

Public Service
Electric and Gas
Company

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Vice President and Chief Nuclear Officer

July 15, 1988

NLR-N88070

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

REVISED EXEMPTION REQUESTS
FIRE PROTECTION - 10 CFR APPENDIX R
SALEM GENERATING STATION
UNIT NOS. 1 AND 2
DOCKET NOS. 50-272 AND 50-311

Attached for your review are revised exemption requests to 10 CFR 50, Appendix R. PSE&G had previously submitted exemption requests to Appendix R in 1981, 1983, 1984, 1985 and 1986. The submittals dated January 31, 1985 and January 17, 1986 were compilations, clarifications and resubmittals of previous requests based on NRC and PSE&G reviews. Since that submittal, PSE&G has initiated a Fire Protection Improvement Program. As a result of that program, PSE&G has determined that additional modifications (e.g. firewrap, detection) are needed to enhance the existing fire protection measures. Consequently, the previous submittals are being revised to reflect those additional commitments and are attached herein. These exemption requests are fundamentally the same as our submittals of January 17, 1986 (NLR-N86005) and December 31, 1986 (NLR-N86202) but include the additional commitments plus clarifications requested by Dennis Kubicki, NRR staff reviewer. In addition, two new exemption requests are being provided for the Pipe Tunnel (Fire Area 12 FA-PT-84) and the CO₂ Equipment Room (Fire Area 1(2)FA-D6-84F). Interim compensatory measures consisting of roving fire watches have been established in these areas pending the submittal and approval of these exemption requests. The attached requests represent a complete package and replace the previous submittals in their entirety.

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Information included in the exemption requests regarding fire area boundaries does not address penetration seals or fire dampers, as this part of the Fire Protection Improvement Program is not yet complete. PSE&G will ensure that all penetration seals and fire dampers in fire area boundaries will be either qualified to the design rating of the penetrated fire barrier by fire test documentation or determined adequate to withstand the fire hazard associated with the area. Guidance contained in Generic Letter 86-10 and IE Notice 88-04 will be utilized to develop the necessary supporting documentation.

An implementation schedule for the proposed modifications will be provided upon NRC approval of the attached exemption requests. Should you have any questions, please do not hesitate to contact us.

Sincerely,



Attachment

C Mr. D. C. Fischer
USNRC Licensing Project Manager

Mr. R. W. Borchardt
USNRC Senior Resident Inspector

Mr. W. T. Russell, Administrator
USNRC Region I


Mr. D. M. Scott, Chief
Bureau of Nuclear Engineering
Department of Environmental Protection
380 Scotch Road
Trenton, NJ 08628

Ref: Exemption Request

STATE OF NEW JERSEY)
) SS.
COUNTY OF SALEM)

Steven E. Miltenberger, being duly sworn according to law deposes
and says:

I am Vice President and Chief Nuclear Officer of Public Service
Electric and Gas Company, and as such, I find the matters set
forth in our letter dated July 15, 1988 , concerning Facility
Operating Licenses DPR-70 and DPR-75 for Salem Generating
Station, are true to the best of my knowledge, information and
belief.



Subscribed and Sworn to before me
this 15th day of July, 1988



Notary Public of New Jersey

My Commission expires on _____
VANITA M. MARSHALL
NOTARY PUBLIC OF NEW JERSEY
~~My Commission Expires May 6, 1993~~

EXEMPTION NO. 1REVISED GENERIC EXEMPTION REQUEST

A Generic Exemption is requested from the requirements of 10 CFR 50 Appendix R Section III.G.2a for the use of 1½-hour rated doors and dampers, 1-hour rated ventilation ducts and ventilation duct penetration seals, and non-rated equipment hatches in 3-hour barriers.

This Generic Exemption request addresses all 1½-hour rated fire doors and dampers, 1-hour rated ventilation ducts and duct penetration seals, and non-rated hatches in the station.

The exemption request is based upon the previously granted exemption in the NRC's SER dated September 16, 1982 which concluded:

"The licensee indicated in its March 19, 1981 letter that the walls forming barriers between redundant equipment and/or cables incorporating fire dampers are fire rated for three hours. The fire doors and/or fire dampers that are used for protection of these openings are fire rated for 1½-hours. The licensee has stated that an exemption for the doors and/or dampers is justified since the fire hazard analysis performed for Salem calculated a potential fire duration of less than one hour in all such areas.

Based on our evaluation, we conclude that the fire loading in the vicinity of openings in the affected areas is sufficiently low so that protection by the 1½-hour fire door/dampers in the walls is acceptable. Therefore, the licensee's request to be exempted from the requirement to provide a three-hour barrier should be granted."

During the recent Fire Protection Improvement Program at Salem, it was discovered that in addition to the use of 1½-hour rated dampers in 3-hour barriers, some of the dampers are improperly installed external to the barrier in the HVAC ductwork, and some HVAC ducts are not provided with fire dampers. Based on recent NRC guidance, specific detail must be provided on each location where non-3-hour rated assemblies are located, in lieu of relying on NFPA-90A arguments. Appendix A to this document contains this supplemental information.

The technical justification for this exemption request is revised as follows:

1. In several locations throughout the station 1½-hour rated fire doors and dampers are used in 3-hour barriers to separate fire areas. The fire hazards analysis performed at Salem demonstrated that a potential fire in any fire area would have a duration of less than 1 hour. This exemption request was previously granted by the Staff in a letter dated September 16, 1982.

As a result of the most recent fire hazard analysis revision, we have also identified eight fire areas that have fire loadings that equal or exceed 1 hour. These areas are as follows:

<u>Fire Area</u>	<u>Location</u>	<u>Fire Load</u>	<u>Existing Suppression</u>	<u>Detection</u>
I&2FA-AB-100A	Relay Room - El. 100'	3 hrs., 58 min.	Automatic Halon 1301	Area-wide
I2FA-AB-100A	El. 100 Corridor Btwn Col. A-A & West of Col. F-F	2 hrs., 43 min.	-----	Will be modified to be area-wide
I&2FA-EP-78C	Lower Elect. Pene. - El. 78'	2 hrs., 58 min.	Manual CO ₂ (Will be automated. See Exemp- tion No. 8)	Area-wide
I&2FA-AB-84A	460V Switchgear Room - El. 84'	3 hrs., 2 min.	Manual CO ₂ (Will be automated. See Exemp- tion No. 6)	Area-wide
I&2FA-DG-84D	No. 11 Diesel F.O. Tank Room	16 hrs., 13 min.	Automatic CO ₂ and Deluge	Area-wide
I&2FA-DG-84E	No. 12 Diesel F.O. Tank Room	16 hrs., 13 min.	Automatic CO ₂ and Deluge	Area-wide
IFA-AB-64C (Will be changed. See paragraph below)	Security Battery Room - El. 64'	1 hour, 2 min.	-----	Area-wide
I&2FA-AB-64A	4160V Switchgear Room - El. 64'	1 hour	Manual CO ₂	Area-wide

For the eight areas noted, PSE&G proposes to:

- a. Except where the doors enter into a stairtower, change the doors in the walls bounding these identified areas to a 3-hour fire resistance rating, commensurate with safety and security requirements. Where it is not possible to qualify a door because of its size, a certificate of compliance to a 3-hour design will be required of the manufacturer.

- b. Replace existing fire dampers with 3-hour rated assemblies or conduct fire tests to demonstrate that the existing assemblies are capable of being rated for 3 hours. The dampers will either be mounted in the plane of the barrier in accordance with the manufacturer's approved installation details or, if it is not physically possible, as near to the barrier as feasible. Intervening ductwork and necessary supports between the damper and the barrier will be enclosed in a 3-hour rated material.
- c. In Fire Area I&2FA-AB-100A (Relay Room), there is area-wide detection and automatic suppression with Halon 1301. With the exception of the HVAC dampers to the Control Room, the fire dampers in the ventilation system will be upgraded to 3-hour rated assemblies.
- d. In Fire Area I2FA-AB-100A (El. 100' corridor), area-wide detection will be installed.
- e. In Fire Area I&2FA-EP-78C (Lower Electrical Penetration Area), the manually actuated suppression system will be changed to automatic operation. The fire dampers in the ventilation system will be upgraded to 3-hour rated assemblies.
- f. In Fire Area I&2FA-AB-84A (460V Switchgear Room), existing fire dampers in ventilation ducts will be upgraded to 3-hour rated assemblies, and the manually actuated suppression system will be changed to automatic operation.
- g. In Fire Areas I&2FA-DG-84D and IFA-DG-84E (Diesel Fuel Oil Tank Rooms), all ventilation ducts which penetrate the area boundaries of these rooms will be provided with 3-hour rated fire dampers.
- h. In Fire Area IFA-AB-64C (Security System Battery Room), the need for a separate fire area does not exist. Fire Area I-FA-AB-64C will, therefore, be combined with Fire Area I-FA-AB-64A. The existing concrete walls and 1½-hour rated doors and dampers are considered adequate protection for the new zone.
- i. In Fire Area I&2FA-AB-64A, (4160V Switchgear Room), existing fire dampers in ventilation ducts will not be upgraded to 3-hour rated assemblies. The difference in fire severity between 59 and 60 minutes is not considered adequate to warrant additional protection, and the existing dampers are considered to be adequate.

EXEMPTION NO. 2CONTROL ROOM COMPLEX (FIRE AREA 12FA-AB-122A)Exemption Requested

An exemption is requested from Section III.G.3 of Appendix R to 10 CFR 50 to the extent it requires a fixed fire suppression system for an area where alternate shutdown capability is provided. Specifically, the Salem Unit 1&2 Control Room Complex does not have a fixed fire suppression system.

Discussion

The Control Room Complex Fire Area includes the two Control Rooms, Computer Rooms, Control Equipment Rooms, and Control Area Air Conditioning Rooms, a common Senior Shift and Shift Supervisor office, File Room, Maintenance Rooms, Work Assignment Stations, a rest room, and a Janitor Equipment Room. Safety-related instrumentation and control equipment is located in the Control Rooms and Control Equipment Rooms.

The floor, ceiling, and walls of the fire area are all constructed of reinforced concrete with a nominal fire rating of 3 hours, except as clarified by Exemption Request No. 1, and Appendix A to this submittal.

The rooms within this area are separated by hollow core metal office partitions except the Air Conditioning Rooms, which are separated by a reinforced concrete wall. The two Control Rooms are separated by a 10' wide corridor. Room partitions between the Control Rooms and the corridor and the Senior Shift and Shift Supervisor's office contain glass panels. The Control Rooms are separated from their associated Control Equipment Rooms by built-in steel frame control cabinets. Dropped ceilings are finished with acoustic tile.

The in-situ combustibles in this area consist primarily of plastic in electrical cabinets, control panels and computers, paper in filing cabinets and desks, cloth partitions, carpeting, charcoal filter material in the Control Area Air Conditioning Rooms, and cable insulation. The in-situ combustibles in the Control Area will result in a total fire load of approximately 65,000 BTU/FT² (49 minutes).

An area-wide detection system consisting of ionization type fire detectors is provided in the Control Rooms and Computer Rooms above the suspended ceiling in the return air plenum, as well as in the Control Room and in the Control Room Control Consoles. Ionization type detectors are also provided in the return air ventilation ducts.

The detection system is being expanded to include the remaining peripheral rooms. These rooms are the Shift Supervisor's office, the corridor surrounding the Control Rooms, the Janitor's Equipment Room, and the women's rest room.

Manual fire suppression capability in the form of hose station and portable fire extinguishers is readily available.

Evaluation

The Control Room Complex is equipped with area-wide detectors and is provided with both a hose station and fire extinguishers for manual fire fighting. The fire load in the area is low. The fire protection features currently installed in the Control Room and the continuous manning of the Control Room provide adequate defense-in-depth fire fighting capability for these areas. In addition, an alternate shutdown capability is provided for both units with control capabilities for those systems necessary to maintain safe shutdown capability which is independent of the Main Control Room.

Plant Technical Specifications require continuous occupancy of the Control Room by the operators. Because the operators constitute a continuous fire watch, manual fire suppression in the event of a fire would be prompt and effective and, thus, a fixed suppression system will not enhance the fire protection in this area.

This exemption was previously granted by the NRC via letter dated September 16, 1982.

