fire rated. The wall and door common to fire area 51 and fire area 43 are three-hour fire rated. The exterior door of room 501 in fire area 51 is pressure tight and non-fire rated.

Fire Area 51 is common to both Units 1 and 2 and contains redundant battery room ventilation cable and equipment for both units. The following is a listing of that equipment by unit:

EQUIPMENT	FUNCTION
Q1V47C012A-A	Unit 1-A Train Battery Room Exhaust Fan
Q1V47MOV3644-A	Unit 1-A Train Battery Room Exhaust Damper
Q1V47C012B-B	Unit 1-B Train Battery Room Exhaust Fan
Q1V47MOV364-B	Unit 1-B Train Battery Room Exhaust Damper
Q2V47C012A-A	Unit 2-A Train Battery Room Exhaust Fan
Q2V47MOV3644-A	Unit 2-A Train Battery Room Exhaust Damper
Q2V47C012B-B	Unit 2-B Train Battery Room Exhaust Fan
Q2V47MOV3643-B	Unit 2-B Train Battery Room Exhaust Damper

The licensee's analysis of the potential effects of fire upon the redundant battery room ven lation equipment and cable shows that the equipment could become electrically inoperative and reposition out of the required configuration.

The combustible materials in fire area 51 consists of cable insulation, and charcoal filter media. The fire loading associated with this area is approximately 12,363 BTU/Ft^2.

An area smoke detection system is installed in the fire area. This system alarms locally and annunciates in the control room. An 1½ inch hose station is located in rooms 501 and 2502 to facilitate manual fire brigade fire fighting operations within fire area 51.

The licensee justifies the acceptability of this exemption on the basis of the existing fire protection and alternative shutdown actions associated with the control room HVAC equipment room (Fire Area 51).

4.3 EVALUATION

Fire area 51 contains redundant Train A and Train B battery room exhaust fans and exhaust dampers along with their respective redundant cable raceways for Units 1 and 2. The fire area contains a detection system which will provide early warning and allow the fire brigade adequate time to extinguish the fire. A fire would be extinguished by utilizing the water hoses located in or near the area (rooms 501 and 2502). Fire induced failures in the subject cable or equipment could potentially result in the loss of ventilation in both the redundant Trains A and B battery rooms of Units 1 and 2. A failure of the ventilation system will not result in failure of the redundant Train A and Train B 125 V-dc battery systems. Therefore, the potential fire induced failure of the subject equipment or cable will not result in the loss of systems necessary to achieve and maintain hot standby conditions. The safe shutdown requirements for the battery room ventilation is a long term requirement. If ventilation is lost due to a fire in area 51, portable ventilation equipment will be installed in the affected battery rooms within 20 hours of post-fire hot shutdown initiation to insure that battery room hydrogen concentrations do not exceed acceptable limits.

By letter dated March 13, 1985, the licensee committed to develop a detailed procedure specifically for this fire area covering the manual operator actions required to restore ventilation to Train B battery room. The licensee intends to have this procedure fully implemented by the end of the Unit 2 fourth refueling outage currently scheduled for the second quarter of 1986.

All other shutdown systems associated with fire area 51 have redundant counterparts in other fire areas or are located in plant areas which meet the requirements of 10 CFR 50 Appendix R, Section III.G.2. As a result, there is reasonable assurance that if a fire occurred in the control room HVAC equipment room, safe shutdown could be achieved and maintained.

4.4 CONCLUSION

Based on our evaluation, we conclude that the licensee's alternative fire protection and shutdown configuration, will provide an acceptable level of fire protection to that required by the technical requirements of 10 CFR 50 Appendix R Section III.G.2 and that no additional fire protection is required to satisfy the requirements of Section III.G.3. Therefore, the licensee's request for exemption for the control room HVAC equipment room (Fire Area 51) should be granted.

5.0 UNIT 2 AUXILIARY BUILDING CABLE CHASE TRAIN A - FIRE AREA 2-031 (Exemption Request 1-7)

UNIT 2 AUXILIARY BUILDING CABLE TUNNEL TRAIN A - FIRE AREA 2-075 (Exemption Requests 1-8 and 2-24)

UNIT 2 TRAIN A BATTERY ROOM - FIRE AREA 2-017 (Exemption Request 2-1)

UNIT 2 AUXILIARY BUILDING CABLE CHASE - FIRE AREA 2-008 (Exemption Request 2-5)

UNIT 2 AUXILIARY BUILDING ELEVATION 139'-0" - FIRE AREA 2-041 (Exemption Request 2-12)

UNIT 2 AUXILIARY BUILDING ELEVATION 139'-o" - FIRE AREA 2-042 (Exemption Request 2-13)

UNIT 1 AUXILIARY BUILDING ELEVATION 139'-0" - FIRE AREA 1-041 (Exemption Request 2-16)

UNIT 1 AUXILIARY BUILDING ELEVATION 139'-0" - FIRE AREA 1-042 (Exemption Request 2-17)

UNIT 1 AUXILIARY BUILDING CABLE CHASE TRAIN A - FIRE AREA 1-008 (Exemption Request 2-20)

UNIT 1 AUXILIARY BUILDING CABLE CHASE TRAIN A - FIRE AREA 1-031 (Exemption Request 2-22)

UNIT 1 AUXILIARY BUILDING TO DIESEL GENERATOR BUILDING CABLE TUNNEL TRAIN A - FIRE AREA 1-075 (Exemption Request 2-23)

UNIT 2 TRAIN A DC SWITCHGEAR ROOM, AUXILIARY BUILDING ELEVATION 121'-0" - FIRE AREA 2-018 (Exemption Request 2-32)

5.1 EXEMPTIONS REQUESTED

The licensee in their exemption requests 1-7, 1-8, 2-5, 2-13, 2-20, 2-21, 2-22 and 2-24 associated with the fire areas identified in Section 5.0 above requested an exemption from the technical requirements of 10 CFR 50 Appendix R Section III.G.2 to the extent that one train of redundant safe shutdown cables be enclosed by a fire barrier having a one-hour fire rating.

In addition, the licensee's exemption requests 2-1, 2-12, 2-16, 2-17, and 2-32 associated with the fire areas identified in Section 5.0 above requested an exemption from 10 CFR 50 Appendix R, Section III.G.2 to the extent that it requires one train of redundant safe shutdown cables be enclosed by a fire barrier having a one-hour fire rating and that automatic fire suppression be installed in the area.

The licensee in their exemption request 2-23 requested an exemption from 10 CFR 50 Appendix R, Section III.G.2 to the extent that it requires one train of redundant safe shutdown cables be enclosed by a fire barrier having a one-hour fire rating and the installation of an automatic fire detection system installed in the subject fire area.

5.2 DISCUSSION

Fire area 2-031 consists of rooms 2250 (el 121 ft - 0 in. and 139 ft - 0 in.) and 2251 (el 127 ft - 0 in.). All area boundary walls, floors, and ceilings are three-hour fire rated except for a non-rated bulkhead between this fire area and the cable tunnel (Fire Area 2-075). A non-fire-rated watertight door exists between room 2251 and the cable tunnel (Fire Area 2-075), and a UL Class A fire-rated door exists between rooms 2250 and 2235 (Fire Area 2-023). The non-rated door has a fire-resistant coating applied on the fire area 2-075 side.

Fire area 2-075 consists of a cable tunnel running from the Unit 2 auxiliary building to the diesel generator building. The fire area boundary walls, floors, and ceilings are three-hour fire rated except for a non-rated bulkhead between this fire area and area 2-031. A UL Class A fire-rated door exists between the tunnel and diesel building and a non-fire-rated water tight door exists between the tunnel and auxiliary building (Fire Area 2-031). The non-rated door has had a fire-resistant coating applied on the fire area 2-075 side.

Fire area 2-017 consists only of room 2214 at el 121 ft - 0 in. and is bounded by three-hour fire-rated floors, ceilings, and walls, and a fire-rated door.

Fire area 2-008 consists of rooms 2116 (el 83 ft-0 in.), 2197 (el 100 ft-0 in.), 2248 (el 121 ft-0 in.), and 2337 (el 139 ft-0 in.). All fire area boundary walls, ceilings, and floors are three-hour fire rated and all fire area boundary doors are fire rated.

Fire area 2-041 consists of rooms 2335, 2343, and 2346. All of the fire area boundary walls, floors, and ceilings have a three-hour fire rating, with all electrical and piping penetrations sealed for a three-hour fire rating. All ventilation ducting penetrating the fire area boundary have three-hour fire-rated dampers installed. All doors located in the fire area boundary are UL listed Class A doors.

Fire area 2-042 consists of rooms 2319, 2339, and 2345. All of the fire area boundary walls are rated as three-hour fire barriers with all electrical and piping penetrations sealed for a three-hour rating. All ventilation ductworks have three-hour fire-rated dampers installed. All doors located in the boundary walls are Class A rated with the exception of a Class B door leading from room 2345 to fire area 2-S01 (stairwell No. 1). The floors and ceilings of fire area 2-042 are of reinforced concrete and rated for three-hour with the exception of two hatchways with steel plate covers located in room 2345. The two hatches are located directly above one another in the floor and ceiling of room 2345 and communicate with fire areas 2-020 and 2-043. A sprinkler system has been installed in the hatch area of room 2345 as described in the licensee's December 9, 1983 letter.

Unit 1 fire area 1-041 consists of rooms 335, 343, and 346. All of the fire area boundary walls, floors, and ceilings have a three-hour fire rating, with all electrical and piping penetrations sealed for a three-hour fire rating. All ventilation ducting penetrating the fire area boundary have three-hour fire-rated dampers installed. All doors located in the fire area boundary are UL listed Class A doors.

Unit 1 fire area 1-042 is separated from Unit 2 fire area 2-042 by reinforced concrete walls having three-hour fire rating, with all piping and electrical penetrations sealed for a three-hour fire rating. The door separating these two fire areas is a UL listed Class A door.

Fire area 1-008 consists of only room 116 at el 83 ft - 0 in., 100 ft - 0 in., 121 ft - 0 in., and 139 ft - 0 in. All fire area boundary walls, ceiling, and floor are three-hour fire rated and all fire area boundary doors are fire rated.

Fire area 2-031 consists of rooms 2250 (el 121 ft - 0 in. and 139 ft - 0 in.) and 2251 (el 127 ft - 0 in.). All area boundary walls, floors, and ceilings are three-hour fire rated except for a non-rated bulkhead between this fire area and the cable tunnel (Fire Area 2-075). A non-fire-rated watertight door exists between room 2251 and cable tunnel (Fire Area 2-075), and a UL Class A fire-rated door exists between rooms 2250 and 2235 (Fire Area 2-023). The non-rated door has fire-resistant coating applied on the fire area 2-075 side.

Fire area 1-031 consists of rooms 250 (el 121 ft - 0 in. and 139 ft - 0 in.) and 251 (el 127 ft - 0 in). All area boundary walls, floors, and ceilings are three-hour fire rated except for a non-rated bulkhead between this fire area and the cable tunnel (Fire Area 1-075). A non-fire-rated watertight door exists between room 251 and cable tunnel (Fire Area 1-075) and a UL Class A fire-rated door exists between rooms 250 and 235 (Fire Area 1-023). The non-rated door has a fire-resistant coating applied on the fire area 1-075 side.

Fire area 1-075 consists of a cable tunnel from Unit 1 auxiliary building to diesel generator building. All fire area boundary walls, floors, and ceilings are three-hour fire rated, except for a non-rated bulkhead between

this fire area and area 1-031. A UL Class A fire-rated door exists between cable tunnel and diesel building and a non-fire-rated watertight door exists between tunnel and auxiliary building room 251 (Fire Area 1-031). The non-rated door has had a fire-resistant coating applied on the fire area 1-075 side.

Fire area 2-075 consists of a cable tunnel running from the Unit 2 auxiliary building to the diesel generator building. The area boundary walls, floors, and ceiling are three-hour fire rated, except for a non-rated bulkhead between this fire area and area 2-031. A UL Class A fire-rated door exists between the tunnel and the diesel building and a non-fire-rated watertight door exists between the tunnel and auxiliary building (Fire Area 2-031). The non-rated door has had a fire-resistant coating applied on the fire area 2-075 side.

The licensee's re-evaluation has indicated that a fire in either fire area 2-075, 2-008, 2-041, 2-042, 1-041, 1-042, 1-008, 1-031, 1-075 or 2-018 could potentially result in fire damage to the electrical circuitry of both Unit 1 and Unit 2 Train A diesel generators. This condition along with an assumed loss of offsite power (LOSP) for Unit 2 could result in the following Unit 2 safe-shutdown equipment and instrumentation being affected:

EQUIPMENT	FUNCTION
Q2N11PV3371A-A	Main Steam Atmospheric Relief Valve (S.G. 2A)
Q2N11PV3371B-A	Main Steam Atmospheric Relief Valve (S.G. 2B)
Q2N11PV3371C-A	Main Steam Atmospheric Relief Valve (S.G. 2C)

The analysis of the potential effects of loss of power for the main steam atmospheric relief valves has shown that the valves could become inoperable in the closed position.

INSTRUMENTATION	FUNCTION
N2B21TE413(LOOP-1)	RCS Hot Leg Temperature, Indication
N2B21TE423(LOOP-2)	RCS Hot Leg Temperature, Indication
N2B21TE433(LOOP-3)	RCS Hot Leg Temperature, Indication
Q2C55NE0048A-A	Post-Accident Neutron Flux Monitor
N2C55NE0031-PT	Source Range Neutron Flux Monitor
N2C55NE0032-P2	Source Range Neutron Flux Monitor

The analysis of the potential effects of loss of power to the power supplies for the instrumentation listed above has shown that a loss of power to the instrument loops could result.

In fire areas 2-031 and 2-075, the licensee's re-evaluation has indicated that a fire in either of the subject fire areas could potentially result in fire damage to the electrical circuitry of both Unit 1 and Unit 2 Train A diesel generators. This condition along with an assumed loss of offsite power (LOSP) for Unit 1 could result in the following Unit 1 safe shutdown equipment and instrumentation being affected.

EQUIPMENT	FUNCTION
Q1N11PV3371A-A	Main Steam Atmospheric Relief Valve (S.G. 1A)
Q1N11PV3371B-A	Main Steam Atmospheric Relief Valve (S.G. 1B)
Q1N11PV3371C-A	Main Steam Atmospheric Relief Valve (S.G. 1C)

The analysis of the potential effects of loss of power for the main steam atmospheric relief valves has shown that the valves could become inoperable in the closed position.

INSTRUMENTATION	FUNCTION
N1B21TE413(LOOP-1)	RCS Hot Leg Temperature, Indication
N1B21TE423(LOOP-2)	RCS Hot Leg Temperature, Indication
N1B21TE433(LOOP-3)	RCS Hot Leg Temperature, Indication
Q1C55NE0048A-A	Post-Accident Neutron Flux Monitor
N1C55NE0031-P1	Source Range Neutron Flux Monitor
N1C55NE0032-P2	Source Range Neutron Flux Monitor

The licensee's analysis of the potential effects caused by loss of power to the instrumentation listed above has shown that a loss of power to the instrument loops could result.

In addition, the licensee's re-evaluation has indicated that if a fire in fire area 2-075 could potentially cause fire damage to electrical Train A 125 V-dc plant batteries and related 125 V-dc Train A power cabling. Also, electrical Train A control and instrument cable raceway not related to the plant 125 V-dc power distribution are routed in this area. The licensee's evaluation has shown that the loss of the 125 V-dc Train A plant batteries and related dc power supply cabling will not result in the inability to achieve and maintain hot shutdown or cold shutdown conditions. The evaluation of the control and instrumentation cabling routed in this area has shown, however, that one electrical Train A control cable raceway routed through this area contains control cabling required for post-fire operation of the following redundant hot shutdown equipment:

EQUIPMENT	FUNCTION
Q2N11PV3371A-A	Main Steam Atmospheric Relief Valve (S.G. 2A)
Q2N11PV3371B-A	Main Steam Atmospheric Relief Valve (S.G. 2B)
Q2N11PV3371C-A	Main Steam Atmospheric Relief Valve (S.G. 2C)

The fire in this area along with an assumed loss of offsite power (LOSP) could result in a total loss of the electrical Train-A power and affect the following safe shutdown instrumentation:

EQUIPMENT	FUNCTION
N2B21TE413(LOOP-1)	RCS Hot Leg Temperature, Indication
N2B21TE423(LOOP-2)	RCS Hot Leg Temperature, Indication
N2B21TE433(LOOP-3)	RCS Hot Leg Temperature, Indication
Q2C55NE0048A-A	Post-Accident Neutron Flux Monitor

N2C55NE0031-P1 Source Range Neutron Flux Monitor
N2C55NE0032-P2 Source Range Neutron Flux Monitor

The analysis of the potential effects of fire induced failures on the power supply cables for the instrumentation listed above has shown that a loss of power to the instrument loops could result.

The combustible materials associated with the subject fire areas consists of cable insulation and panel parts made of plastic. The following summarizes, the fire loading associated with the subject fire areas:

FIRE AREA	FIRE LOAD BTU/FT²
2-031	794,491
2-075	59,600
2-017	1391
2-008	1,250,296
2-041	105,934
2-042	32,445
1-041	105,934
1-042	32,445
1-008	1,250,296
1-031	794,491
1-075	59,600
2-018	29,191

Fire Area 2-031 is protected by an area smoke detection and an automatic sprinkler system. The smoke detection system alarms locally and annunciates in the control room. An 1½ inch hose station is located in room 2234 (Fire Area 2-020) to facilitate fire brigade fire fighting operations within fire area 2-031.

Fire area 2-075 is protected by an automatic sprinkler system. Manual 1½ inch fire hose stations are distributed along the length of the cable tunnel in order to facilitate fire brigade fire fighting operations.

In fire area 2-017, a smoke detection system is installed and will provide early warning of a pending fire condition. In addition, in order to facilitate manual fire brigade fire fighting operations, a CO2 hose reel and a 1½ inch fire hose cabinet are located in room 2210 (Fire Area 2-020).

A smoke detection system and automatic sprinkler water suppression system is provided in Fire Area 2-008. In addition, the water type hoses located in Room 2185 (Fire Area 2-006) and room 2319 (Fire Area 2-042) are available for use as backup.

In fire area 2-041 a smoke detection system covers the entire fire area. Heat detectors are located in the cabinets of the 600 V load center 2I, 4160 V switchgear 2F, 5-kV disconnect switch 2G, 600 V load center 2D and 2A, and 4160 V switchgear 2B and 2C. The heat detectors will actuate the in-cabinet CO_2 system in the load centers and switchgears panels. A CO_2

hose reel located in room 2339 (Fire Area 2-042), a water type hose station in room 345 (Fire Area 1-042), and two water hose cabinet in room 2319 (Fire Area 2-042) are available to facilitate manual fire fighting in this area.

A detection system is provided for all rooms in Fire Area 2-042. Three portable CO_2 and one portable dry chemical type extinguishers are located in rooms 2319 and 2339. Two hose stations are located in room 2319. In addition, to facilitate manual firefighting in this fire area, a CO_2 hose reel and a water type hose station is located in room 2339 and 2345, respectively. An automatic water suppression system is installed in room 2319 and appropriate raceway fire barriers are provided for one train of safe shutdown electrical cabling.

In fire area 1-041 a smoke detection system covers the entire fire area. Heat detectors are located in the cabinets of the 600 V load center 1I; 4160 V switchgear 1F; 5 kV disconnect switch 1G; 600 V load centers 1D and 1A; and 4160 V switchgears 1A, 1B, and 1C. Heat detectors will actuate an in-cabinet CO_2 hose system in the load centers and the switchgear panels. A CO_2 hose reel located in room 345 (Fire Area 1-042), a water hose cabinet in room 345 (Fire Area 1-042), and two water hose cabinets in room 319 (Fire Area 1-042) are available for manual fire fighting in this area.

Ionization smoke detection is provided throughout fire area 1-042. Three portable CO_2 and one portable dry chemical extinguishers are located in rooms 319 and 339. Two fire hoses stations are located in room 319. In addition, to facilitate manual firefighting in this fire area, a CO_2 hose reel and a water hose is located in rooms 319 and 345, respectively. Automatic water suppression systems are installed in the area to protect electrical cable from an exposure fire and to provide coverage in the area of the steel hatches. Appropriate raceway fire barriers are provided for one-train of safe shutdown electrical cabling.

A smoke detection system and automatic sprinkler water suppression system is provided in fire area 1-008. In addition, the water hoses located in room 185 (Fire Area 1-006) and room 319 (Fire Area 1-042) are available for use as backup.