By letter dated August 29, 1986 (NLR-N86112), PSE&G withdrew a previous exemption request for the lack of a 3-hour rated wall between the Unit 1 and 2 Control Rooms.

A review of the staffing available and the alternate shutdown procedures have demonstrated that sufficient personnel, even at minimum Technical Specification requirements, are available to perform simultaneous alternate shutdown of both Salem Unit Nos. 1 and 2. Timeline studies show that both the units can be brought to hot standby with the available manpower. (Previously, PSE&G had stated that simultaneous shutdowns could not be performed.) The current position resulted from modifications performed to the diesel starting circuitry as a result of the NRC Inspection Report 83-37. The above information was presented to NRC staff during a meeting held on August 21, 1986.

Conclusion

It is, therefore, PSE&G's position that a level of protection equivalent to Section III.G.3 of Appendix R to 10 CFR 50 with the proposed modifications will be provided in the Control Room Complex (Fire Area 12FA-AB-122A). The installation of a fixed fire suppression system in the area would not significantly enhance the level of fire protection for safe shutdown capability.

The requested exemption from Section III.G.3 of Appendix R to 10 CFR 50 has been reviewed and determined not to be in conflict with other legal requirements, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption request, therefore, conforms to the requirements of 10 CFR 50.12(a)(1). In addition, "special circumstances" exist for the requested exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. The exemption requested demonstrates that an equivalent level of fire protection safety will be provided

through alternate means. This alternate means consists of a combination of expanded detection system, low combustible loading, alternate shutdown capability and continuous manning. Specific technical detail describing the alternate means is provided within the exemption request.

EXEMPTION NO. 3REACTOR PLANT AUXILIARY EQUIPMENT AREA - ELEVATION 100'
AND 110' (FIRE AREAS 1&2FA-AB-100C)Exemption Requested

An exemption is requested from Section III.G.2 of Appendix R to 10 CFR 50 to the extent it requires the separation of redundant safe shutdown cables and equipment by 1-hour rated fire barriers plus automatic suppression and detection. Specifically, Fire Area 1&2FA-AB-100C is not provided with an automatic suppression system.

Discussion

This area is defined as the Auxiliary Building area between Columns 14.0 and 11.8 and between 8' west of Column FF and 8' west of Column PP (Unit 1) and between Columns 14.0 and 16.2 and between 8' west of Column FF and 8' west of Column PP (Unit 2).

The Reactor Plant Auxiliary Equipment Area (El. 100') of the Auxiliary Building, contains demineralizers, filters and pumps for the chemical and volume control and waste disposal systems. In addition, this area contains the Chemistry Laboratory (Counting Room). Elevation 110' (Unit 1 only) contains the Primary Sampling Laboratory. The majority of equipment is not safety related.

The floor, ceiling, and walls in this area are all constructed of reinforced concrete with a nominal fire rating of 3 hours, as clarified by Exemption Request No. 1, and Appendix A to this submittal.

The in-situ combustibles in this area consist primarily of lube oil in the boric acid transfer pumps, plastic in the electrical cabinets and cable insulation. In-situ combustibles in the Chemistry Laboratory consist of alcohol, plastic, paper, and filing cabinets. In-situ combustibles in the Primary Sampling Laboratory consist of hydrogen, plastic, paper and cable insulation. The in-situ combustibles in the Reactor Plant Auxiliary Equipment Area (El. 100') results in a total fire load of approximately 46,000 BTU/FT² (35 minutes).

Ionization type fire detectors will be provided in the corridor area as well as in the east end of the corridor outside of the Counting Room, the corridor to the Mechanical Penetration Area, the Storage Area behind the Counting Room, the Ventilation Room on elevation 113 ft. over the Counting Room, the Boric Acid Evaporator Room, and the Inservice Inspection (ISI) Calibration Storage Room. Detectors and manual alarm stations alarm and annunciate in the Control Room.

Manual fire suppression capability is provided by portable extinguishers and hose stations located in the corridor of the area.

Safe shutdown cables in Fire Areas I&2FA-AB-100C are associated with the following systems:

Air Supply	HVAC-RHR
Auxiliary Feedwater	Letdown
Boric Acid Supply	Main Steam Isolation
Charging	Power Distribution
Chilled Water	Pressurizer Instrumentation
Component Cooling	Reactor Pressurization
Containment Ventilation	Residual Heat Removal
HVAC-Charging	

Protection of redundant cables will be provided by enclosing cables associated with one safe shutdown path in a 1-hour rated fire barrier. The protected cabling is located throughout the areas in various cable trays and conduits.

Evaluation

An exemption from the requirements of Section III.G.2 to provide separation for redundant safe shutdown cables by a 1-hour rated barrier without an automatic suppression system is based upon the following evaluation.

Protection for cables associated with one safe shutdown path will be provided by completely enclosing cables needed for safe shutdown in a 1-hour rated barrier throughout the area. The postulated fire severity in this area is approximately 35 minutes consisting of widely dispersed combustibles. An ionization type detection system will be installed for the protection of the area. Because of this configuration of combustibles, any occurrence of fire is expected to be of limited severity and magnitude. The proposed detection system would detect the fire in its incipient stages and alert the Control Room operators to summon the plant Fire Brigade to respond and extinguish the fire. The proposed 1-hour rated fire barrier will provide protection of essential safe shutdown cables until the fire is extinguished.

This exemption request for not providing automatic fire suppression was previously granted by the NRC via letter dated June 17, 1983. (Fire Areas I&2FA-AB-100C were changed from their previous designation as Fire Areas PIH and P2H.)

Conclusion

It is, therefore, PSE&G's position that a level of protection equivalent to Section III.G.2 of Appendix R to 10 CFR 50 with the proposed modifications will be provided in the Reactor Plant Auxiliary Equipment Area (Fire Areas I&2FA-AB-100C). The installation of an automatic fire suppression system in the area would not significantly enhance the level of fire protection for safe shutdown capability.

The requested exemption from Section III.G.2 of Appendix R to 10 CFR 50 has been reviewed and determined not to be in conflict with other legal requirements, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption request, therefore, conforms to the requirements of 10 CFR 50.12(a)(1). In addition, "special circumstances" exist for the requested exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. The exemption requested demonstrates that an equivalent level of fire protection safety will be provided through alternate means. This alternate means consists of a combination of 1-hour rated fire barriers, newly installed detection system, and low combustible loading. Specific technical detail describing the alternate means is provided within the exemption request.

EXEMPTION NO. 4UPPER ELECTRICAL PENETRATION AREA (FIRE AREAS 1&2FA-EP-100G) &
INNER PIPING PENETRATION AREA (FIRE AREAS 1&2FA-PP-100H)Exemption Requested

An exemption is requested from Section III.G.2 to the extent it requires the separation of redundant safe shutdown cables by 1-hour rated fire barriers plus area-wide automatic suppression and detection. Specifically, Fire Areas 100G and 100H are not provided with automatic suppression systems and area-wide detection capability.

Discussion

These areas are defined as the Upper Electrical Penetration Area and the Inner Piping Penetration Area. The areas have been combined as one area for the purpose of Appendix R separation.

The Upper Electrical Penetration Area contains the following equipment: emergency control air compressor, switchgear and penetration area ventilation system supply fans and filters, penetration area exhaust fans, 230V vital ventilation control centers air conditioning control panels, and chilled water system chillers, pumps, and expansion tank.

The floor, ceiling, and walls in this area are all constructed of reinforced concrete with a nominal fire rating of 3 hours, as clarified by Exemption Request No. 1.

The Inner Piping Penetration Area contains primarily piping and consists of two levels: the lower level on Elevation 100' between the Mechanical and Upper Electrical Penetration Areas, and the upper level on Elevation 120' above the Upper Electrical Penetration Area. The major piping systems in this area are the main steam and main feedwater, and supply and return air ducts for the Switchgear and Penetration Area Ventilation System.

The floor, ceiling, and walls in this area are all constructed of reinforced concrete with a nominal fire rating of 3 hours, as clarified by Exemption Request No. 1, and Appendix A to this submittal.

The in-situ combustibles in Fire Areas 1&2FA-EP-100G consist of lubricating oil in the air compressor, and chillers and plastic in electrical cabinets. The in-situ combustibles in the Upper Electrical Penetration will result in a total fire load of approximately 5,000 BTU/FT² (4 minutes).

The in-situ combustibles in Fire Areas 1&2FA-PP-100H consist of hydraulic fluid in the two main steam valve actuators and cable insulation. Each actuator has a self-contained hydraulic system with 27.5 gallons of high flashpoint hydraulic oil. The in-situ combustibles in the Inner Piping Penetration Area will result in a total fire load of approximately 5,000 BTU/FT² (4 minutes).

Partial area fire detection is installed in both areas, above all of the major equipment.

Manual fire suppression equipment is available to the areas consisting of portable fire extinguishers and fire hose stations.

Safe shutdown cables in Fire Areas I&2FA-EP-100G and I&2FA-PP-100H are associated with the following systems:

Air Supply	HVAC-Charging
Auxiliary Feedwater	HVAC-RHR
Chilled Water	Main Steam Isolation
Fuel Oil Transfer	Power Distribution
HVAC-AFW	Secondary Depressurization
HVAC-CCW	

Protection of redundant cables will be provided by enclosing cables associated with one safe shutdown path in a 1-hour rated fire barrier.

In addition to these cables, the redundant Vital Vent Control Centers located in Fire Areas I&2FA-EP-100G are separated by approximately 35' with negligible intervening combustibles. In lieu of protecting the air supply and chilled water cabling, the opposite unit's emergency control air compressor will be utilized.

Evaluation

An exemption from the requirements of Section III.G.2 to provide separation of redundant safe shutdown cables by 1-hour rated barriers without automatic suppression and area-wide detection is based upon the following evaluation.

Protection for cables associated with one safe shutdown path will be provided by completely enclosing cables needed for safe shutdown in a 1-hour rated fire barrier. In addition, the redundant Vital Vent Control Centers are located in Fire Area 100G. The control centers are separated by approximately 35' with negligible intervening combustibles.

There is a very limited amount of installed combustible material in this fire area. All the cabling in this area is routed in conduit. The cables are only exposed for short distances between the component and where the conduit ends. The lubricating oil is contained in the casings of several of the pumps and compressors in the area.

The partial detection system is installed in the vicinity of the Vital Vent Control Centers.

The combustible loading in these areas is negligible. The likelihood of a significant fire occurring is low. Any occurrence of fire would likely be detected by the local fire detection system which, in turn, would notify the Control room to summon the plant fire brigade. The complete 1-hour rated fire barrier protection of one division of cables, and the 35' separation distance between the

Vital Vent Control Centers, will maintain one division free of fire damage until Fire Brigade extinguishes the fire.

Conclusion

It is, therefore, PSE&G's position that a level of protection equivalent to Section III.G.2 of Appendix R to 10 CFR 50 with the proposed modifications will be provided in the Upper Electrical Penetration Area (Fire Areas I&2FA-EP-100G) and the Inner Piping Penetration Area (Fire Areas I&2FA-PP-100H). The installation of an automatic fire suppression system in the area would not significantly enhance the level of fire protection for safe shutdown capability.

The requested exemption from Section III.G.2 of Appendix R to 10 CFR 50 has been reviewed and determined not to be in conflict with other legal requirements, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption request, therefore, conforms to the requirements of 10 CFR 50.12(a)(1). In addition, "special circumstances" exist for the requested exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. The exemption requested demonstrates that an equivalent level of fire protection safety will be provided through alternate means. This alternate means consists of a combination of separation distances, partial detection system, and low combustible loading. Specific technical detail describing the alternate means is provided within the exemption request.

EXEMPTION NO. 5MECHANICAL PENETRATION AREAS (FIRE AREAS 1&2FA-MP-78I)Exemption Requested

An exemption is requested from Section III.G.2 of Appendix R to 10 CFR 50 to the extent it requires the separation of redundant cables and equipment by 1-hour rated fire barriers plus area-wide suppression and detection. Specifically, Fire Areas 1&2FA-MP-78I are not protected by automatic suppression systems and area-wide detection capability.