In fire area 1-031 a smoke detection system and an automatic sprinkler system is provided. In addition, a 1½ inch fire hose station is located in room 234 (Fire Area 1-020).

Fire area 1-075 is protected by an automatic water suppression system. An ionization smoke detection system is located in fire area 2-018. A portable extinguishers are located in room 2225, 2210 and 2211. In addition, CO_2 hose reel located in room 2210 (Fire Area 2-020) is available for manual firefighting use in this area.

The door between rooms 2346 (Fire Area 2-041) and 2345 (Fire Area 2-042) and between rooms 346 (Fire Area 1-041) and 345 (Fire Area 1-042) are provided with a removable transoms and cannot be labeled as UL Class A.

The licensee justifies the acceptability of the exemptions requested in Section 5.1 on the basis of the existing fire protection, their alternative shutdown actions and the proposed plant modifications associated with the subject fire areas identified in Section 5.0.

5.3 EVALUATION

One of the three main steam atmospheric relief valves and its related steam generator are required to be operable to achieve steam release for cooldown. The atmospheric relief valves are provided with hand wheels such that the valves may be manually opened or closed without electrical controls or air supplies. The operator can establish manual control of the atmospheric relief valves by closing the manual air control valves to isolate the air supply and by opening the manual air vent valve to bleed off air from the diaphragm of the valve actuator. Both the air control and air vent valves are located in the vicinity of their associated atmospheric relief valve and would be accessible despite a fire in any of the subject fire areas identified in Section 5.0 above. The capability to control steam generator pressure and reactor coolant system temperature with the use of the manually controlled atmospheric relief valves was demonstrated during the Unit 2 natural circulation and cooldown startup testing. Consequently, fire in these fire areas would not prevent the operation of at least one redundant atmospheric relief valve.

Each of the Unit 1 Reactor Coolant System (RCS) loop hot leg temperature instrumentation loops is powered from 120 V-ac distribution panel 1J. Distribution panel 1J is powered from inverter 1F which is powered from 600 V-ac MCC 1A or 125 V-dc bus 1A. A fire in either fire area 2-031 or 2-075 could result in loss of the 600 V-ac power supply to inverter 1F; however, inverter 1F will continue to operate from 125 V-dc bus 1A and will supply power to 120 V-ac distribution panel 1J for a minimum of two hours. If after two hours power is lost, RCS hot leg temperature is available from the core exit temperature indication in the main control room from the core exit thermocouples. Core exit temperature indication will not be affected by a fire in either fire area 2-031 or 2-075.

The Unit 2 RCS loop hot leg temperature instrumentation loops is powered from channelized inverter 2A. Inverter 2A is powered from 600 V-ac MCC 2A or 125 V-dc bus 2A. A fire in either fire area 2-075, 2-008, 2-041, 2-042, 1-041, 1-042, 1-008, 1-031, 1-075 or 2-018 could result in loss of the 600 V-ac power supply to inverter 2A; however, inverter 2A will continue to operate from 125 V-dc bus 2A and will supply power to 120 V-ac distribution panel 2J for a minimum of two hours. If after two hour power is lost, RCS hot leg temperature is available from the core exit temperature indication in the main control room from the core exit thermocouples. Core exit temperature indication will not be affected by a fire in any of these areas.

In addition to the alternative dc power supply for a minimum of two hours and core exit temperature indication availability for the Unit 1 and Unit 2 RCS hot leg temperature instrumentation loops, a design change, to be installed as a result of R.G.1.97, will provide a redundant power supply and

provide cable separation and redundant signal processing and indication between RCS hot leg temperature instrument loops N1B21TE413, N1B21TE423, and N1B21TE433 and N2B21TE413, N2B21TE423, and N2B21TE433.

Based upon the R.G.1.97 commitment schedule, implementation of the modification is currently planned for the seventh Unit 1 refueling outage and the fourth Unit 2 refueling outage presently scheduled to commence during the fourth and second quarters of 1986 respectively. After plant implementation of the R.G.1.97 Units 1 and 2 modifications a fire in any of the fire areas identified in Section 5.0 above will not affect the ability to monitor one loop of RCS hot leg temperature.

Unit 1 post-accident neutron monitor Q1C55NE0048A-A is powered from inverter 1F. Source range neutron flux monitors N1C55NE0031-P1 and N1C55NE0032-P2 are powered from channelized inverters 1A and 1B which are also powered by 600 V-ac MCC 1A or 125 V-dc bus 1A. Therefore, neutron flux monitoring following potential fire damage in either fire area 2-031 or 2-075 and the resultant loss of 600 V-ac MCC 1A, the Unit 1 monitor will be available for a minimum of two hours. An RCS sample can be obtained after initiation of the RHR system by using portions of the RCS sampling system and RHR Hx No. 1 and No. 2 sample valves Q1P15HV3105-B and Q1P15HV3106-B for determination of the boron concentration and shutdown margin following fire in either fire area 2-031 or 2-075.

Unit 2 post-accident neutron flux monitor Q2C55NE0048A-A is powered from inverter 2F. Source range neutron flux monitors N2C55NE0031-P1 and N2C55NE0032-P2 are powered from channelized inverters 2A and 2B. Inverters 2A, 2B, and 2F are all powered from 600 V-ac MCC 2A or 125 V-dc bus 2A. Therefore, neutron flux monitoring following potential fire damage in either Fire Area 2-075, 2-008, 2-041, 2-042, 1-041, 1-042, 1-008, 1-031, 1-075 or 2-018 and the resultant loss of 600 V-AC MCC 2A, the Unit 2 monitor will be available for a minimum of two hours by using portions of the RCS sampling system and RHR Hx No. 1 and No. 2 sample valves Q2P15HV3105-B and Q2P15HV306-B for determination of the boron concentration and shutdown margin following a fire in either fire area 2-075, 2-008, 2-041, 2-042, 1-041, 1-042, 1-008, 1-031, 1-075 or 2-018.

The licensee, by letter March 13, 1985, committed to develop detailed procedures specifically for the subject fire areas covered by this evaluation. These procedures will identify the manual operator actions required to regain control of one main steam atmospheric relief valve and to monitor boron concentration and shutdown margin. These procedures will be fully implemented by the end of the Unit 2 fourth refueling outage.

The watertight doors between fire areas 1-031 and 1-07 and fire areas 2-031 and 2-075 do not comply with the three hour fire-rated fire area boundary requirements. However, a fire in either Fire Area 1-031 or 2-031 propagating into Fire Area 1-075 and 2-075 respectively will not have any additional impact on Units 1 or 2 safe shutdown capability because the same redundant safe shutdown function cables are contained in both of the respective Units 1 and 2 fire areas.

The door/transom assemblies separating Unit 1 rooms 346 (Fire Area 1-041) and 345 (Fire Area 1-042) and Unit 2 rooms 2346 (Fire Area 2-041) and 2345 (Fire Area 2-042) are provided with a removable transom in order to facilitate the movement of large electrical equipment. The door and frame assemblies associated with these doors meet the UL fire test criteria and they bear a Class A UL labels. However, since the transom is removable, the subject door/transom assemblies cannot be listed as Class A by UL. The respective transoms have been certified by the manufacturer as being constructed of materials and in a manner similar to that of a Class A fire door. Therefore, based on the construction, the installation of these doors and the configuration of the in-situ combustibles in these fire areas, we have reasonable assurance that a fire involving the in-situ combustibles in any of the subject fire areas, would not propagate through the transom opening and spread into the adjacent fire areas.

All other shutdown systems associated with the fire areas identified in Section 5.0 have redundant counterparts in other fire areas or are located in plant areas which meet the requirement of 10 CFR 50 Appendix R Section III.G.2. As a result, there is reasonable assurance that if a fire occurred in any of the subject fire areas, safe shutdown could be achieved and maintained.

5.4 CONCLUSION

Based on our evaluation, we conclude that the licensee's alternative fire protection and shutdown configuration and their proposed modifications will provide an acceptable level of fire protection to that required by the technical requirements of 10 CFR 50 Appendix R, Section III.G.2 and that no additional fire protection is required to satisfy the requirements of Section III.G.3. Therefore, the licensee's request for exemption for the fire areas identified in Section 5.0 above should be granted.

6.0 UNIT 2 AUXILIARY BUILDING SWITCHGEAR ROOM TRAIN B - FIRE AREA 2-021 (Exemption Request 2-10)

UNIT 2 AUXILIARY BUILDING CONTROL ROD DRIVE SWITCHGEAR ROOM - FIRE AREA 2-023 (Exemption Request 2-14)

UNIT 2 CABLE CHASE TRAIN B - FIRE AREA 2-030 (Exemption Request 2-25)

UNIT 2 AUXILIARY BUILDING TO DIESEL GENERATOR BUILDING CABLE TUNNEL TRAIN B - FIRE AREA 2-076 (Exemption Request 2-26)

UNIT 1 AUXILIARY BUILDING SWITCHGEAR ROOM TRAIN B - FIRE AREA 1-021 (Exemption Request 2-27)

UNIT 1 AUXILIARY BUILDING CONTROL ROD DRIVE SWITCHGEAR ROOM TRAIN B - FIRE AREA 1-023 (Exemption Request 2-28)

UNIT 1 AUXILIARY BUILDING TO DIESEL GENERATOR BUILDING CABLE TUNNEL TRAIN B - FIRE AREA 1-076 (Exemption Request 2-29)

UNIT 1 AUXILIARY BUILDING CABLE CHASE TRAIN B - FIRE AREA 1-030 (Exemption Request 2-30)

UNIT 2 TRAIN B DC SWITCHGEAR ROOM AUXILIARY BUILDING ELEVATION 121'-0" - FIRE AREA 2-019 (Exemption Request 2-33)

UNIT 1 TRAIN B INSIDE CABLE CHASE - FIRE AREA 1-009 (Exemption Request 2-34)

6.1 EXEMPTIONS REQUESTED

The licensee in their exemption requests 2-14, 2-25, 2-23, 2-30, and 2-34 associated with the fire areas identified in Section 5.0 above requested an exemption from the technical requirements of 10 CFR 50 Appendix R Section III.G.2 to the extent that one train of redundant safe shutdown cables be enclosed by a fire barrier having a one hour fire rating.

In addition, the licensee's exemption request 2-10, 2-27, and 2-33 associated with the fire areas identified in Section 5.0 above requested an exemption from 10 CFR 50 Appendix R Section III.G.2 to the extent that it requires one train of redundant safe shutdown cables be enclosed by a fire barrier having a one hour fire rating and that automatic fire suppression be installed in the area.

The licensee in their exemption request 2-29 requested an exemption from 10 CFR 50 Appendix R Section III.G.2 to the extent that it requires one train of redundant safe shutdown cables be enclosed by a fire barrier having a one hour fire rating and the installation of an automatic fire detection system installed in the subject fire area.

6.2 DISCUSSION

Fire area 2-021 consists of rooms 2229 and 2233 at el 121 ft - 0 in. and is bounded by three-hour fire-rated walls, ceilings, and floors. The area boundary doors are UL Class A fire rated.

Fire area 1-030 consists of rooms 249 (el 121 ft - 0 in. and 139 ft - 0 in.) and 252 (el 127 ft - 0 in.). All area boundary walls, floors, and ceilings are three-hour fire rated, except for a non-rated bulkhead between this area and the cable tunnel (area 1-076). A non-fire-rated watertight door exists between room 252 and the cable tunnel (area 1-076) and a UL Class A fire-rated door between room 249 and 235 (area 1-023). The non-rated door has had a fire-resistant coating applied to the fire area 1-076 side.

Fire area 1-076 consists of a cable tunnel which runs from the Unit 1 auxiliary building to the diesel generator building. All area boundary walls, floor, and ceiling are three-hour fire rated, except for a non-rated bulkhead between this area and fire area 1-30. A non-fire-rated watertight door exists between the tunnel and the auxiliary building room 252 (area 1-030) and a UL Class A fire-rated door exists between the tunnel and the diesel generator building. The non-rated door has a fire-resistant coating applied on the Fire Area 1-076 side.

Fire area 1-023 consists only of room 235 and is bounded by three-hour fire-rated walls, floor, and ceiling. Area boundary doors are UL Class A fire rated.

Fire area 1-021 consists of rooms 229 and 233 on el 121 ft - 0 in. All area boundary walls, floors, and ceilings are three-hour fire rated. Area boundary doors are UL Class A fire rated.

Fire area 2-076 consists of a cable tunnel running from the Unit 2 auxiliary building to the diesel building. The fire area boundary walls, floor, and ceiling are three-hour fire rated, except for a non-rated bulkhead between this fire area and area 2-030. A UL Class-A fire-rated door exists between the cable tunnel and the diesel building and a non-fire-rated watertight door exists between the cable tunnel and the auxiliary building (Fire Area 2-030). The non-rated door has a fire-resistant coating applied on the Fire Area 2-076 side.

Fire area 2-030 consists of rooms 2249 (el 121 ft - 0 in. and 139 ft - 0 in.) and room 2252 (el 127 ft - 0 in.). All fire area boundary walls, floors, and ceilings are three-hour fire rated, except for a non-rated bulkhead between this fire area and the cable tunnel (Fire Area 2-076). UL Class-A fire-rated door exists between rooms 2249 and 2235 (Fire Area 2-023). The door between room 2252 and cable tunnel (Fire Area 2-076) is a non-fire-rated watertight door. The non-rated door has a fire-resistant coating applied on the fire area 2-076 side.

Fire Area 2-023 consists only of room 2235 at el 121 ft - 0 in. and is bounded by three-hour fire-rated walls and floors. The area boundary doors are UL Class A fire-rated doors.

Fire area 1-009 consists of two vertical cable chases 117 and 246. Room 117 spans four elevations from 83 ft - 0 in. to 155 ft - 0 in. and room 246 spans three elevations from 109 ft - 0 in. to 155 ft - 0 in. All fire area boundary floors, ceilings, and walls are three-hour rated and all fire area boundary doors are fire rated.

Fire areas 2-021, 2-023, 2-030, 2-076, 1-021, 1-023, 1-076, 1-030, and 2-019 contains electrical Train B equipment and power and control cables.

The analysis of the potential effects of a fire in each of these areas upon equipment and cabling shows that the plant could lose the entire electrical Train B system. Due to loss of the electrical Train B system, the following redundant safe shutdown equipment could become inoperable in the closed position:

EQUIPMENT	FUNCTION
N2P19HV3885-B	Instrument Air to Penetration Room
Q2B13HV2228-B	Backup Air/N^2 Supply to Pressurizer PORVs
Q2B31PV0445A-A	Pressurizer PORV Train A

Q2B31PCV0444B-B	Pressurizer PORV Train B
Q2E21HV8145-N	Pressurizer Auxiliary Spray

Control cables for the Train B pressurizer power operated relief and blocking valves Q2B31PCV0444B-B and Q2B13MOV8000B-B, and the reactor head vent valves Q2B13SV2213B-B and Q2B13SV2214B-B are located in the subject fire areas. The subject cables are associated with the control function from the hot shutdown panel Q2H21NBAFP2605C-B. In addition, control cables which shift control from the main control board to the hot shutdown panel via the transfer relay cabinet Q2H22L004-B are in this area. A fire induced failure having multiple hot shorts could cause the reactor inventory to letdown via the PORV, and reactor head vent paths.

Fire area 1-009 contains power and control cables associated with MCC 1L. The operation of the Train B service water system and consequently the Train B diesel generators is dependent on the availability of MCC 1L. An analysis of the effects of a fire in this area upon the MCC 1L control and power cables shows that MCC 1L could become de-energized. The inability to operate the Train B diesel generator due to loss of service water, coupled with an assumed loss of offsite power results in a loss of the entire Train B electrical system. Due to a loss of the electrical Train B system the following Unit 2 redundant safe shutdown valves could become inoperable in the closed position:

EQUIPMENT	FUNCTION
N2P19HV3885-B	Instrument Air to Penetration Room
Q2B13HV2228-B	Backup Air/N^2 Supply to Pressurizer PORVs
Q2B31PCV0445A-A	Pressurizer PORV Train A
Q2B31PCV0444B-B	Pressurizer PORV Train B
Q2E21HV8145-N	Pressurizer Auxiliary Spray

The combustible materials associated with the subject fire areas consists of cable insulation and panel parts made of plastic. The following summarizes the fire loading associated with the subject fire areas:

FIRE AREA	FIRE LOAD BTU/FT²
2-021	109,062
2-023	68,022
2-030	423,898
2-076	39,000
1-021	109,062
1-023	68,022
1-076	39,000
1-030	423,898
2-019	34,375
1-009	2,921,199

An area smoke detection system is installed in fire area 2-021 heat detectors are provided in the 4.16-kV switchgear, the 5-kV disconnect switch, and the four 600-V load centers. These heat detectors activate the alarm horn located in the area and the in-cabinet CO_2 systems in each piece of equipment. An 1½ inch hose station and a CO_2 hose reel is located in room 2210 (Fire Area 2-020), and are available as backup.

In fire area 2-023 ionization smoke detectors are provided which activate total flooding Halon system, activate alarm in room 2234 (Fire Area 2-020) and annunciate in the main control room. A water hose installed in room 223[illegible] (Fire Area 2-020), and outside of room 2235 is available as a backup.

A smoke detection system and automatic water suppression system are installed in fire area 2-30. The manual hose station located in room 2234 (Fire Area 2-020) is available for use in this area.

Fire area 2-076 and 1-076 are protected by an automatic water suppression systems.

In fire area 1-021 an area smoke detection system is installed. Heat detectors and fixed CO_2 automatic suppression systems are provided in the 4.16-kV switchgear, the 5-kV disconnect switch, and the four 600-V load centers. These heat detectors activate the audible alarm located in the area and the total-flooding CO_2 systems. A water hose is installed in room 234 (Fire Area 1-020) outside of room 235 (Fire Area 1-023), and would be available. A CO_2 hose reel located in room 210 (Fire Area 1-020) is also available for use in this area.

A smoke detection system is installed in fire area 1-023. The system alarms locally and is annunciated in the control room. In addition, a total-flooding Halon system is provided which is activated by these detectors. A water hose installed in room 234 (Fire Area 1-020) and outside of room 235 is available as a backup.

Fire area 1-030 is protected by a smoke detection system and an automatic water suppression system. An 1½ inch hose station is located in room 234 (Fire Area 1-020) and is available for manual fire fighting in fire area 1-030.

In fire area 2-019 a smoke detection system is provided. Portable extinguishers in room 2211 and 2225 (Fire Area 2-020) and a hose reel located in room 2210 (Fire Area 2-020) provided manual firefighting capabilities in this area.

Fire protection in fire area 1-009 is provided in the form of an area smoke detection system and automatic water fire suppression system. In addition, water hoses, portable extinguishers, and smoke removal equipment located in room 185 (Fire Area 1-006) and room 319 (Fire Area 1-042) are available for use as a backup.

The door between rooms 2233 (Fire Area 2-021) and 2228 (Fire Area 2-020) is provided with a removable transom and cannot be labeled as UL Class A.

The licensee justifies the acceptability of the exemptions requested in Section 6.1 on the basis of the existing fire protection, and their alternative shutdown actions associated with the subject fire areas identified in Section 6.0.

6.3 EVALUATION

A fire in either fire area 2-021, 2-033, 2-030, 2-076, 1-021, 1-023, 1-076, 1-030, 2-019, and 1-009 will cause failure of valve Q2E21HV8145-N in the closed position. This will disable the pressurizer auxiliary spray which provides one method to achieve depressurization for the RCS.

In addition, the same fire in either of the subject fire areas, will affect the pressurizer PORVs Q2B31PCV0445A-A and Q2B31PCV0444B-B which provides the other means of achieving RCS depressurization. Valves N2P19HV3885-B and Q2B13HV2228-B will fail in the closed position on loss of Train-B dc power. This will isolate the instrument air supply to the pressurizer PORVs Q2B31PCV0445A-A and Q2B31PCV0444B-B. PORV Q2B31PCV0444B-B will also be inoperable due to loss of the Train B dc power supply. However, the Train A dc supply to PORV Q2B31PCV0445A-A is not affected due to a fire in this area. Since only one of the PORVs is required for RCS depressurization, and RCS depressurization is a long term requirement, the operator has adequate time to take manual action to restore the instrument air by hand wheel operation of valve N2P19HV3885-B.

Once air is restored, PORV Q2B31PCV0445A-A will be operable to achieve RCS depressurization.