Discussion

The Mechanical Penetration Area consists of two elevations:

Elevation 100' contains the Fuel Handling Area exhaust ventilation equipment and the containment pressure relief exhaust unit and the steam generator blowdown tanks. The area also contains some safety-related instrument panels.

Elevation 78' contains piping for various systems which run between the Auxiliary Building and the Reactor Containment Building. The area also contains the service water piping which enters the Auxiliary Building from the Service Water Intake Structure.

The floor, ceiling, and walls in this area are all constructed of reinforced concrete with a nominal fire rating of 3 hours, as clarified by Exemption Request No. 1, and Appendix A to this submittal.

The in-situ combustibles in this area consist of charcoal in the ventilation filter units for the Fuel Handling Building and the containment pressure relief exhaust unit, as well as cable insulation. The in-situ combustibles in the Mechanical Penetration Area will result in a total fire load of approximately 28,000 BTU/FT² (21 minutes).

Partial area fire detection is installed for the protection of the major fire hazards on Elevation 78' and 100'. Continuous thermal strip detectors are provided to protect charcoal filters in the ventilation units. Manual fire alarm stations are provided in the area. Detectors and the manual fire alarm stations alarm and annunciate in the Control Room.

Automatic fire suppression is provided in the ventilation units by a water deluge spray system actuated by the continuous thermal strip detectors.

Manual fire suppression equipment capability in the form of portable fire extinguishers and a manual hose station on Elevation 100' is provided.

Safe shutdown cables in Fire Areas 1&2FA-MP-78I are associated with the following systems:

Air Supply
Auxiliary Feedwater
Charging
Component Cooling
Containment Ventilation
Letdown

Main Steam Isolation
RCP Seal Cooling
Reactor Depressurization
Residual Heat Removal
Service Water

Protection of redundant cables will be provided by enclosing cables associated with one safe shutdown path in a 1-hour rated fire barrier. In addition, the redundant valves are separated by 20' and a partial barrier. Redundant valves for service water and containment ventilation will be enclosed to protect one safe shutdown path, or modified to fail to the correct position.

Evaluation

An exemption from the requirements of Section III.G.2 to provide separation of redundant cables by 1-hour rated barriers without automatic suppression and area-wide detection is based upon the following evaluation.

Protection for cables associated with one safe shutdown path will be provided by completely enclosing cables needed for safe shutdown in a 1-hour rated fire barrier, and necessary valves are separated or will be enclosed in a 1-hour rated fire barrier or modified. The major combustibles in this area consist of the charcoal filters and electrical cable insulation. The charcoal filters are protected by automatic deluge suppression systems. The electrical cables are widely dispersed and protected by the partial detection system. A fire occurring in the Mechanical Penetration Area would be detected by the detection systems, which would also alert the plant operators to summon the plant Fire Brigade. The proposed 1-hour fire barriers would maintain one division of cables needed for safe shutdown free of fire damage until the Fire Brigade extinguishes the fire.

Conclusion

It is, therefore, PSE&G's position that a level of protection equivalent to Section III.G.2 of Appendix R to 10 CFR 50 with the proposed modifications will be provided in the Mechanical Penetration Area (Fire Areas 1&2 FA-MP-78I). The installation of area-wide detection or the addition of an automatic fire suppression system in the area would not significantly enhance the level of fire protection for safe shutdown cabling.

The requested exemption from Section III.G.2 of Appendix R to 10 CFR 50 has been reviewed and determined not to be in conflict with other legal requirements, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption request, therefore, conforms to the requirements of 10 CFR 50.12(a)(1). In addition, "special circumstances" exist for the requested exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. The exemption requested demonstrates that an equivalent level of fire protection safety will be provided through alternate means. This alternate means consists of a combination of

1-hour barriers, partial detection system, and low combustible loading. Specific technical detail describing the alternate means is provided within the exemption request.

EXEMPTION NO. 6460V SWITCHGEAR ROOM (FIRE AREAS 1&2FA-AB-84A)Exemption Requested

An exemption is requested from Section III.G.2 of Appendix R to 10 CFR 50 to the extent it requires the separation of redundant safe shutdown equipment by 1-hour rated fire barriers plus automatic suppression and area-wide detection. Specifically, the 460V, 230V, and 125V switchgear are not separated by complete 1-hour rated barriers.

Discussion

The 460V Switchgear Room contains the unit's electrical switchgear for safety-related and nonsafety-related systems. This room also contains 4160V feeds to 4160V/460V transformers from the 4160V Switchgear Room below. In addition, this room contains most of the 460V (and lower) cable routed between the Reactor Containment and Relay Room. All 4160V cable is routed through conduit.

The floor, ceiling, and walls in this area are all constructed of reinforced concrete with a nominal fire rating of 3 hours, as clarified by Exemption Request No. 1, and Appendix A to this submittal.

The in-situ combustibles in this area consist primarily of plastic in electrical cabinets and cable insulation. The in-situ combustibles in the 460V Switchgear Room will result in a total fire load of approximately 245,000 BTU/FT² (184 minutes).

Area-wide fire detection is provided by ionization type detectors mounted at the ceiling and in the exhaust ventilation ducts. Two manual fire alarm stations are also provided. Detectors and the manual fire alarm stations alarm and annunciate in the Control Room.

Fire suppression is provided in this area by a manually actuated CO₂ flooding system. Actuation of the CO₂ flooding system is indicated on the fire protection panel in the Control Room.

The existing manual carbon dioxide suppression system in this area will be changed to an automatic suppression system.

Manual fire suppression capability in the form of portable fire extinguishers and manual hose stations is readily available to the area.

The power cables from the 460/230V switchgear to the equipment exit from the bottom of the switchgear and are routed on elevation 64'. The cables on elevation 84' provide remote operation of the equipment from the Control Room. Alternate operating instructions are being developed to permit an orderly shutdown should the control cables be damaged due to a fire in Fire Areas

I&2FA-AB-84A. The power feeds from the batteries (elevation 100') to the A and B division 125VDC switchgear will be enclosed with a 1-hour fire barrier in this fire area. The power feed to the C division 125VDC switchgear is routed from below (elevation 64'). In addition, the power feed from the 'C' Diesel to the 'C' division 4160V switchgear will also be enclosed in a 1-hour barrier to provide an additional level of protection. Cables associated with the A and B division 125VDC feeds to start the A and B division diesel generators will be completely enclosed with a 1-hour fire barrier in this fire area.

In addition to these cables, redundant switchgear are located in Fire Areas I&2FA-AB-84A. The redundant divisions of 460/230V vital switchgear are separated by partial height, partial length Marinite walls. The 125VDC switchgear are also separated from the 460/230V switchgear and from their redundant divisions by Marinite walls. These partial height and length walls will prevent a floor based fire from damaging redundant floor mounted equipment before the automatic suppression system can extinguish the fire.

Evaluation

An exemption from the requirements of Section III.G.2 to provide separation of redundant cables without complete 1-hour rated barriers with automatic suppression and area-wide detection is based upon the following evaluation.

Cables associated with the A and B division 125V DC Switchgear and the A and B division feeds to start the Diesel Generators as well as the power feed from the 'C' Diesel will be enclosed in 1-hour rated barriers throughout the area. Other control cables in the area are not protected, because alternate shutdown capability will exist for these cables. The redundant switchgear cannot be enclosed within fire barriers. They are, therefore, protected by partial height, partial length Marinite barriers. A potential fire occurring in the area would be rapidly detected and extinguished by the automatic suppression system. The partial Marinite walls and 1-hour rated cable barrier will provide protection of redundant cables and equipment until the fire is extinguished.

Conclusion

It is, therefore, PSE&G's position that a level of protection equivalent to Section III.G.2 of Appendix R to 10 CFR 50 with the proposed modifications will be provided in the 460V Switchgear Room (Fire Areas I&2FA-AB-84A). The installation of complete 1-hour rated barriers on the Switchgear would not significantly enhance the level of fire protection for safe shutdown capability.

The requested exemption from Section III.G.2 of Appendix R to 10 CFR 50 has been reviewed and determined not to be in conflict with other legal requirements, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption request, therefore, conforms to the requirements of 10 CFR 50.12(a)(1). In addition, "special circumstances" exist for the requested exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. The exemption requested

demonstrates that an equivalent level of fire protection safety will be provided through alternate means. This alternate means consists of a combination of alternate shutdown capability, separation distances and partial barriers. Specific technical detail describing the alternate means is provided within the exemption request.

EXEMPTION NO. 7REACTOR PLANT AUXILIARY EQUIPMENT AREA - ELEVATION 84'
(FIRE AREAS 1&2FA-AB-84B)Exemption Requested

An exemption is requested from Section III.G.2 of Appendix R to 10 CFR 50 to the extent it requires the separation of redundant safe shutdown cables and equipment by 1-hour rated fire barriers plus automatic suppression and area-wide detection. Specifically, in Fire Areas 1&2FA-AB-84B area-wide suppression and detection are not provided. Additionally, Auxiliary Feedwater System and Chemical and Volume Control System equipment is not separated by complete 1-hour rated barriers.

Discussion

The Reactor Plant Auxiliary Equipment Area (El. 84') of the Auxiliary Building contains pumps, heat exchangers, tanks and control centers for the chemical and volume control, component cooling, safety injection, containment spray, auxiliary feedwater, waste disposal, and spent fuel pool cooling systems.

The floor, ceiling and walls in this area are all constructed of reinforced concrete with a nominal fire rating of 3 hours, as clarified by Exemption Request No. 1, and Appendix A to this submittal.

This fire area consists of many concrete rooms. Each room contains either a single component or groups of similar components. These concrete barriers serve as radiant energy shields and subdivide the overall fire area to provide protection of equipment as discussed below.

The in-situ combustibles in this area consist of lubricating oil in pumps and motors, flammable liquids stored in cabinets, and cable insulation. The in-situ combustibles in the Reactor Plant Auxiliary Equipment Area (El. 84') will result in a total fire load of approximately 36,000 BTU/FT² (27 minutes).

Partial area detection is provided consisting of ionization type detectors mounted on the ceiling in the Safety Injection and Component Cooling Pump Areas, Charging and Containment Spray Areas, Spent Fuel Pool Heat Exchanger Areas, as well as various corridor areas. Detectors are located in the vicinity of the major hazards in the area. Manual fire alarm stations are also provided. Detectors and the manual fire alarm stations alarm and annunciate in the Control Room.

Fire suppression is provided for the Auxiliary Feedwater Pumps by automatically actuated, redundant pre-action sprinkler systems. Each system is actuated by its own detection system. One sprinkler system is actuated by ionization type fire detectors which are mounted on the ceiling over the Auxiliary Feedwater Pumps. The other system is actuated by a temperature actuated pneumatic release system consisting of fusible link sprinkler heads.

Fire suppression is provided for the Charging Pump Areas by a wet pipe sprinkler system.

Portable fire extinguishers and manual hose stations are provided in the area for manual fire suppression efforts.

The safe shutdown cables in this area are associated with the following systems:

Air Supply	HVAC-RHR
Auxiliary Feedwater	Letdown
Boric Acid Supply	Main Steam Isolation
Charging	Power Distribution
Chilled Water	Pressurizer Instrumentation
Component Cooling	RCP Seal Cooling
Containment Ventilation	Reactor Depressurization
HVAC-AFW	Residual Heat Removal
HVAC-CCW	Service Water
HVAC-Charging	Service Water Ventilation

Protection for cables associated with these systems will be provided by 1-hour rated barriers installed in a configuration that allows a minimum of 30' of separation between redundant divisions with limited intervening combustibles.

In addition, the following safe shutdown equipment is located in Fire Areas I&2FA-AB-84B.

The redundant Charging Pumps are separated by partial length concrete walls. The walls separate the pumps except for 7'-6" at the south (north) end of the cubicles. The walls also have an opening 2'-6" high and 6'-3" long at the north (south) end of the cubicle approximately 7' above the floor. The opening is located above a concrete sill that extends out from the wall. Piping passes through the openings from one Charging cubicle to the others. To enhance the protection features, the wet pipe sprinkler system in the Charging Pump Area is being expanded to provide full coverage around the pump's area. The power feeds for the No. 11 (21) and 13 (23) Charging Pumps enter each pump cubicle from the elevation below, the power feed for the No. 12 (22) pump is routed outside of the pump cubicle on the same elevation as the pumps, elevation 84'. Localized combustible loading is low.

The three West Valve 230V Vital Control Centers are located in this area. The A and B control centers are separated by approximately 20' which includes a 90° corner and concrete barrier. The C control center is located within the sprinkler coverage of the AFW Pump Room.

The Auxiliary Feedwater (AFW) pumps are located in the Auxiliary Building on elevation 84' near Column LL. There are two motor driven pumps and one steam turbine driven pump. Operation of any one pump satisfies minimum system operability requirements for shutdown. The power feeds for the motor driven pumps are routed on elevation 64' and through the floor of elevation 84' to the pumps. The No. 11 (21) and No. 12 (22) motor driven pump flow loops are controlled from panels 205 and 206, respectively. If it is postulated that a fire in this area renders both motor driven AFW pumping loops inoperable, safe

shutdown can be achieved with the turbine driven pump. This pump is enclosed and separated from the motor driven pumps by a 12" thick concrete wall and 3/16" steel missile barrier. The concrete wall is 6'-5" high, and the remainder of the enclosure is the steel barrier.

In addition to the barrier, a redundant detection and suppression system is installed above the motor driven pumps and also in the turbine driven pump cubicle. Both suppression systems are the preaction sprinkler type. One is activated by smoke detectors, and the other is activated by a pneumatic pilot system and fusible links. At present, both systems are located below the cable trays. In accordance with the requirements of NFPA-13, where sprinklers can be raised with no overhead obstructions present, sprinklers will be raised to within 12" of the ceiling. This will be done with both systems to maintain redundant suppression systems. The ionization detectors are presently located on the ceiling.

The turbine driven pump and flow loop is controlled from Panel 207 which is located outside the No. 13 (23) AFW pump enclosure. The pump turbine is controlled by a governor valve MS53, a trip valve MS52, and a stop valve MS132. The governor valve is hydraulically controlled and fails open. The trip valve must be manually opened, but is provided with an automatic trip closure. The stop valve is air operated and fails open on loss of control air. It is possible that a hot short in the cabling for these valves could cause the turbine driven pump to fail. For this reason, Panel 207 is enclosed with FS-195. However, the barrier on Panel 207 is not to be misconstrued to be a 1-hour barrier. This barrier is intended to protect the panel until the suppression system activates to extinguish the fire. To ensure operability of a suppression system, redundant systems have been installed, as discussed above. All the flow control valves associated with the turbine driven pump are normally open and fail in the open position. A fire in this area is not expected to compromise all three divisions of AFW.

The Hot Shutdown Panel, Panel 213, is also located in this area. The panel is enclosed with FS-195 to protect instrumentation located in this panel which is not completely isolated from the control complex. A postulated fire in the vicinity of the hot shutdown panel will not impact the operation and indication of systems in the Control Room because of the redundant suppression system and the enhanced fire protection in the form of FS-195.

The No. 11 (21) Component Cooling Water (CCW) pump and the No. 11 (21) Component Cooling Heat Exchanger will be enclosed in a 3-hour rated cubicle (1&2FA-AB-84C) with one exception. The ventilation duct penetrations will be sealed to the thickness of the barrier. All piping and cable tray penetrations will be sealed under the Salem Penetration Seal Improvement program. The existing non-rated doors leading to the Auxiliary Building corridor have been replaced with doors that are rated for 1½-hours. A 1½-hour rated fire door has been installed to separate the Valve Room from the No. 11 (12) Component Cooling loop. The power cables for all the CCW pumps enter the cubicles from the elevation below.

Ventilation ducts penetrate the CCW cubicle walls. There are three ducts that penetrate the wall between the two Component Cooling Rooms. Two of the ducts are part of the Auxiliary Building Ventilation System and are 11" x 18" and

11" x 40" in size. The remaining duct is for the No. 1 CCW Pump Room Cooler fans and is 11" x 46" in size. The two Auxiliary Building ventilation ducts continue into the Safety Injection pump cubicle. All ducts in this area are constructed of heavy gauge steel.

Evaluation

An exemption from the requirements of Section III.G.2 to provide separation of redundant cables without complete 1-hour rated barriers and area-wide suppression and area-wide detection is based upon the following evaluation.

Protection for cables associated with one safe shutdown path will be provided by 1-hour rated fire barriers installed to allow a minimum 30' separation. One-hour barriers throughout the area are not proposed due to the widely dispersed nature of the combustibles in conjunction with protection provided by the intervening concrete cubicle walls and the suppression systems protecting the charging pumps and AFW pumps.

A fire occurring in one of the pump cubicles would be rapidly detected and extinguished by the installed automatic suppression system. A fire in the CCW pump area would be rapidly detected and the plant Fire Brigade would respond to extinguish the fire. The proposed fire rated enclosure of the Nos. 11 and 21 pumps would maintain one division of CCW equipment free of fire damage until the Fire Brigade extinguishes the fire. For the remainder of the area, the 1-hour rated fire barrier cable protection, the partial detection system and 30' separation distance would be relied upon for the protection of one redundant division until the Fire Brigade extinguishes the fire.

Conclusion

It is, therefore, PSE&G's position that a level of protection equivalent to Section III.G.2 of Appendix R to 10 CFR 50 with the proposed modifications will be provided in the Reactor Plant Auxiliary Equipment Area (Fire Areas 1&2FA-AB-84B). The installation of complete 1-hour rated barriers or the addition of an area-wide automatic fire suppression and detection system in the area would not significantly enhance the level of fire protection for safe shutdown cabling.

The requested exemption from Section III.G.2 of Appendix R to 10 CFR 50 has been reviewed and determined not to be in conflict with other legal requirements, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption request, therefore, conforms to the requirements of 10 CFR 50.12(a)(1). In addition, "special circumstances" exist for the requested exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. The exemption requested demonstrates that an equivalent level of fire protection safety will be provided through alternate means. This alternate means consists of a combination of separation distances, partial detection system, low combustible loading, concrete barriers, and partial suppression systems. Specific technical detail describing the alternate means is provided within the exemption request.

EXEMPTION REQUEST NO. 8LOWER ELECTRICAL PENETRATION AREA (FIRE AREAS 1&2FA-EP-78C)Exemption Requested

An exemption is requested from Section III.G.2 of Appendix R to 10 CFR 50 to the extent it requires the separation of redundant safe shutdown equipment by 1-hour rated fire barriers plus automatic suppression and detection. Specifically, redundant cables and equipment within Fire Areas 1&2FA-EP-78C are not separated by complete 1-hour rated barriers.

Discussion

The Lower Electrical Penetration Area contains electrical cable in trays and cable penetrations through the containment structures for safety-related channels. The East Valve Vital Control Centers are also included in this area.

The floor, ceiling, and walls in this area are all constructed of reinforced concrete with a nominal fire rating of 3 hours, as clarified by Exemption Request No. 1, and Appendix A to this submittal.

The in-situ combustibles in this area consist primarily of plastic in electrical cabinets and cable insulation. The in-situ combustibles in the Lower Electrical Penetration Area (El. 84') will result in a total fire load of approximately 240,000 BTU/FT² (180 minutes).

Area-wide detection is provided by ionization type detectors mounted on the ceiling and in the ventilation exhaust ducts. A manual fire alarm station is also provided. Detectors and the manual fire alarm stations alarm and annunciate in the Control Room.

Fire suppression is provided by a manually actuated CO₂ total flooding system.

The existing manual carbon dioxide suppression system in this area will be changed to an automatic suppression system.

Portable fire extinguishers and manual hose stations are available to the area for manual fire suppression.

Safe shutdown cables in Fire Area 1&2FA-EP-78C are associated with the following systems:

Air Supply
Auxiliary Feedwater
Charging
Chilled Water
Containment Ventilation

Main Feedwater Isolation
Main Steam Isolation
Power Distribution
Pressurizer Instrumentation
RCP Seal Cooling

HVAC-AFW
HVAC-CCW
HVAC-Charging
HVAC-RHR
Letdown

Reactor Depressurization
Residual Heat Removal
Secondary Depressurization
Service Water

Protection for redundant cables will be provided by enclosing cables associated with one safe shutdown path in a 1-hour rated barrier. Due to constraints on the existing cable trays due to excessive thermal loading, the barriers cannot be extended throughout the area. Protection for cables will be installed to ensure a minimum of 20' separation between redundant cables. The Motor Control Centers in Fire Areas 1&2FA-EP-78C are redundant to each other. Partial height, partial length Marinite barriers are installed to separate this redundant equipment.

Evaluation

An exemption from the requirements of Section III.G.2 to provide separation of redundant cables and equipment without complete 1-hour rated barriers with automatic suppression and area-wide detection is based upon the following evaluation:

Protection for cables associated with one safe shutdown path will consist of 1-hour rated barriers installed to provide a minimum separation distance of 20'. Redundant floor mounted MCCs are separated by partial Marinite walls. A fire occurring in this area would be rapidly detected and extinguished by the proposed automatic suppression system. The partial cable tray protection, in conjunction with the separation distances and Marinite walls will maintain one division of equipment free of fire damage until the fire is extinguished.

Conclusion

It is, therefore, PSE&G's position that a level of protection equivalent to Section III.G.2 of Appendix R to 10 CFR 50 with the proposed modifications will be provided in the Lower Electrical Penetration Area (Fire Areas 1&2FA-EP-78C). The installation of complete 1-hour rated barriers in the area would not significantly enhance the level of fire protection for safe shutdown cabling.

The requested exemption from Section III.G.2 of Appendix R to 10 CFR 50 has been reviewed and determined not to be in conflict with other legal requirements, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption request, therefore, conforms to the requirements of 10 CFR 50.12(a)(1). In addition, "special circumstances" exist for the requested exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. The exemption requested demonstrates that an equivalent level of fire protection safety will be provided through alternate means. This alternate means consists of a combination of separation distances, area-wide suppression and detection system, low combustible loading, and partial barriers. Specific technical detail describing the alternate means is provided within the exemption request.

EXEMPTION NO. 94160V SWITCHGEAR ROOM (FIRE AREAS 1&2FA-AB-64A)Exemption Requested

An exemption is requested from Section III.G.2 of Appendix R to 10 CFR 50 to the extent it requires the separation of redundant safe shutdown equipment by 1-hour rated fire barriers plus automatic suppression and area-wide detection. Specifically, Fire Areas 1&2FA-AB-64A are protected by manually released CO₂ systems. In addition, redundant equipment is separated by partial 1-hour barriers.

Discussion

The 4160V Switchgear Room contains electrical cabling and switchgear. The majority of cabling in the area is power and control cabling entering the 4160V Switchgear Room from the Auxiliary Building and the 460V Switchgear Room. Two 460V control rod drive motor-generator (MG) sets are also contained in this room. C-Battery Room 125V, and the Security Battery Room (Unit 1 only) are enclosed separate rooms within the Switchgear Room.

The floor, ceilings, and walls in this area are all constructed of reinforced concrete with a nominal fire rating of 3 hours, as clarified by Exemption Request No. 1, and Appendix A to this submittal.

The in-situ combustibles in this area consist primarily of plastic in electrical cabinets, battery cell cases, and cable insulation. The in-situ combustibles in the 4160V Switchgear Room will result in a total fire load of approximately 80,000 BTU/FT² (1 hour).

Area-wide ionization type fire detectors are provided in the 4160V Switchgear Room on the ceiling and in the Switchgear and Penetration Area Ventilation system exhaust ducts. Manual alarm stations are provided in the room. Detectors and manual fire alarm stations alarm and annunciate in the Control Room.

Fire suppression is provided in this area by a manually actuated, fixed low pressure CO₂ total flooding system. The system can be manually actuated from stations located outside the room. Actuation of the CO₂ system is indicated on the fire protection panel in the Control Room.

An exemption for the configuration of Marinite barriers and the use of manually actuated CO₂ systems was previously granted by the NRC via letter dated June 17, 1983.

Manual fire suppression capability is provided in the form of portable fire extinguishers and a manual hose station, in addition to the CO₂ system.

The Division A, B, and C redundant 4160V switchgear are located in this fire area. Partial height, partial length Marinite walls are provided for the

separation of each switchgear set. These barriers are approximately 15' in height. Redundant cables in the Switchgear Room will be enclosed in 1-hour barriers to take advantage of the separation provided by the Marinite walls.