A fire in fire area 2-021 could cause fire induced failures (hot shorts) to the control cables for the transfer relay cabinet Q2H22L004-B causing control for the power operated relief and block valves, and the reactor head vent valves, to shift from their normal main control board alignment to the remote hot shutdown panel. Subsequent fire induced failures (hot shorts from adjacent control cables in the shared raceway) of the control cables for Q2B31PCV0444-B, PORV, Q2B13SV2213B-B, and Q2B13SV2214B-B, reactor head vent valves could result in the valves being energized to open. The power relief block valve could become electrically inoperative in the open position. In the unlikely event of the multiple hot shorts occurring, this condition can be mitigated by removing power from the transfer relays, and manual operation of the effected relay thereby, shifting control to the main control board.

The licensee, by letter dated March 13, 1985, committed to develop detailed procedures specifically for the subject fire areas covered by this evaluation. These procedures will identify the manual operator actions required to regain the control of the pressurizer power operated relief valves (PORVs) and the transfer relays for the PORVs and the head vent valves. These procedures will be fully implemented by the end of the Unit 2 fourth refueling outage.

The watertight doors between fire areas 1-030 and 1-076 and fire areas 2-030 and 2-076 do not comply with the three hour fire-rated fire area boundary requirements. However, a fire in either fire area 1-030 or 2-030 propagating into fire area 1-076 or 2-076 respectively will not have any additional impact on Unit 1 or 2 safe shutdown capability because the same redundant safe shutdown function cables are contained in both of the respective Units 1 and 2 fire areas.

The door/transom assemblies separating Unit 1 rooms 233 (Fire Area 1-021) and 228 (Fire Area 1-020), rooms 235 (Fire Area 1-023) and 234 (Fire Area 1-020), and Unit 2 rooms 2233 (Fire Area 2-021) and 2228 (Fire Area 2-020) are provided with a removable transom in order to facilitate the movement of large electrical equipment.

The door and frame assemblies associated with these doors meet the UL fire test criteria and they bear a Class A UL label. However, since the transom is removable, the subject door/transom assemblies cannot be listed as Class A by UL. The respective transoms have been certified by the manufacturer as being constructed of materials and in a manner similar to that of a Class A fire door. Therefore, based on the construction, the installation of these doors and the configuration of the in-situ combustibles in these fire areas, we have reasonable assurance that a fire involving the in-situ combustibles in any of the subject fire areas would not propagate through the transom opening and spread into the adjacent fire area.

All other shutdown systems associated with the fire areas identified in Section 6.0 have redundant counterparts in other fire areas or are located in plant areas which meet the requirements of 10 CFR 50, Appendix R, Section III.G.2. As a result, there is reasonable assurance that if a fire occurred in any of the subject fire areas, safe shutdown could be achieved and maintained.

6.4 Conclusion

Based on our evaluation, we conclude that the licensee's alternative fire protection and shutdown configuration will provide an acceptable level of fire protection to that required by the technical requirements of 10 CFR 50, Appendix R, Section III.G.2, and that no additional fire protection is required to satisfy the requirements of Section III.G.3. Therefore, the licensee's request for exemption for the fire areas identified in Section 6.0 above should be granted.

7.0 SERVICE WATER VALVE BOX - APPROXIMATELY 450 FT. NORTHWEST OF SERVICE WATER INTAKE STRUCTURE - FIRE AREA SWGA

7.1. EXEMPTION REQUESTED

The licensee, in their exemption request 1-13, requested an exemption from the technical requirements of 10 CFR 50, Appendix R, Section III.G.2, to the extent it requires a three-hour fire-rated barrier separating redundant safe shutdown cabling and equipment.

7.2 DISCUSSION

Fire area SWGA is separated from all other areas of the plant by a three-hour-fire-rated reinforced concrete wall and ceiling. The service water train oriented compartments of the valve box are separated by a 3 ft. reinforced concrete wall. This dividing wall is penetrated by a 24-in. diameter pipe via a 28-in. diameter sleeve. The subject compartments do not contain automatic fire detection or suppression. The individual valve box compartments communicate with the outside through manhole covers (one each). The roof of the valve box is 6 in. above grade. This penetration is a 28-in. diameter pipe sleeve which has a 24-in. diameter service water pipe penetrating at centerline el 181 ft - 6 in. (approximately 10 ft above the floor) and is sealed but not fire rated.

Combustible materials in Fire Area SWGA primarily consists of gear case valve lubricant. The fire loading associated with this fire area is approximately 3590 BTU/Ft^2.

7.3 EVALUATION

Based on the in-situ combustibles, a fire in area SWGA has been calculated to have a maximum fire severity of less than 30 minutes. This is due to the very low in-situ combustible loading which consists of valve gear case lubricant, as all cabling is installed in conduit and not considered a combustible contributor. The 3-ft-thick reinforced concrete wall separating the redundant compartments is considered an adequate barrier, as it has only one penetrating item in its entire surface, which is 10 ft above the floor. The subject penetration is sealed and considered an adequate smoke and gas seal, but is not fire rated. In addition, the licensee's reevaluation of the safe shutdown circuits from the effects of an exposure fire in each valve box compartment shows that the equipment would become electrically inoperative but would not change from its required position. Therefore, neither redundant trains of service water would be rendered inoperative.

All other shutdown systems associated with Fire Area SWGA have redundant counterparts in other fire areas or are located in plant areas which meet the requirements of 10 CFR 50 Appendix R Section III.G.2. As a result, there is reasonable assurance that if a fire occurred in the service water valve box, safe shutdown could be achieved and maintained.

7.4 CONCLUSION

Based on our evaluation, we conclude that the licensee's alternative fire protection and shutdown configuration will provide an acceptable level of fire protection to that required by the technical requirements of 10 CFR 50, Appendix R, Section III.G.2. Therefore, the licensee's request for exemption for the service wat·r valve box (Fire Area SWGA) should be granted.

8.0 UNIT 2 AUXILIARY BUILDING ELEVATIO. .55'-0" AND 175'-0" - FIRE AREA 2-043

8.1 EXEMPTION REQUESTED

The licensee in their exemption request 2-2 requested an exemption from the technical requirements of 10 CFR 50, Appendix R, Section III.G.2, to the extent that it requires one train of redundant safe shutdown cable and equipment to be enclosed by a one-hour fire-rated barrier and the installation of an automatic fire suppression system.

8.2 DISCUSSION

Fire area 2-043 consists of rooms 2452, 2462, 2463, and 2464 at el 155 ft-0 in. and room 2502 at el 175 ft-0 in. All fire area boundary walls are three-hour fire rated, and all fire area boundary doors (except exterior doors) are fire rated. As discussed in the Fire Protection Program Reevaluation (FPPR) Revision 4 and the licensee's letter dated December 9, 1983, there is a non-rated steel hatch cover in the northwest corner of room 2452 that leads to fire area 2-042. However, a sprinkler system has been installed in area 2-042 to protect the equipment in the hatch area. Rooms 2463 and 2502 contain no safe shutdown equipment or cabling.

Fire area 2-043, and rooms 2462 and 2464, contain redundant steam generator pressure transmitters and cabling. The redundant steam generator pressure instruments provide the following signals:

EQUIPMENT	FUNCTION
Q2N11PT3371A-A	S/G-A Press, Atmospheric Relief Valve Control
Q2N11PT0474-P2	S/G-A Press, Protection Signal, Indication
Q2N11PT0475-P3	S/G-A Press, Protection Signal, Indication
Q2N11PT0476-P4	S/G-A Press, Protection Signal, Indication
Q2N11PT3371B-A	S/G-B Press, Atmospheric Relief Valve Control
Q2N11PT0484-P2	S/G-B Press, Protection Signal, Indication
Q2N11PT0485-P3	S/G-B Press, Protection Signal, Indication
Q2N11PT0486-P4	S/G-B Press, Protection Signal, Indication
Q2N11PT3371C-A	S/G-C Press, Atmospheric Relief Valve Control
Q2N11PT0494-P2	S/G-C Press, Protection Signal, Indication
Q2N11PT0495-P3	S/G-C Press, Protection Signal, Indication
Q2N11PT0496-P4	S/G-C Press, Protection Signal, Indication

The analysis of the effects of fire upon the subject instrumentation and respective cabling is as follows:

Fire induced signals from Q2N11PT3371A-A, B-A, and C-A could cause their respective steam generator atmospheric relief valve to open and/or provide erroneous pressure indication.

Fire induced signals from Q2N11PT0474-P2, 475-P3, 476-P4/Q2N11PT0484-P2, 485-P3, 486-P4/Q2N11PT0494-P2, 495-P3, and 496-P4 could cause erroneous pressure indication.

Fire area 2-043 room 2452 contains redundant battery room ventilation cabling which service the following equipment:

EQUIPMENT	FUNCTION
Q2V47C012A-A	A-Train Battery Room Exhaust Fan.
Q2V47MOV3644-A	A-Train Battery Room Exhaust Damper.
Q2V47C012B-B	B-Train Battery Room Exhaust Fan.
Q2V47MOV3643-B	B-Train Battery Room Exhaust Damper.

The analysis of the effects of fire upon the redundant battery room ventilation cabling shows that subject equipment could become electrically inoperative.

Combustible materials in fire area 2-043 primarily consists of cable insulation, piping insulation and miscellaneous combustibles. The following fire loading is associated with the rooms bounded by fire area 2-043:

ROOM NUMBER	FIRE LOAD (BTU/FT^2)
Storage Room 2452	22,490
Nonradioactive Ventilation Equip Room 2462	7,673
Storage Room 2463	4,542
Storage Room 2464	7,818

A detection system is provided for all rooms in fire area 2-043. Manual hose stations are located in rooms 2452, 2462, and 2502. Room 2452 is protected by a wet-pipe sprinkler system, and room 2462 is protected by a preaction sprinkler system. Additional protection is afforded in rooms 2462 and 2452 by enclosing one train of redundant raceways in a fire-rated barrier.

The licensee justifies the acceptability of this exemption on the basis of the existing fire protection and their alternative shutdown actions associated with auxiliary building elevations 155'-0" and 175'-0" (Fire Area 2-043).