Cables associated with Division A that are required for shutdown will be enclosed where they pass the Division B and C switchgear areas. In addition, cables associated with Division B that are required for shutdown will be enclosed where they pass over the Division A and C switchgear areas.

All cables (intervening combustibles) which cross the Marinite barrier between the switchgear sets A and B and switchgear sets B and C will be enclosed with a 1-hour fire rated barrier to eliminate them as an avenue for fire spread.

There are cables that exit the Division A and B cable trays above the switchgear cubicles and are routed through the ceiling. Any of these cables that are associated with safe shutdown will be enclosed within a 1-hour barrier after they extend above the Marinite barriers.

Bus ducts that pass through the Marinite barriers will be internally sealed to prevent the spread of smoke.

Evaluation

An exemption from the requirements of Section III.G.2 to provide separation of redundant cables and equipment without complete 1-hour rated barriers and automatic suppression with area-wide detection is based upon the following evaluation.

Protection for cables associated with one safe shutdown path will be provided by 1-hour barriers when the cables leave the protection provided by the partial height Marinite walls. Separation of divisions will be maintained by enclosing cables when they pass through or over opposite division areas. Additionally, intervening combustibles between the redundant switchgear sets will be eliminated by enclosing them in 1-hour rated barriers. If a fire were to occur in the 4160V Switchgear Rooms, it would be rapidly detected by the area-wide detection system. The manual CO₂ system would be operated by personnel responding to the fire notification. The system of Marinite walls and partial 1-hour barriers will maintain one division free of fire damage until the fire is extinguished.

Conclusion

It is, therefore, PSE&G's position that a level of protection equivalent to Section III.G.2 of Appendix R to 10 CFR 50 with the proposed modifications will be provided in the 4160V Switchgear Room (Fire Areas 1&2FA-AB-64A). The installation of complete 1-hour rated barriers or the addition of an automatic fire suppression system in the area would not significantly enhance the level of fire protection for safe shutdown cabling.

The requested exemption from Section III.G.2 of Appendix R to 10 CFR 50 has been reviewed and determined not to be in conflict with other legal requirements, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption request, therefore, conforms to the requirements of 10 CFR 50.12(a)(1). In addition, "special circumstances" exist for the requested exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. The exemption requested demonstrates that an equivalent level of fire protection safety will be provided through alternate means. This alternate means consists of a combination of separation distances, partial barriers, and manually operated suppression. Specific technical detail describing the alternate means is provided within the exemption request.

EXEMPTION NO. 10REACTOR PLANT AUXILIARY BUILDING - ELEVATION 64'(FIRE AREAS 1&2FA-AB-64B)Exemption Requested

An exemption is requested from Section III.G.2 of Appendix R to 10 CFR 50 to the extent it requires the separation of redundant safe shutdown equipment by 1-hour rated barriers, automatic suppression, and area-wide detection. Specifically, Fire Areas 1&2FA-AB-64B do not have a suppression system or an area-wide detection system.

Discussion

The Reactor Plant Auxiliary Equipment Area (El. 64') of the Auxiliary Building contains the waste gas compressors and gas decay tanks, and the storage tank recirculation pumps and heaters. The remaining components include the laundry pump, chemical drain tank pump, waste holdup monitoring tanks and pumps.

The floor, ceiling, and walls in this area are all constructed of reinforced concrete with a nominal fire rating of 3 hours, as clarified by Exemption Request No. 1, and Appendix A to this submittal.

This fire area consists of many concrete rooms. Each room contains either a single component or groups of similar components. These concrete barriers aid to subdivide the area and act as radiant energy shields.

The in-situ combustibles in this area consist of lubricating oil in pumps and motors, paper, plastic in electrical cabinets, and cable insulation. The in-situ combustibles in the Reactor Plant Auxiliary Equipment Area (El. 64') will result in a total fire load of approximately 50,000 BTU/FT² (38 minutes).

A partial fire detection system is installed in the area with the exception of the Holdup Tank Rooms, and the unused space formerly designated as the Gas Analyzer Area. These rooms are separated from the remainder of the area by concrete walls. The concrete walls have open doorways for access to the tanks. The detectors are located near the major hazards in the area. Manual fire alarm stations are provided in the area. Detectors and manual fire alarm stations alarm and annunciate in the Control Room.

Manual fire suppression capability is provided in the form of portable fire extinguishers and manual hose stations.

Safe shutdown cables in Fire Area 1&2FA-AB-64B are associated with the following systems:

Air Supply
Auxiliary Feedwater
Boric Acid Supply
Charging
Chilled Water
Component Cooling
Containment Ventilation
HVAC-Charging
HVAC-RHR

Letdown
Main Steam Isolation
Power Distribution
Pressurizer Instrumentation
RCP Seal Cooling
Reactor Depressurization
Residual Heat Removal
Service Water
Service Water Ventilation

Protection of redundant cables will be provided by enclosing cables associated with one safe shutdown path in a 1-hour barrier throughout the area.

Evaluation

An exemption from the requirements of Section III.G.2 to provide separation of redundant cables and equipment by complete 1-hour barriers without automatic suppression and area-wide detection is based upon the following evaluation.

Protection for cables associated with one safe shutdown path will be provided by completely enclosing cables needed for safe shutdown in a 1-hour rated barrier. Smoke detection is provided in the vicinity of major hazards. In the event of a fire occurring in this area, it is expected that it would be promptly detected. The combustible loading in the area is moderate and consists of widely dispersed amounts of cable insulation. The detection system would alert the Control Room operators to summon the plant Fire Brigade to extinguish the fire. The 1-hour barriers will maintain cables associated with one safe shutdown path free of fire damage until the fire is extinguished.

Conclusion

It is, therefore, PSE&G's position that a level of protection equivalent to Section III.G.2 of Appendix R to 10 CFR 50 with the proposed modifications will be provided in the Reactor Plant Auxiliary Equipment Area (Fire Areas 1&2FA-AB-64B). The installation of area-wide detection or the addition of an automatic fire suppression system in the area would not significantly enhance the level of fire protection for safe shutdown capability.

The requested exemption from Section III.G.2 of Appendix R to 10 CFR 50 has been reviewed and determined not to be in conflict with other legal requirements, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption request, therefore, conforms to the requirements of 10 CFR 50.12(a)(1). In addition, "special circumstances" exist for the requested exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. The exemption requested demonstrates that an equivalent level of fire protection safety will be provided through alternate means. This alternate means consists of a combination of separation distances, partial detection system, low combustible loading, and 1-hour barriers. Specific technical detail describing the alternate means is provided within the exemption request.

EXEMPTION NO. 11

FIRE AREA: 12FA-SW-90A (90B)

This area is defined as the 90A (90B) Service Water Motor Control Center Area and corresponding pump area.

MAJOR COMPONENTS

Motor control centers for Service Water equipment.

APPENDIX R CRITERIA: SECTION III.G.2

Exemption

An exemption was originally requested from the requirements of Section III.G.2 of Appendix R of 10 CFR 50 to the extent that the sealed wall penetrations in the Service Water Intake Structure Motor Control Center Area do not constitute a 3-hour barrier.

This exemption request is no longer required.

The Service Water Intake Structure is designed so that each redundant Unit 1 MCC bay is separated by a Unit 2 bay. Likewise, each redundant Unit 2 MCC bay is separated by a Unit 1 bay. (The MCC bays are arranged No. 22, No. 12, No. 21 and No. 11 from northwest to southeast). The doorway between the No. 12 and No. 21 bays has been sealed with a door rated for 3 hours.

This wall also contained penetrations sealed with an unrated epoxy utilized for flood protection purposes. The epoxy has been removed and replaced with a 3-hour fire rated seal. Therefore, the exemption requested is no longer required.

EXEMPTION NO. 12CONTAINMENT (FIRE AREAS 1&2FA-RC-78)Exemption Requested

An exemption is requested from Section III.G.2 of Appendix R to 10 CFR 50 to the extent it requires the separation of redundant cables and equipment inside containment by 20' free of intervening combustibles or a radiant energy shield.

Discussion

The Reactor Containment is composed of three elevations: 130', 100' (Annulus Area), and 78'. Access to the area is through personnel hatches and airlocks from the Mechanical Penetration Area (El. 130' and 100').

Elevation 130' of the Reactor Containment contains the containment fan-cooler units, control rod drive mechanism, control rod drive ventilation equipment, polar crane, manipulator crane, and the upper portions of the steam generators and pressurizer.

The Annulus Area on Elevation 100' in the Reactor Containment contains the iodine removal ventilation units, reactor shield, ventilation fans, electrical control and terminal cabinets, and electrical cables in trays. Piping and containment penetrations for the main steam system and feedwater system are also located in the area.

Elevation 78' of the Reactor Containment is physically divided into the annulus area, outside the crane support-shield wall, and the central area within the shield wall. Major components in the annulus area are the safety injection accumulators, the pressurizer relief tank, and the containment sump pumps. The annulus area also contains a significant amount of electrical cabling in trays and the cable penetrations through the containment. Redundant cables in this area are separated by radiant energy shields.

The central area contains the reactor vessel, steam generators, reactor coolant pumps, pressurizer, reactor coolant piping, seismic structure for the major components, reactor support cooling fans, reactor coolant drain pumps and tank, excess letdown heat exchanger, and regenerative heat exchanger.

Elevation 130' is bounded by the reinforced concrete containment wall and dome and the reinforced concrete crane deck which forms the floor on this elevation. The steam generators and pressurizer are surrounded by reinforced concrete shield walls. There are large floor openings above the reactor vessel and fuel transfer area, around the steam generators and pressurizer, and through the stairways on the perimeter.

Elevation 100' is bounded by the reinforced concrete containment wall and the reinforced concrete crane support shield-wall. The floor and ceiling are constructed of reinforced concrete and structural steel. The area is open to adjacent levels through a gap on the perimeter of the floor and ceiling at the containment wall and through open stairwells.

Elevation 78' is bounded by the reinforced concrete containment wall and the reinforced concrete shield wall. The floor is reinforced concrete, and the ceiling is reinforced concrete and structural steel. The ceiling is open to Elevation 100' around the perimeter and through stairwells and cable shafts in the area. The central area is enclosed by the reinforced concrete crane deck on Elevation 130'. The excess let down heat exchanger, regenerative heat exchanger, reactor coolant drain pumps and tank, and the in-core instrumentation are in separate rooms enclosed by reinforced concrete shield walls.

The in-situ combustibles on Elevation 130' consist primarily of lubricating oil and grease in cranes, and cable insulation. The in-situ combustibles on Elevation 100' consist primarily of charcoal filters in the iodine removal units, plastic in electrical cabinets, and cable insulation. The in-situ combustibles on Elevation 78' consist primarily of lubricating oil in the reactor coolant pump motors, plastic in the electrical cabinets, and cable insulation. The in-situ combustibles on each elevation combined will result in a total fire load of approximately 30,000 BTU/FT² (23 minutes).

Elevation 130' is provided with ionization type fire detectors in the containment fan coil units. Manual fire alarm stations are available on Elevation 100' at the personnel hatch and outside this entrance to the Reactor Containment. Detectors and manual fire alarm stations alarm and annunciate in the Control Room.

Elevation 100' is provided with ionization type fire detectors for the protection of Reactor Coolant Pumps. A manual fire alarm station is provided at the personnel hatch and outside this entrance to the Reactor Containment. Detectors and manual fire alarm stations alarm and annunciate in the Control Room.

The containment fire suppression systems get their water supply through the containment isolation valves which are normally closed.

Fire suppression is provided for the Reactor Coolant pumps lube oil lift pump and its discharge lines by an air-operated water deluge spray system. Also, an oil collection system is designed to collect any oil leakage. Fire suppression for the charcoal filters of the iodine removal units is provided by water deluge systems controlled by continuous strip thermal detectors. Actuation of these systems will alarm and annunciate in the Control Room.

Manual fire suppression capability in the form of portable fire extinguishers and manual hose stations are available in the area.

The separation of redundant cables and components inside containment complies with Section III.G with two exceptions.

At the pressurizer cubicle, complete separation of cabling and valves for the PORV, block valves, and pressurizer indication is not provided. However, no combustibles are located in this area.