8.3 EVALUATION

Room 2464 of area 2-043 contains steam generator A (S/G-A) pressure transmitters and cabling. The S/G-A pressure transmitters and transmitter cabling in room 2464 have not been protected with a fire barrier and an automatic suppression system has not been installed in room 2464. Room 2462 of area 2-043 contains steam generator A, B, and C pressure transmitter cabling, and steam generator B (S/G-B) and C (S/G-C) pressure transmitters. Room 2462 is separated from room 2464 by a non-fire-rated concrete wall and is provided with a fixed full coverage preaction sprinkler system. The insitu combustible fire loading in both rooms 2464 and 2462 is low with a maximum fire severity of less than 30 minutes. The S/G-A pressure transmitters located in room 2464 are physically separated by a minimum distance of 12 ft from the redundant S/G-B pressure transmitters, a distance greater than 30 ft from the redundant S/G-C pressure transmitters, and are located approximately 8 ft from the concrete wall separating rooms 2464 and 2462. The S/G-B pressure transmitters and the redundant S/G-C pressure transmitters located in room 2462 are physically separated by a distance greater than 20 ft and two channels of the redundant S/G-A, S/G-B, and S/G-C pressure transmitter cable raceways routed through room 2462 are protected with fire barriers. The raceway fire barriers are composed of two 1-in.-thick Kaowool blanket wraps with one overall layer of Zetex woven fabric. The S/G-B and S/G-C pressure transmitters and the cable conduit connecting the individual S/G-B, and S/G-C transmitters to the protected (barriered) raceway have not been protected by a fire barrier.

Due to the physical separation provided between redundant steam generator pressure transmitters, the fire protection features provided in Room 2462 and the low in-situ combustible loading in rooms 2464 and 2462, a fire in room 2464 or room 2462 would not effect the ability to monitor steam generator pressure in at least one steam generator. One functional steam generator is sufficient for safe shutdown.

Room 2452 of area 2-043 contains redundant power and control cable raceways and terminal boxes for the Train A and B battery room exhaust fans and exhaust dampers. Room 2452 is protected by a full coverage wet pipe sprinkler system; however, one train of the redundant battery room exhaust fan/damper power and control cable raceways and related terminal box have not been protected by a fire barrier. Fire induced failures in these control and power cables could potentially result in the loss of ventilation in both the redundant Train A and B battery rooms. A failure of the ventilation systems will not result in failure of the redundant Train A and B 125 V-dc battery systems. Therefore, the potential fire induced failure of the power and control cable for the redundant battery room ventilation fans and dampers will not result in the loss of systems necessary to achieve and maintain hot shutdown conditions. The safe shutdown requirement for battery room ventilation is a long term requirement. If ventilation is lost

due to a fire in area 2-043, either portable ventilation equipment will be installed in the affected battery rooms within 20 hours of post-fire hot shutdown initiation to insure that battery room hydrogen concentrations do not exceed acceptable limits.

By letter dated March 13, 1985, the licensee committed to develop a detailed procedure specifically for this fire area covering the manual operator actions required to restore ventilation to the Train A battery room. The licensee intends to have this procedure fully implemented by the end of the Unit 2 fourth refueling outage currently scheduled for the second quarter of 1986.

All other shutdown systems associated with Fire Area 2-043 have redundant counterparts in other fire areas or are located in plant areas which meet the requirements of 10 CFR 50 Appendix R Section III.G.2. As a result, there is reasonable assurance that if a fire occurred on auxiliary building elevation 155'-0" or 175'-0" in either room 2452, 2462, 2463 or 2464 safe shutdown could be achieved and maintained.

8.4 CONCLUSION

Based on our evaluation, we conclude that the licensee's alternative fire protection and shutdown configuration, will provide an acceptable level of fire protection to that required by the technical requirements of 10 CFR 50 Appendix R Section III.G.2 and that no additional fire protection is required to satisfy the requirements of Section III.G.3. Therefore, the licensee's request for exemption for auxiliary building elevations 155'-0" and 175'-0" (Fire Area 2-043) should be granted.

9.0 UNIT 2 AUXILIARY BUILDING COMMUNICATION ROOM NO. 2202 - FIRE AREA 2-015

9.1 EXEMPTION REQUESTED

The licensee in their exemption request 2-3 requested an exemption from the technical requirements of 10 CFR 50 Appendix R Section III.G.2 to the extent that it requires one train of redundant safe shutdown cables to be enclosed by a barrier having a one-hour fire rating.

9.2 DISCUSSION

Fire area 2-015 consists only of room 2202 at el 121 ft - 0 in. and is bounded by three-hour fire-rated floors, ceilings, and walls and has a three-hour fire-rated door.

This fire area contains electrical Train A control cables for the following redundant safe shutdown equipment:

EQUIPMENT	FUNCTION
Q2N11PV3371A-A	Main Steam Atmospheric Relief Valve (S.G. 2A)
Q2N11PV3371B-A	Main Steam Atmospheric Relief Valve (S.G. 2B)
Q2N11PV3371C-A	Main Steam Atmospheric Relief Valve (S.G. 2C)

The analysis of the potential effects of a fire upon these cables has shown that the subject valves would become inoperable in the closed position.

In addition, this area contains control cables for the Train A pressurizer power operated relief and blocking valves Q2B31PCV0445A-A and Q2B13MOV8000A-A, and the reactor head vent valves Q2B13SY2213A-A and Q2B13SV2214A-A, are located in Fire Area 2-015. The subject cables are associated with the control function from the hot shutdown panel QH21NBAFP2605G-A. In addition control cables which shift control from the main control board to the hot shutdown panel via the transfer cabinet Q2H22L002-A are in this area. A fire induced failure having multiple hot shorts could cause the reactor inventory to letdown via the PORV, and reactor head vent paths.

Combustible materials in fire area 2-015 primarily consists of cable insulation and plastic pannel parts. The fire loading associated with this area is approximately 26,090 BTU/FT^2.

The installed smoke detection system activates an audible alarm located in room 2210 (Fire Area 2-020) and annunciates the alarm in the control room. In addition, a total-flooding Halon system is provided which is activated by the detection system. A CO_2 hose reel located in room 2210 (Fire Area 2-020) is available as backup.

The licensee justifies the acceptability of this exemption on the basis of the existing fire protection and their alternative shutdown actions associated with communications room no. 2202 (Fire Area 2-015).

9.3 EVALUATION

The licensee's re-evaluation indicates that one of the three main steam atmospheric relief valves and its related steam generator is required to be operable to achieve steam release for cooldown. The atmospheric relief valves are provided with hand wheels such that the valves may be manually opened or closed without electrical controls or air supplies. The operator would establish manual control of the atmospheric relief valves by closing the manual air control valves to isolate the air supply and by opening the manual air vent valve to bleed off air from the diaphragm of the valve actuator. Both the air control and air vent valves are located in the vicinity of their associated atmospheric relief valve and would be accessible despite a fire in area 2-015. The capability to control steam generator pressure and reactor coolant system temperature with the use of the manually controlled atmospheric relief valves was demonstrated during the Unit 2 natural circulation and cooldown startup testing. Consequently, a fire in area 2-015 would not prevent the operation of at least one redundant atmospheric relief valve.

Fire induced failure (hot shorts) to the control cables for the transfer relay cabinet Q2H2L002-A could cause control for the power operated relief and blocking valves and the reactor head vent valves. to shift from the normal main control board alignment to the remote hot shutdown panel. Subsequent fire induced failures (hot shorts from adjacent control cables in

the shared raceway) of the control cables for Q2B31PCV0445A-A, power operated relief valve, Q2B13SV2213A-A, and Q2B13SV2214A-A reactor head vent valves, could result in the valves being energized to open. The power relief blocking valve could become electrically inoperative in the open position. In the unlikely event of the multiple hot shorts occurring, this condition can be mitigated by removing power from the transfer relays and manual operation of the effected relay thereby shifting control to the main control board.

By letter dated March 13, 1985, the licensee committed to develop detailed procedures specifically for this fire area covering the manual operator actions required to regain the control of one main steam atmospheric relief valve and transfer relays for the pressurizer power operated relief valves (PORV), PORV block valves and head vent valves and have them fully implemented by the end of the Unit 2 fourth refueling outage currently scheduled for the second quarter of 1986.

All other shutdown systems associated with fire area 2-015 have redundant counterparts in other fire areas or are located in plant areas which meet the requirements of 10 CFR 50 Appendix R Section III.G.2. As a result, there is reasonable assurance that if a fire occurred in the communications room safe shutdown could be achieved and maintained.

9.4 CONCLUSION

Based on our evaluation, we conclude that the licensee's alternative fire protection and shutdown configuration will provide an acceptable level of fire protection to that required by the technical requirements of 10 CFR 50 Appendix R Section III G.2 and that no additional fire protection is required to satisfy the requirements of Section III.G.3. Therefore, the licensee's request for exemption for the communications room (Fire Area 2-015) should be granted.

10.0 UNIT 2 AUXILIARY BUILDING STAIRWELL NO. 2 - FIRE AREA 2-S02

10.1 EXEMPTION REQUESTED

The licensee in their exemption request 2-4 requested an exemption from the technical requirements of 10 CFR 50 Appendix R Section III.G.2 to the extent it requires the installation of an automatic fire suppression system.

10.2 DISCUSSION

Fire area 2-S02 extends vertically from el 77 ft - 0 in. to the roof at el 175 ft - 0 in. All fire area boundary walls are three-hour fire rated. All doors are Class-B fire doors with the exception of doors 2104 at el 77 ft - 0 in. and 2214 at el 121 ft - 0 in. which are Class A fire doors.

The licensee's re-evaluation indicates that fire area 2-S02 contains redundant safe shutdown control cabling between el 139 ft - 0 in. and el 155 ft - 0 in. which is required for operation of the following safe shutdown systems and supporting functions and which is not separated by a distance greater than 20 ft with no intervening combustibles:

Service Water System
Component Cooling Water System
Reactor Coolant Pumps Seal Integrity
Boration/Makeup
Spent Fuel Pool Heat Exchanger
Residual Heat Removal System

The analysis of the potential effects of a fire upon these cables has shown that fire induced failures could result in component maloperation which would impair the operation of the above systems and functions.

Combustible materials in fire area 2-S02 primarily consists of cable insulation. The fire loading associated with this area is approximately 65,175 BTU/FT^2.

No automatic fire suppression system is provided in this fire area. However, the fire area is protected by an automatic smoke detection system which alarms locally and is annunciated in the main control room. In addition, all redundant cabling associated with the subject safe shutdown functions are wrapped with a fire barrier material consisting of two 1-inch thick Kaowool blankets and an overall wrap of Zetex woven fabric. Manual hose stations are provided at all floor elevations and can provide hose coverage throughout the stairwell.

The licensee justifies the acceptability of this exemption on the basis of the existing fire protection associated with auxiliary building stairwell No. 2 (Fire Area 2-S02).

10.3 EVALUATION

Redundant safe shutdown cabling in fire area 2-S02 has been enclosed in a fire barrier and an early warning smoke detection system will be provided. The in-situ combustible fire loading in area 2-S02 is low and consists only of cable insulation with a maximum fire severity of less than 1 h, which is less than the fire rating of the proposed raceway fire barriers. In addition, all non-safe shutdown cables in this fire area are enclosed in conduit.

All other shutdown systems associated with Fire Area 2-S02 have redundant counterparts in other fire areas or are located in plant areas which meet the requirements of 10 CFR 50 Appendix R Section III.G.2. As a result, there is reasonable assurance that if a fire occurred in the Unit 2 auxiliary building stairwell, no. 2 safe shutdown could be achieved and maintained.

10.4 CONCLUSION

Based on our evaluation, we conclude that the licensee's alternative fire protection and shutdown configuration, will provide an acceptable level of fire protection to that required by the technical requirements of 10 CFR 50 Appendix R Section III.G.2. Therefore, the licensee's request for exemption for the No. 2 stairwell (Fire Area 2-S02) should be granted.

11.0 SERVICE WATER VALVE BOX NO. 1 - APPROXIMATELY 50 FT NORTH OF THE UNIT 2 AUXILIARY BUILDING - FIRE AREA 2SVB1

11.1 EXEMPTION REQUESTED

The licensee in their exemption request 2-6 requested an exemption from the technical requirements of 10 CFR 50 Appendix R Section III.G.2 to the extent it requires one train of redundant cabling to be enclosed by a barrier having a one-hour fire rating, fire detection, and automatic fire suppression.

11.2 DISCUSSION

Fire area 2SVB1 is bounded by three-hour fire-rated walls and floor. The ceiling is three-hour rated except for the cast metal manhole cover for each compartment. The service water train oriented compartments of the valve box are separated by a three-hour fire-rated wall. The individual valve box compartments communicate with the exterior through manhole covers (one each). The roof of the valve box is approximately 2 ft-6 in. above grade level.

The service water train oriented compartments of Fire Area 2SVB1 contain the same functionally redundant service water Trains A and B cables. These redundant cables service the following valves:

VALVE NO.	FUNCTION	PRE-FIRE POSITION	REQUIRED POST-FIRE POSITION
Q2P16V001A	Service Water Train-A Inlet to Auxiliary Bldg.	OPEN	OPEN
Q2P16V001B	Service Water Train-B Inlet to Auxiliary Bldg.	OPEN	OPEN

The analysis of the effects of fire on the subject valve circuits located in Fire Area 2SVB1, shows that the subject valves Q2P16V001A and Q2P16V001B would not change from their pre-fire position, but could become electrically inoperative.

Combustible materials in fire area 2SVB1 primarily consists of valve gear case lubricants. The fire loading associated with this area is approximately 1013 BTU/FT^2.

No automatic suppression or detection systems are installed in the area. However, a hydrant and hydrant house is available nearby to facilitate manual fire fighting in this area.

The licensee justifies the acceptability of this exemption on the basis of the existing fire separation associated with service water valve box No. 1.

11.3 EVALUATION

Subject valves Q2P16V001A and Q2P16V001B are located in their respective valve box compartments which are separated by a three-hour fire-rated concrete wall. All cables in fire area 2SVB1 are installed in conduit and the combustible loading is minimal. A fire would be contained in the individual compartment and could only communicate with the outside via a manhole cover in its roof. The effects of fire upon the redundant cable of the subject valve could cause them to become electrically inoperative, but they would not reposition from their required safe shutdown position. This insures that at a minimum one train of service water is available for safe shutdown.

All other shutdown systems associated with fire area 2SVB1 have redundant counterparts in other fire areas or are located in plant areas which meet the requirements of 10 CFR 50 Appendix R Section III.G.2. As a result, there is reasonable assurance that if a fire occurred in service water valve box No. 1, safe shutdown could be achieved and maintained.

11.4 CONCLUSION

Based on our evaluation, we conclude that the licensee's alternative fire protection and shutdown configuration, will provide an acceptable level of fire protection to that required by the technical requirements of 10 CFR 50 Appendix R Section III.G.2. Therefore, the licensee's request for exemption for service water valve box No. 1 (Fire Area 2SVB1) should be granted.

12.0 SERVICE WATER VALVE BOX NO. 2 - APPROXIMATELY 7 FEET NORTH OF VALVE BOX NO. 1 - FIRE AREA 2SVB2

12.1 EXEMPTION REQUESTED

The licensee in their exemption request 2-7 requested an exemption from the technical requirements of 10 CFR 50 Appendix R Section III.G.2 to the extent it requires one train of redundant cabling to be enclosed by a barrier having a one-hour fire rating, fire detection, and automatic suppression.

12.2 DISCUSSION

Fire Area 2SVB2 is bounded by three-hour fire-rated walls and floor. The ceiling is three-hour rated except for the cast metal manhole cover for each compartment. The service water train oriented compartments of the valve box are separated by a three-hour fire-rated wall. The individual valve box compartments communicate with the exterior through manhole covers. The roof of the valve box is approximately 2 ft-6 in. above grade level.

The service water train oriented compartments of fire area 2SVB2 contain the same functionally redundant service water Train A and B cables. These redundant cables service the following valves:

VALVE NO.	FUNCTION	PRE-FIRE POSITION	REQUIRED POST-FIRE POSITION
Q2P16V539-A	Service water Train A recirc to pond.	CLOSED	OPEN
Q2P16V546-A	Service water Train A disc. to circ water canal.	OPEN	CLOSED
Q2P16V538-B	Service water Train B recirc to pond	CLOSED	OPEN
Q2P16V545-B	Service water Train B disc. to circ water canal.	OPEN	CLOSED

The analysis of the effects of fire on the subject valve circuits located in fire area 2SVB2, shows that the subject valves Q2P16V539-A, Q2P16V546-A, Q2P16V538-B, and Q2P16V545-B will not change from their pre-fire position, but could become electrically inoperative. The post-fire repositioning of service water Trains A or B valves is required to shift the service water discharge from the service water canal to the service water pond.

Combustible materials in fire area 2SVB2 primary consists of valve gear case lubricants. The fire loading associated with this area is approximately 1226 BTU/FT^2. No automatic suppression or detection systems are installed in the area. However, a hydrant and hydrant house is available nearby to facilitate manual fire fighting in this area.

The licensee justifies the acceptability of this exemption on the basis of the existing fire separation associated with service water valve box No. 2.

12.3 EVALUATION

Valves Q1P16V539-A and Q2P16V538-B are located in their respective valve box compartments, which are separated by a three-hour fire-rated concrete wall of fire area 2SVB2. Valves Q2P16V546-A and Q2P16V545-B are not located in this fire area. All cables in fire area 2SVB2 are installed in conduit and the combustible loading is minimal. A fire would be contained in the individual compartment and could only communicate with the outside via a covered manhole in its roof. The effects of a fire in a service water train

oriented compartment of fire area 2SVB2 could cause the redundant service water valves of the opposite train to become electrically inoperative. The requirement to shift service water discharge from the circ water canal to recirculate to the service water pond is a long term one, not required for 24 hours and can be accomplished by manually repositioning subject Train A or B valves. This insures that at a minimum one train of service water is available for safe shutdown.

In addition, by letter dated March 13, 1985, the licensee committed to develop a detailed procedure specifically for this fire area covering the manual operator actions required to reposition the subject Train A and B valves and have it fully implemented by the end of the Unit 2 fourth refueling outage currently scheduled for the second quarter of 1986.

All other shutdown systems associated with fire area 2-SVB2 have redundant counterparts in other fire areas or are located in plant areas which meet the requirements of 10 CFR 50 Appendix R Section III.G.2. As a result, there is reasonable assurance that if a fire occurred in service water valve box No. 2, safe shutdown could be achieved and maintained.

12.4 CONCLUSION

Based on our evaluation, we conclude that the licensee's alternative fire protection and shutdown configuration, will provide an acceptable level of fire protection to that required by the technical requirements of 10 CFR 50 Appendix R Section III.G.2 and that no additional fire protection is required to satisfy the requirements of Section III.G.3. Therefore, the licensee's request for exemption for service water valve box No. 2 (Fire Area 2SVB2) should be granted.

13.0 UNIT 2 AUXILIARY BUILDING BATTERY ROOM TRAIN "B" - FIRE AREA 2-016

13.1 EXEMPTION REQUESTED

The licensee in their exemption request 2-11 requested an exemption from the technical requirements of 10 CFR 50 Appendix R Section III.G.2 to the extent that it requires one train of redundant safe shutdown cables and equipment to be enclosed by a barrier having a one-hour fire rating and the installation of an automatic fire-suppression system.

13.2 DISCUSSION

Fire area 2-016 consists only of room 2212 at el 121 ft - 0 in. and is bounded by three-hour fire-rated walls and floors. The area boundary doors are UL Class A fire-rated doors.

Fire area 2-016 contains the electrical Train B 125 V-dc plant batteries and related 125 V-dc Train B power cabling.

The analysis of the potential effects of a fire in this area upon these cables shows that the plant could lose the entire Train B 125 V-dc system. Due to loss of the electrical Train B 125 V-dc system, the following redundant safe shutdown equipment could become inoperable in the closed position:

EQUIPMENT	FUNCTION
N2P19HV3885-B	Instrument Air to Penetration Room
Q2B13HV2228-B	Backup Air/N_2 Supply to Pressurizer PORVs
Q2B31PCV0445A-A	Pressurizer PORV, Train A
Q2B31PCV0444B-B	Pressurizer PORV, Train B
Q2E21HV8145-N	Pressurizer Auxiliary Spray

A fire in this area along with an assumed loss of offsite power (LOSP) could result in a total loss of the electrical Train B power.

Combustible materials in fire area 2-016 primarily consists of cable insulation an plastic panel parts. The fire loading associated with this area is approximately 1567 BTU/FT^2.

A smoke detection system in the room will provide an early warning. A CO_2 hose reel located in room 2210 (Fire Area 2-020) is available for manual firefighting use.

The licensee justifies the acceptability of this exemption on the basis of the existing fire protection and their alternative shutdown actions associated with the Train B battery room.

13.3 EVALUATION

Failure of valve Q2E21HV8145-N in the closed position will disable the pressurizer auxiliary spray system which provides one method to achieve depressurization of the RCS.