Located on elevation 100' of the Containment near Column Line A-4 outside the Polar Crane Wall is Panel 335. The panel is sectionalized into four compartments by 10 gauge steel plates. Redundant channels of pressurizer pressure and level are contained in separate compartments of Panel 335. Only one channel of pressurizer pressure and level is required for safe shutdown. Three channels of

instrumentation are routed on elevation 100', and enter the top of Panel 335. The 'C' channel exits the bottom of the panel through the elevation 100' floor slab and is routed beneath the slab on elevation 78'. The floor slab functions as a radiant energy shield for the protection of the instrumentation cables. To enhance the protection of Panel 335 on elevation 100', a localized suppression system will be installed. The system will be actuated by fire detectors. If a water based suppression system is installed, provisions will be made to ensure rapid opening of the Containment fire suppression header isolation valve by the Control Room Operators.

Evaluation

An exemption from the requirements of Section III.G.2 for the separation of redundant safe shutdown equipment without 20' free of intervening combustibles or radiant energy shields is based upon the following evaluation.

Redundant cabling and valves at the pressurizer are routed in opposite directions from the cable penetration areas in the containment until they approach the pressurizer cubicle.

Redundant instrumentation cables are separated by a radiant energy shield until they enter Panel 335.

A suppression system will be installed for the protection of Panel 335. This protection is considered adequate since the panel is located inside Containment where access is controlled and limited during plant operations. Consequently, the potential for transient combustibles to be located near the panel is extremely low.

Conclusion

It is, therefore, PSE&G's position that a level of protection equivalent to Section III.G.2 of Appendix R to 10 CFR 50 with the proposed modifications will be provided in the Containment (Fire Areas 1&2FA-RC-78). The installation of radiant energy shields or the addition of an automatic fire suppression system in the area would not significantly enhance the level of fire protection for safe shutdown capability.

The requested exemption from Section III.G.2 of Appendix R to 10 CFR 50 has been reviewed and determined not to be in conflict with other legal requirements, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption request, therefore, conforms to the requirements of 10 CFR 50.12(a)(1). In addition, "special circumstances" exist for the requested exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. The exemption requested demonstrates that an equivalent level of fire protection safety will be provided through alternate means. This alternate means consists of a combination of separation distances, manual suppression, low combustible loading, and limited access. Specific technical detail describing the alternate means is provided within the exemption request.

EXEMPTION NO. 13RHR PUMP AND HEAT EXCHANGER AREAS (FIRE AREAS 1&2FA-AB-45A&B)Exemption Requested

An exemption is requested from Section III.G.2 of Appendix R to 10 CFR 50 to the extent it requires the separation of safe shutdown cables by complete 3-hour rated barriers. Specifically, this exemption is requested for redundant safe shutdown cables within Fire Areas 1&2FA-AB-45A&B being separated by 3-hour rated walls with open penetrations.

Discussion

The Reactor Plant Auxiliary Equipment Area (1&2FA-AB-45A - El. 45' and 55') of the Auxiliary Building contains Residual Heat Removal (RHR) Pump No. 11 (21), Residual Heat Exchanger No. 11 (21), Cooler No. 11 (21), and RHR Sump Pumps Nos. 11 (21) and 12 (22). The floor, ceiling, and walls in this area are all constructed of reinforced concrete with a nominal fire rating of 3 hours, as clarified by Exemption Request No. 1, and Appendix A to this submittal.

The Reactor Plant Auxiliary Equipment Area (1&2FA-AB-45B) - El. 45' and 55') of the Auxiliary Building contains Residual Heat Removal (RHR) Pump No. 12 (22), Residual Heat Exchanger No. 12 (22), Cooler No. 12 (22), and RHR Sump Pumps Nos. 13 (23) and 14 (24). The floor, ceiling, and walls in this area are all constructed of reinforced concrete with a nominal fire rating of 3 hours, as clarified by Exemption Request No. 1, and Appendix A to this submittal.

The in-situ combustibles in these areas consist primarily of lubricating oil and cable insulation. This results in a total combustible loading of less than 5 minutes.

Ionization type detectors are provided in the RHR pump rooms. The detection system will be extended throughout Elevation 55' with the exception of the RHR heat exchangers. A manual alarm pull station is located in Elevation 55'. Detectors and manual fire alarm stations alarm and annunciate in the Control Room.

Manual fire suppression is provided by portable fire extinguishers and a hose station located on Elevation 55'. This station provides coverage for both elevations.

Safe shutdown cables in these areas are associated with the following systems:

Component Cooling Water
HVAC-RHR
Residual Heat Removal

Redundant cables and equipment on Elevation 45' are separated by a 3-hour rated concrete wall. The wall contains two-sleeved pipe penetrations. The

sleeves limit the propagation of smoke and flames through the barrier. A ventilation duct also penetrates the 3-hour rated wall. The openings around the duct will be sealed to the thickness of the barrier.

Redundant cables and equipment on Elevation 55' are separated by a concrete wall with three access openings (walkways) and a small (12" x 12") opening. Protection of redundant cables will be provided by enclosing cables associated with one safe shutdown path in 1-hour rated fire barriers to provide a minimum separation of 20'.

Evaluation

An exemption from the requirements of Section III.G.2 to provide separation of redundant cables and equipment without complete 3-hour rated barriers is requested based upon the following evaluation.

Protection for these cables and the RHR pumps is provided by 3-hour rated concrete walls with several open penetrations. Additionally, cables associated with one safe shutdown path will be enclosed within 1-hour rated barriers in the vicinity of the openings to achieve a minimum 20' separation distance. The ventilation duct annular space will be sealed to prevent flame spread. Because of the negligible combustible loading in the area, a fire of significant magnitude is considered unlikely. In the event a fire does occur, it would be promptly detected by the smoke detection system which would alert the Control Room operators to summon the plant Fire Brigade to extinguish the fire. Due to the limited combustibles in the area, the concrete wall and 1-hour barriers are considered adequate protection until the fire is extinguished.

Conclusion

It is, therefore, PSE&G's position that a level of protection equivalent to Section III.G.2 of Appendix R to 10 CFR 50 with the proposed modifications will be provided in the RHR Pump and Heat Exchanger Areas (Fire Areas 1&2FA-AB-45A&B). The installation of a 3-hour rated barrier in the area would not significantly enhance the level of fire protection for safe shutdown capability.

The requested exemption from Section III.G.2 of Appendix R to 10 CFR 50 has been reviewed and determined not to be in conflict with other legal requirements, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption request, therefore, conforms to the requirements of 10 CFR 50.12(a)(1). In addition, "special circumstances" exist for the requested exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. The exemption requested demonstrates that an equivalent level of fire protection safety will be provided through alternate means. This alternate means consists of a combination of separation distances, newly installed detection system, and low combustible loading. Specific technical detail describing the alternate means is provided within the exemption request.

EXEMPTION NO. 14PIPE TUNNEL - ELEVATION 84' (FIRE AREA 12FA-PT-84)Exemption Requested

An exemption is requested from Section III.G.2 of Appendix R to 10 CFR 50 to the extent it requires the separation of safe shutdown cables by 20' free of intervening combustibles plus automatic fire suppression and detection. Specifically, this exemption is requested for redundant safe shutdown cables within Fire Area 12FA-PT-84 not being separated by 20' free of intervening combustibles nor having an automatic suppression system.

Discussion

The Pipe Tunnel (Fire Area 12FA-PT-84) is located below grade directly beneath the Water Storage Tanks at Elevation 88'-8". The tunnel and tank areas are located adjacent to the west side of the Auxiliary Building. The Pipe Tunnel consists of approximately 8,840 square feet of floor area (260' long by 34' wide by 9' high). The area is constructed entirely of reinforced concrete exterior walls, floor, and ceiling. There is no exposed structural steel within the tunnel. There are three 8'-6" x 3'-9" steel hatches in the ceiling of the pipe tunnel. The 1-3/4" steel plate hatches are the only means of access to the Pipe Tunnel.

The only combustible in the area is cable insulation with the in-situ combustible loading in the Pipe Tunnel being approximately 9,000 BTUs/sq. ft. The postulated in-situ fire duration is 7 minutes. No automatic fire suppression is installed in the Pipe Tunnel. However, manual fire fighting capability from a nearby yard hydrant, is readily available.

A fire detection system will be installed throughout the Pipe Tunnel which will provide an early warning alarm in the Control Room. The plant Fire Brigade can utilize the nearby fire hydrant for manual suppression.

The Pipe Tunnel contains safety related piping. In addition, the area contains safety related power, instrumentation and control cables for the service water systems for both units and safety related instrumentation cables associated with the water storage tanks for both units. Cabling is run underground from the Auxiliary Building through the pipe tunnel which is then routed to the service water intake structure via reinforced concrete conduit duct banks.

The closest safe shutdown cables within the area consist of service water valve and pump cables which are a minimum of 15" apart at the southern end of the tunnel. In the remainder of the tunnel, the separation of redundant cables is approximately 5'. The only potential ignition source in the Pipe Tunnel are the electric motors on the sump pumps. The sump pumps are more than 30' from the southern end of the tunnel and approximately 3' from the nearest cable tray. The concrete walls and large service water pipes will act as heat sinks, thus limiting the temperature rise in the cabling.

Evaluation

An exemption from the requirements of Section III.G.2 to provide separation for redundant safe shutdown cables by 20' free of intervening combustibles and automatic suppression is based upon the following evaluation.

The safe shutdown cables in this fire area are not separated by a rated barrier, nor is there an automatic suppression system installed. The postulated fire duration in the Pipe Tunnel was described above to be 7 minutes. The combustibles in this area consist primarily of cable insulation. Plant Administrative Procedures will prevent the accumulation of transient combustible materials in the Pipe Tunnel. Access to the area is limited to three hatches. In addition, a ladder must be brought to the hatch in order to descend into the Pipe Tunnel. Also, because the pipe tunnel may be considered a confined space, an oxygen meter is needed for personnel to enter the area due to possible low levels of oxygen.

Due to the extremely limited access to the Pipe Tunnel, in conjunction with the lack of potential ignition sources, the likelihood of a fire occurring is considered extremely remote. It is doubtful that any fire that could occur would propagate beyond the immediate area of ignition.

Although there is no automatic fire suppression installed in this area, the proposed fire detection system will detect any occurrence of fire and alert the plant fire brigade to respond and manually extinguish the fire. The large volume of the tunnel combined with the low combustible loading will limit the potential for fire damage.

Conclusion

It is, therefore, PSE&G's position that a level of protection equivalent to Section III.G.2 of Appendix R to 10 CFR 50 with the proposed modifications will be provided in the Pipe Tunnel (Fire Area 12FA-PT-84). The installation of a 3-hour rated barrier or the addition of an automatic fire suppression in the area would not significantly enhance the level of protection for safe shutdown cabling.

The requested exemption from Section III.G.2 of Appendix R to 10 CFR 50 has been reviewed and determined not to be in conflict with other legal requirements, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption request, therefore, conforms to the requirements of 10 CFR 50.12(a)(1). In addition, "special circumstances" exist for the requested exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. The exemption requested demonstrates that an equivalent level of fire protection safety will be provided through alternate means. This alternate means consists of a combination of separation distances, newly installed detection system, low combustible loading and limited access. Specific technical detail describing the alternate means is provided within the exemption request.

EXEMPTION NO. 15CO2 EQUIPMENT ROOM - ELEVATION 84' (FIRE AREAS I&2FA-DG-84F)Exemption Requested

An exemption is requested from Section III.G.2 of Appendix R to 10 CFR 50 to the extent it requires the separation of redundant safe shutdown cables by 1-hour barriers plus automatic suppression and detection. Specifically, this exemption is requested for redundant safe shutdown cables within Fire Area I&2FA-DG-84F that are protected by 1-hour rated fire barriers and are not protected by automatic suppression and area-wide detection.

Discussion

The CO₂ Equipment Room is located at Elevation 84' of the Auxiliary Building east of the Diesel Fuel Oil Storage Tank Rooms. It originally was part of Fire Area P-1-G. The updated Fire Hazards Analysis has divided area P-1-G into several new fire areas including I&2FA-AB-84B and I&2FA-DG-84F. The floor, ceiling, and walls are constructed of reinforced concrete and provide a fire resistance rating of 3 hours as clarified by Exemption No. 1, and Appendix A to this submittal.

The combustible loading in Fire Area I&2FA-DG-84F is approximately 25,000 BTUs/FT² and consists primarily of cable insulation. If this quantity of combustibles were totally consumed in a fire, it would result in an equivalent fire severity of 20 minutes.

Portable fire extinguishers and manual hose reels are readily available for the protection of this area. Area-wide smoke detection will be installed in the area.

Safe shutdown cables in these areas are associated with the following systems:

D/G Fuel Oil Transfer	Service Water
Power Distribution	Service Water Ventilation

Protection of redundant cables will be provided by enclosing cables associated with one safe shutdown path in 1-hour barriers.

Evaluation

An exemption from the requirements of Section III.G.2 to provide automatic suppression and detection is requested based upon the following evaluation.

The combustible loading in Fire Area I&2FA-DG-84F consists primarily of electrical cables. No other fire hazards are located in this area. The likelihood of fire occurrence is, therefore, considered low. In the event a fire occurred in this area, the proposed area-wide detection system will alert the Control Room operators to summon the plant fire brigade to extinguish the fire.

If the combustible materials in the fire area were totally consumed, including 5 gallons of a transient material such as heptane, a fire of only 20 minutes duration is expected. The complete 1-hour barrier material will serve to maintain the cables associated with safe shutdown free of fire damage until the arrival of the fire brigade.

Conclusion

It is, therefore, PSE&G's position that a level of protection equivalent to Section III.G.2 of Appendix R to 10 CFR 50 with the proposed 1-hour barrier and area-wide detection will be provided in the CO₂ Equipment Room (Fire Area 1&2FA-DG-84F). The installation of an automatic suppression system in the area would not significantly enhance the level of protection for safe shutdown cabling.

The requested exemption from Section III.G.2 of Appendix R to 10 CFR 50 has been reviewed and determined not to be in conflict with other legal requirements, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption request, therefore, conforms to the requirements of 10 CFR 50.12(a)(1). In addition, "special circumstances" exist for the requested exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. The exemption requested demonstrates that an equivalent level of fire protection safety will be provided through alternate means. This alternate means consists of a combination of low combustible loading, area-wide detection, and complete 1-hour rated barriers. Specific technical detail describing the alternate means is provided within the exemption request.

APPENDIX A

SUPPLEMENTAL INFORMATION TO GENERIC EXEMPTION REQUEST ON DOORS, DAMPERS, AND HATCHES

The following information pertains to the location of non-3-hour rated assemblies in the Salem Units 1&2 Auxiliary and Penetration Buildings. The assemblies are grouped by elevation and fire area.

- A. Elevation 45' and 55' - Elevation 45' and 55' contains the RHR pump and heat exchanger cubicles. It is subdivided into Fire Areas 1&2FA-AB-45A and 1&2FA-AB-45B. In regard to the generic exemption request, there is an HVAC duct in the ceilings of both 1&2FA-AB-45B that communicates with Fire Areas 1&2FA-AB-64B (Auxiliary Building General Area) above. Both HVAC ducts are provided with 1½-hour rated fire dampers mounted above the ceiling. The ductwork between the dampers and the boundary is wrapped in FS-195. In addition, there are two HVAC ducts in the vertical pipe chases that also communicate with Fire Areas 1&2FA-AB-64B. These ducts do not have fire dampers. Finally, there is a steel hatch located in the ceilings of Fire Areas 1&2FA-AB-45B, at approximately 10' west of column line FF, and 10' north of column line 14 (Unit 2), and approximately 10' west of column line FF and 10' south of column line 14 (Unit 1). The hatches also communicate with Fire Areas 1&2FA-AB-64B.

The combustible loading in Fire Areas 1&2FA-AB-45B is approximately 1 minute. The combustible loading in Fire Areas 1&2FA-AB-64B is approximately 38 minutes. Only equipment related to the B electrical division exists in Fire Areas 1&2FA-AB-45B. In the event of a fire in 1&2FA-AB-45B, equipment from the A and C electrical division in other fire areas is used to shut down the plant. Due to the limited combustible loading on the 45' elevation, it is not considered likely that a fire could spread to elevation 64' via the HVAC ducts or ceiling hatch; however, if fire spread were to occur, the equipment from the A and C electrical divisions are also protected on elevation 64', and the plant could still be

safely shutdown. The existing ductwork and the steel hatches are, therefore, considered acceptable.

- B. Elevation 64' - In addition to the previously noted interactions between Fire Areas I&2FA-AB-64B and I&2FA-AB-45B, the following non-3-hour rated assemblies exist.

Fire Areas I&2FA-AB-64A (4kV Switchgear Area) both contain three HVAC ducts that communicate to Fire Areas I&2FA-EP-78C (Electrical Penetration Area), and two HVAC ducts in the ceiling which communicate to I&2FA-AB-84A (460V Switchgear Area). These five ducts contain 1½-hour rated dampers, and four are wrapped with FS-195 between the damper and the barrier. As committed-to in Exemption Request No. 1, Fire Areas I&2FA-EP-78C and I&2FA-AB-84A will be upgraded to 3-hour rated boundaries with dampers mounted in the barrier where physically possible.

Fire Areas I&2FA-AB-64A-1 (Battery Rooms) both have a ceiling mounted duct with a 1½-hour rated damper and two 1½-hour rated personnel access doors that communicate to Fire Areas I&2FA-AB-64A. Fire Areas I&2FA-AB-64A-1 are located within Fire Areas I&2FA-AB-64A, adjacent to the C division Switchgear. The Battery Rooms only contain C division equipment. In the event of a fire in one of the Battery Rooms, safe shutdown of the plant could be achieved using the A and B division equipment located elsewhere in Fire Areas I&2FA-AB-64A. (The separation of redundant equipment within Fire Areas I&2FA-AB-64A is addressed in Exemption Request No. 9.)

Fire Areas I&2FA-AB-64B (Auxiliary Building General Area) both have four HVAC ducts that penetrate the ceiling to Fire Areas I&2FA-AB-84B above. The HVAC ducts are fitted with 1½-hour rated fire dampers mounted external to the barrier, with FS-195 wrap protecting the section of duct between the barrier and the dampers. A steel hatch is also located at approximately 10' east of column line PP and 8' south of column line 14.8 (Unit 2) and at 10' east of column line PP and 8' north of column line 13.2 (Unit 1). Finally, a 1½-hour rated fire door is located in the south

wall of 2FA-AB-64B that provides access to IFA-AB-64B. The combustible loading in Fire Areas 1&2FA-AB-64B is approximately 37 minutes. The combustible loading in Fire Areas 1&2FA-AB-84B is approximately 27 minutes. A fire occurring in Fire Areas 1&2FA-AB-64B is not expected to be of sufficient magnitude to extend to elevation 84'; however, a fire in 1&2FA-AB-64B which communicates to 1&2FA-AB-84B is not a concern, as the same Appendix R divisions are protected in both areas. The 1½-hour rated door is not a concern for Appendix R separation because Unit 2 equipment is not required for Unit 1 shutdown and vice versa.

- C. Elevation 84' - In addition to the previously discussed, interactions between Fire Areas 1&2FA-AB-84A and B and 1&2FA-AB-64A and B, the following non-3-hour rated assemblies exist.

Fire Areas 1&2FA-AB-84A (460V Switchgear Room) both contain five HVAC ducts that communicate to Fire Areas 1&2FA-EP-78C (Electrical Penetration Areas) via 1½-hour rated fire dampers and FS-195 wrap, and both have a ceiling mounted HVAC duct that communicates with Fire Areas 1&2FA-AB-100B-3 (Battery Rooms). Additionally, both Fire Areas 1&2FA-AB-84A have a 1½-hour rated door that communicates to a common corridor, 12FA-AB-84B. As discussed in Exemption Request No. 1, these assemblies will be replaced with 3-hour rated assemblies.

Fire Areas 1&2FA-AB-84B (Auxiliary Building General Area) have two ceiling mounted HVAC ducts with 1½-hour rated fire dampers and FS-195 wrap that communicate to Fire Areas 1&2FA-AB-100C (Auxiliary Building General Area). In addition, there are three HVAC ducts in each vent chase and one in each pipe alley that also connect to Fire Areas 1&2FA-AB-100C, all with 1½-hour rated dampers. There are two steel hatches in the 84' elevation ceilings, one at approximately 1' north of column line 14.2 and 9'-6" east of column line PP (Unit 2), and one at approximately 1' south of column line 13.8, and 9'-6" east of column line PP (Unit 1). The east wall of IFA-AB-84B contains a 1½-hour rated fire door to area 12FA-AB-84A. The combustible loading in Fire Areas 1&2FA-AB-84B is approximately 27 minutes. A partial-area detection

system is installed over the major hazards in the area. In the event of a fire, it is expected to be of limited extent and severity. The 1½-hour rated assemblies are, therefore, considered adequate protection; however, from an Appendix R standpoint, fire spread between Fire Areas I&2FA-AB-64B, I&2FA-AB-84B, and I&2FA-AB-100C is not a concern, as the same division of shutdown equipment will be protected on all three elevations. There is no equipment needed for safe shutdown in Fire Area I&2FA-AB-84A.

Fire Areas I&2FA-DG-84D and E (Diesel Fuel Oil Storage Tank Rooms) both contain two HVAC ducts, one without a fire damper, and one with a 1½-hour rated fire damper that communicate to Fire Areas I&2FA-DG-84F (CO₂ Equipment Rooms). Additionally, there are two HVAC ducts with 1½-hour dampers in the ceiling of Fire Areas I&2FA-DG-84D and E that communicate to Fire Areas I&2FA-DG-100F (C Diesel Generator Rooms). As committed-to in Exemption Request No. 1, all non-3-hour rated assemblies in I&2FA-DG-84D and E will be upgraded to 3-hour rated assemblies.

Fire Areas I&2FA-DG-84F (CO₂ Equipment Rooms) both have a single HVAC duct located in the ceiling that communicates to Fire Areas I&2FA-DG-100D (A Diesel Generator Rooms) above. The ducts are provided with 1½-hour fire dampers mounted below the ceiling, with FS-195 wrap between the damper and the ceiling. Additionally, there are four HVAC openings that communicate to Fire Areas I&2FA-DG-84D, E, G and H. The dampers to I&2FA-DG-84D and E and I&2FA-DG-100D will be upgraded to a 3-hour rating. The dampers to I&2FA-DG-84G and H are addressed below. The combustible loading in areas I&2FA-DG-84F is approximately 19 minutes.

Fire Areas I&2FA-DG-84G and H (Diesel Fuel Oil Transfer Pump Rooms) both contain two HVAC ducts with 1½-hour rated fire dampers that communicate to Fire Areas I&2FA-DG-84F. Equipment located in Fire Areas I&2FA-DG-84F is redundant to equipment in Fire Areas I&2FA-DG-84G and H. The combustible loading in Fire Areas

I&2FA-DG-84G and H is approximately 6 minutes. The combustible loading in I&2FA-DG-84F is approximately 19 minutes. All areas are or will be provided with fire detection. In addition, Fire Areas I&2FA-DG-84G and H are provided with automatic total flooding carbon dioxide systems. This combination of suppression, detection, and 1½-hour rated fire dampers will ensure that one division of equipment necessary to safely shut the plant down will be maintained free of fire damage.

Fire Areas I&2FA-AB-84F also have 1½-hour rated doors to Fire Areas I&2FA-AB-84B. The combustible loading in I&2FA-AB-84B is approximately 27 minutes. Redundant equipment in Fire Areas I&2FA-AB-84B is separated from the doorway by at least 20'. Due to these factors, the 1½-hour door is considered adequate protection.

Fire Areas I&2FA-EP-78C (Electrical Penetration Areas) each have five HVAC ducts in the wall that communicate to Fire Areas I&2FA-AB-84A and three ducts that communicate to Fire Areas I&2FA-AB-64A. In addition, the ceiling of Fire Areas I&2FA-EP-78C has six HVAC ducts. As committed-to in Exemption Request No. 1, all of these assemblies will be upgraded to 3-hour rated assemblies.