Pressurizer PORVs Q2B31PCV0445A-A and Q2B31PCV0444B-B provide another means of achieving RCS depressurization. Valves N2P19HV3885-B and Q2B13HV2228-B will fail in the closed position on loss of Train B dc power. This will isolate the instrument air supply to the pressurizer PORVs Q2B31PCV0445A-A and Q2B31PV0444B-B. PORV Q2B31PCV0444B-B will also be inoperable due to loss of the Train B dc power supply. However, the Train A dc supply to PORV Q2B31PCV0445A-A is not affected due to a fire in this area. Since only one of the PORVs is required for RCS depressurization, and RCS depressurization is a long term requirement, the operator has adequate time to take manual action to restore the instrument air by hand wheel operation of valve N2P19HV3885-B.

Once air is restored, PORV Q2B31PCV0445A-A will be operable to achieve RCS depressurization.

By letter dated March 13, 1985, the licensee committed to develop a detailed procedure specifically for this fire area covering the manual operator actions required to regain control of the pressurizer power operated relief valves and have it fully implemented by the end of the Unit 2 fourth refueling outage currently scheduled for the second quarter of 1986.

All other shutdown systems associated with Fire Area 2-016 have redundant counterparts in other fire areas or are located in plant areas which meet the requirements of 10 CFR 50 Appendix R Section III.G.2. As a result, there is reasonable assurance that if a fire occurred in the Train B battery room safe shutdown could be achieved and maintained.

13.4 CONCLUSION

Based on our evaluation, we conclude that the licensee's alternative fire protection and shutdown configuration, will provide an acceptable level of fire protection to that required by the technical requirements of 10 CFR 50 Appendix R Section III.G.2 and that no additional fire protection is required to satisfy the requirements of Section III.G.3. Therefore, the licensee's request for exemption for the Train B Battery Room (Fire Area 2-016) should be granted.

14.0 UNIT 2 NON-RAD SIDE CORRIDOR AUXILIARY BUILDING ELEVATION 121'-0" - FIRE AREA 2-020

14.1 EXEMPTION REQUESTED

The licensee in their exemption request 2-31 requested an exemption from the technical requirements of 10 CFR 50, Appendix R, Section III.G.2, to the extent that it requires one train of redundant safe shutdown cables to be enclosed by a barrier having a one-hour fire rating.

14.2 DISCUSSION

Fire area 2-020 consists of rooms 2234, 2228, 2211, 2213, 2210, 2225, 2244, and 2245 which constitute the corridor battery service areas and battery room mezzanine on el 121 ft - 0 in. on the non-radiation side of the auxiliary building.

14.3 CONDITION REQUIRING EXEMPTION

The fire area contains power and control cables associated with the redundant safe shutdown equipment identified below.

EQUIPMENT	FUNCTION
Q2P17M001A-B	Train B CCW Pump
Q2P17M001B-AB	Swing CCW Pump
Q2P17M001C-A	Train A CCW Pump
Q2E21M001A-A	Train A Charging Pump
Q2E21M001B-AB	Swing Charging Pump
Q2E21M001C-B	Train B Charging Pump
Q2E16M001A-A	Train A Charging Pump Room Cooler
Q2E16M001B-AB	Swing Charging Pump Room Cooler
Q2E16M001C-B	Train B Charging Pump Room Cooler
Q2N23M001A-A	Train A Auxiliary Feedwater Pump
Q2N23M001B-B	Train B Auxiliary Feedwater Pump

Q2N23P003	Turbine Driven Auxiliary Feedwater Pump
Q2E16M005A-A	Train A Auxiliary Feedwater Pump Room Cooler
Q2E16M005B-B	Train B Auxiliary Feedwater Pump Room Cooler
Q2N11PV3371A-A	Main Steam Atmospheric Relief Valve (S.G.-2A)
Q2N11PV3371B-A	Main Steam Atmospheric Relief Valve (S.G.-2B)
Q2N11PV3371C-A	Main Steam Atmospheric Relief Valve (S.G.-2C)
Q2P11LT515-A	Train A Condensate Storage Tank Level
Q2P11LT515-B	Train B Condensate Storage Tank Level
Q2B13SV2213B-B	Reactor Vessel Head Vent Valve
Q2B13SV2214B-B	Reactor Vessel Head Vent Valve
N2P19HV3885-B	Instrument Air to Penetration Room
Q2B13HV2228-B	Backup Air/N_2 Supply to Pressurizer PORVs
Q2B31PCV0445A-A	Pressurizer PORV, Train A
Q2B31PCV0444B-B	Pressurizer PORV, Train B
Q2E21HV8145-N	Pressurizer Auxiliary Spray

The doors between rooms 2233 (Fire Area 2-021) and 2228 (Fire Area 2-020), and 2235 (Fire Area 2-023) and 2234 (Fire Area 2-020) are provided with removable transoms and are cannot be labeled as UL Class A.

Combustible materials in fire area 2-020 primarily consists of cable insulation. The fire loading associated with this area is approximately 27,754 BTU/Ft^2.

An ionization smoke detection system provides coverage to the entire area. Automatic water suppression systems cover the entire area except room 2225 and portions of the corridor numbered 2211, 2228, and 2234.

A CO_2 hose reel is located in room 2210. A water hose is provided in rooms 2210 and 2234 and portable extinguishers are provided throughout the area.

The licensee justifies the acceptability of this exemption on the basis of the existing fire protection and their alternative shutdown actions associated with the Unit 2 non-rad side corridor.

14.3 EVALUATION

A fire barrier has been provided for the following cable raceways in fire area 2-020: AHF485, AHF486, and AHF487. The barrier covers the raceways over their entire route within area 2-020 and consists of two 1 in. thick Kaowool blanket wraps with one overall layer of Zetex woven fabric.

The power and control cables for the Train A pumps and pump room coolers, and the swing pumps and pump room coolers operating on electrical Train A power, are protected in accordance with the requirement of 10CFR50 Appendix R, Section III G.2.c.

In addition to the cable protection prescribed above, the steel hatch covers located in the floor and ceiling of room 2234 are protected by a suppression system designed for extra hazards limit the spread of fire to adjacent fire areas.

One of the three main steam atmospheric relief valves and its related steam generator are required to be operable to achieve steam release for cooldown. The atmospheric relief valves are provided with hand wheels such that the valves may be manually opened or closed without electrical controls or air supplies. The operator would establish manual control of the atmospheric relief valves by closing the manual air control valves to isolate the air supply and by opening the manual air vent valve to bleed off air from the diaphragm of the valve actuator. Both the air control and air vent valves are located in the vicinity of their associated atmospheric relief valve and would be accessible despite a fire in area 2-020. The capability to control steam generator pressure and reactor coolant system temperature with the use of the manually controlled atmospheric relief valves was demonstrated during the Unit 2 natural circulation and cooldown startup testing. Consequently, a fire in area 2-020 would not prevent the operation of at least one redundant atmospheric relief valve.

Verification of condensate storage tank level is a long term consideration. In the event that both channels of Condensate Storage Tank (CST) level are disabled, manual operator action can be taken to determine CST level independent of Fire Area 2-020.

Failure of valve Q2E21HV8145-N in the closed position will disable the pressurizer auxiliary spray system which provides one method to achieve depressurization of the RCS. Pressurizer PORVs Q2B31PCV0445A-A and Q2B31PCV0444B-B provide another means of achieving RCS depressurization. Valves N2P19HV3885-B and Q2B13HV2228-B will fail in the closed position on a loss of Train B dc power. This will isolate the instrument air supply to the pressurizer PORVs Q2B31PCV0445A-A and Q2B31PCV0444B-B. PORV Q2B31PCV0444B-B will also be inoperable due to loss of the Train B dc power supply. However, the Train A dc supply to PORV Q2B31PCV0445A-A is not affected due to a fire in this area. Since only one of the PORVs is required for RCS depressurization, and RCS depressurization is a long-term requirement, the operator has adequate time to take manual action to restore the instrument air by hand wheel operation of valve N2P19HV3885-B. Once air is restored, PORV Q2B31PCV0445A-A will be operable to achieve RCS depressurization.

Fire induced failure (hot shorts) to the control cables for the transfer relay cabinet Q2H22L004-B could cause control for the power operated relief and blocking valves and the reactor heat vent valves to shift from their normal main control board alignment to the remote hot shutdown panel. Subsequent fire induced failures (hot shorts from adjacent control cables in the shared raceway) of the control cables of Q2B31PCV0444-B, power operated relief valve, Q2B13SV2213B-B, and Q2B13SV2214B-B reactor head vent valves

could result in the valves being energized to open. The power relief blocking valve could become electrically inoperative in the open position. In the unlikely event of the multiple hot shorts occurring, this condition can be mitigated by removing power from the transfer relays and manual operation of the effected relay thereby shifting control to the main control board.

By letter dated March 13, 1985, the licensee committed to develop detailed procedures specifically for this fire area covering the manual operator actions required to regain control of one main steam atmospheric relief valve, the pressurizer power operated relief valves and the transfer relays for the pressurizer power operated relief valves and block valves and have them fully implemented by the end of the Unit 2 fourth refueling outage currently scheduled for the second quarter of 1986.

Room 2225 and portions of the hallway and corridor numbered 2221, 2228, and 2234 are not covered by an automatic suppression system. The portions of fire area 2-020 that are not covered by an automatic suppression system do not contain redundant safe shutdown cable or equipment.

The doors between rooms 2233 (Fire Area 2-021) and 2228 (Fire Area 2-020), and rooms 2235 (Fire Area 2-023) and 2234 (Fire Area 2-020) are provided with removable transoms to facilitate the movement of large equipment. The transoms have been certified by the vendor as being constructed of materials and in a manner similar to that of the UL Class A criteria. (Reference APC letter to NRC dated April 16, 1981.)

All other shutdown systems associated with fire area 2-020 have redundant counterparts in other fire areas or are located in plant areas which meet the requirements of 10 CFR 50, Appendix R, Section III.G.2. As a result, there is reasonable assurance that if a fire occurred in the Unit 2 non-rad side corridor, safe shutdown could be achieved and maintained.

14.4 CONCLUSION

Based on our evaluation, we conclude that the licensee's alternative fire protection and shutdown configuration, will provide an acceptable level of fire protection to that required by the technical requirements of 10 CFR 50 Appendix R, Section III.G.2, and that no additional fire protection is required to satisfy the requirements of Section III.G.3. Therefore, the licensee's request for exemption for the Unit 2 non-radiation side corridor (Fire Area 2-020) should be granted.

DATE:

PRINCIPAL CONTRIBUTOR:
P. Madden