A steel hatch located at column lines EE and 16.2 (Unit 2) and at column lines EE and 11.8 (Unit 1) communicates to Fire Areas I&2FA-FP-100H, above. The combustible loading in Fire Areas I&2FA-EP-78C is approximately 3 hours, consisting primarily of cable insulation. Fire Areas I&2FA-EP-78C have area-wide detection and a manual CO₂ system that will be replaced with an automatic system. A fire occurring in I&2FA-EP-78C is thus expected to be rapidly detected and extinguished prior to the steel hatch receiving sufficient heat to lose its structural integrity. The existing hatch is, therefore, considered adequate.

- D. Elevation 100' - In addition to the previously discussed interactions between Fire Areas I&2FA-AB-84A and I&2FA-AB-100B-3, I&2FA-AB-84B and I&2FA-AB-100C, and I&2FA-DG-84F and I&2FA-DG-100E, the following non-3-hour rated assemblies exist.

Fire Areas 1&2FA-AB-100A (Relay Rooms) each have two 1½-hour rated fire doors. One communicates to 12FA-AB-100A (Hallway) and the other to Fire Areas 1&2FA-EP-100G. These doors will be upgraded to 3-hour rated assemblies.

Fire Areas 1&2FA-AB-100B-1 and B-2 (125V A and B Battery Rooms) both have two 1½-hour doors that communicate to Fire Areas 1&2FA-AB-100B-3 (250V Battery Rooms) and one 1½-hour door to Fire Areas 1&2FA-AB-100A. Fire Areas 1&2FA-AB-100B-3 each have a ceiling mounted HVAC duct with 1½-hour rated fire damper that communicates to 1&2FA-AB-100A. Fire Areas 1&2FA-AB-100B-1 and B-2 each have an HVAC duct with a 1½-hour damper to Fire Areas 1&2FA-AB-100A. The combustible loading in the areas is 34 minutes (100B-1), 34 minutes (100B-2), and 46 minutes (100B-3). There is redundant equipment needed for safe shutdown in Fire Areas 1&2FA-AB-100B-1 and B-2. Thermal detectors are provided in all three battery rooms. Due to the combustible loading and installed detection, and automatic Halon 1301 system in the Relay Room, the 1½-hour rated doors and dampers are considered adequate protection.

Fire Area 1FA-AB-100C (Unit 1 Auxiliary Building General Area) has a 1½-hour rated door and an HVAC duct without a fire damper that communicates through the north wall to 2FA-AB-100C (Unit 2 Auxiliary Building General Area). There is no Unit 1 equipment relied upon for Unit 2 shutdown and vice versa. The combustible loading in these areas is approximately 34 minutes. Detection will be provided in both areas (see Exemption No. 3). The steel duct without a damper is, therefore, considered adequate for this situation. There is also a steel hatch located in the ceiling of Fire Areas 1&2FA-AB-100C (see Fire Area 1&2FA-AB-122B, below, for details). Finally, there are four HVAC ducts that communicate to Fire Areas 1&2FA-MP-78I (Mechanical Penetration Area) and one HVAC duct that communicates to 1&2FA-PP-100H (Inner Piping Penetration Area). All of these ducts are fitted with 1½-hour rated dampers and FS-195 wrap. Equipment in Fire Areas 1&2FA-MP-78I and 1&2FA-PP-100H is redundant to equipment in Fire Areas

1&2FA-AB-100C. The combustible loading in 1&2FA-MP-78I is approximately 21 minutes. The combustible loading in 1&2FA-PP-100H is approximately 4 minutes. Partial detection is provided in all three areas. Cables needed to ensure one safe shutdown path located within 10' of the dampers on either sides of the barrier will be wrapped in a 1-hour barrier. With this combination of protection, the existing 1½-hour rating dampers are considered adequate.

Fire Area 1FA-AB-100C communicates to Fire Area 12FA-AB-100A (Hallway) via a 1½-hour rated door. As committed-to in Exemption Request No. 1, this door will be replaced with a 3-hour rated assembly.

Fire Areas 1&2FA-EP-100G (Upper Electrical Penetration Area) and 1&2FA-PP-100H (Inner Piping Penetration Area) communicate via two HVAC ducts provided with 1½-hour rated dampers. These areas have been analyzed as a common fire area in the Appendix R evaluation. The fire loading in both areas is negligible. A partial detection system is installed in the vicinity of the major hazards in the areas. The 1½-hour rated dampers are, therefore, considered adequate protection. Fire areas 1&2FA-EP-100G also communicate to Fire Areas 1&2FA-EP-78C via a 1½-hour rated stairway door. The use of 1½-hour rated stairway doors is consistent with paragraph C.5.(a).6 of BTP CMEB 9.5-1. Class B fire doors are therefore considered acceptable protection for stairways.

Fire Areas 1&2FA-PP-100H communicate to Fire Area 1&2FA-AB-100A (Relay Rooms) via two HVAC ducts. One duct is protected with a 1½-hour rated damper with FS-195 wrap between the damper and the wall. The other duct does not have a fire damper. As committed-to in Exemption Request No. 1, Fire Areas 1&2FA-AB-100A will be upgraded to 3-hour rated assemblies.

Fire Areas 1&2FA-PP-100H both communicate to Fire Areas 1&2FA-MP-78I (Mechanical Penetration Area) via an HVAC duct that is continuous throughout 1&2FA-PP-100H, and is wrapped with FS-195 wrap. A second HVAC duct passes from 1&2FA-AB-100C through

1&2FA-PP-100H and then to 1&2FA-MP-78I. A 1½-hour rated damper and FS-195 wrap are provided for this duct. The combustible loading in Fire Areas 1&2FA-PP-100H is approximately 4 minutes. The combustible loading in Fire Areas 1&2FA-MP-78I is approximately 21 minutes, and consists primarily of cable insulation and charcoal in the HVAC charcoal filter banks. Automatic suppression and detection are provided for the charcoal filters. Area-wide detection is installed in Fire Areas 1&2FA-PP-100H. Because the ducts are not open to area 1&2FA-PP-100H, the FS-195 wrap is considered adequate protection to prevent a fire from spreading from Fire Areas 1&2FA-MP-78I to 1&2FA-PP-100H, and from Fire Areas 1&2FA-AB-100C to 1&2FA-PP-100H.

- E. Elevation 122' - Fire Area 1FA-AB-122B (Unit 1 Auxiliary Building General Area) has an HVAC duct in the north wall that communicates to 2FA-AB-122B (Unit 2 Auxiliary Building General Area). The duct is provided with a 1½-hour rated fire damper with FS-195 wrap between the damper and the wall. The combustible loading in each area is approximately 6 minutes. Unit 1 cables and equipment are not relied upon for shutdown of Unit 2 and vice versa. The primary fire hazards in areas 1&2FA-AB-122B are the charcoal filters and the resin storage area. Each of these hazards is protected by automatic suppression and detection. The remainder of the combustibles consist of widely dispersed cables in tray and conduit. A fire of significant magnitude in these areas is, therefore, not considered likely. Due to this, the 1½-hour rated damper is considered adequate protection.

Fire Area 2FA-AB-122B communicates to Fire Area 12FA-AB-100J (Drumming and Baling area) via two HVAC ducts with 1½-hour rated dampers, with FS-195 wrap between the damper and the wall. The combustible loading in Fire Area 12FA-AB-100J is approximately 10 minutes. There are no cables or equipment required for safe shutdown in Fire Area 12FA-AB-100J. Partial suppression and detection systems are provided in 12FA-AB-100J. The 1½-hour rated dampers are, therefore, considered adequate protection.

Fire Area 12FA-AB-84A communicates to Fire Area 1FA-AB-84B via a 1½-hour rated door in the west wall. The combustible loading in Fire Area 1FA-AB-84B is approximately 26 minutes. Partial detection is provided in Fire Area 1FA-AB-84B to cover the corridor areas adjacent to the door. There are no cables or equipment in Fire Area 12FA-AB-84A required for safe shutdown. A significant fire in either area is unlikely; however if a fire should occur and spread through the door, only one division of safe shutdown cables which are in Fire Area 1FA-AB-84B would be affected, and the plant could still be safely shut down.

Fire Area 12FA-AB-122A (Control Area) communicates to Fire Areas 1&2FA-AB-122B via two 1½-hour rated fire doors in the west wall of the Control Room fire area. The combustible loading in the Control Room is approximately 49 minutes. The combustible loading in Fire Areas 1&2FA-AB-122B is approximately 6 minutes. Area-wide detection is provided for the Control Room; in addition, it is continuously manned. For a fire in the Control Room, no equipment in Fire Areas 1&2FA-AB-122B would be relied upon to shut the plant down. The major hazards in Fire Areas 1&2FA-AB-122B are protected by automatic suppression and detection systems. This combination of protection, low combustible loadings, and the 1½-hour rated doors is, therefore, considered adequate protection.

G. Stairtowers and Elevator Shafts - The Salem Unit 1&2 Auxiliary Buildings have five stairtowers and two elevator shafts as follows:

Unit 1	-	1FA-AB-ST1 1FA-AB-EL1 1FA-AB-100C (stairs)
Unit 2	-	2FA-AB-ST2 2FA-AB-ST5 2FA-AB-100C (stairs)
Common Area	-	12FA-AB-EL2

These vertical shafts are all provided with 1½-hour rated access doors and fire dampers. The use of 1½-hour rated construction is consistent with Section C.5.(a).6 of BTP CMEB 9.5-1. The existing arrangements are, therefore, considered adequate.

The floors of Fire Area 1&2FA-AB-122B each contain eight HVAC ducts with 1½-hour dampers located above the slab. The portion of the duct between the damper and the slab is wrapped in FS-195. In addition, steel hatches are located at 10'-9" north of column line 14.2 and 8'-8" east of column line PP (Unit 2), and at approximately 12' south of column line 13.8 and 9'-6" east of column line PP (Unit 1). A second set of hatches, approximately 1'-4" by 2'-4" in size, are located in the floor adjacent to the volume control tank. The combustible loading in Fire Areas 1&2FA-AB-100C, which are located directly below Fire Areas 1&2FA-AB-122B, is approximately 35 minutes. An ionization type fire detection system is provided in Fire Areas 1&2FA-AB-100C. The elevation 122' floor does not separate redundant equipment. In the event of a fire in Fire Area 100C, it is not considered likely that the fire would spread to Fire Areas 1&2FA-AB-122B; however, if fire spread were to occur, the plant could still be safely shut down.

- F. Common Areas - Fire Area 12FA-AB-84A (Hallway) contains a 1½-hour rated door and four HVAC penetrations to 1FA-AB-84A (460V Switchgear Room). The HVAC penetrations are currently protected by 1½-hour rated fire dampers. As committed-to in Exemption Request No. 1, these four dampers and the door will be upgraded to 3-hour rated assemblies. Fire Area 12FA-AB-84A also contains a steel hatch in the ceiling approximately 5'-6" north of Column Line 13.2 between Column Lines AA and BB. The combustible loading in Fire Area 12FA-AB-84A is approximately 5 minutes. The combustible loading in Fire Area 12FA-AB-100A, above, is approximately 2 hours 43 minutes, consisting entirely of cable insulation in cable trays located near the ceiling. There are no cables or equipment required for safe shutdown in Fire Area 12FA-AB-84A. Due to the low combustible loading in Fire Area 12FA-AB-84A, a fire of sufficient magnitude to breach the steel hatch and spread upward to Fire Area 12FA-AB-100A is considered unlikely. A fire occurring in Fire Area 12FA-AB-100A is not expected to extend down through the floor hatch to the elevation below. In the event the hatch is breached, only one division of safe shutdown cables which are in Fire Area 12FA-AB-100A would be affected and, thus, safe plant shutdown could still be accomplished.

Fire Area 12FA-AB-84A communicates to Fire Area 1FA-AB-84B via a 1½-hour rated door in the west wall. The combustible loading in Fire Area 1FA-AB-84B is approximately 26 minutes. Partial detection is provided in Fire Area 1FA-AB-84B to cover the corridor areas adjacent to the door. There are no cables or equipment in Fire Area 12FA-AB-84A required for safe shutdown. A significant fire in either area is unlikely; however if a fire should occur and spread through the door, only one division of safe shutdown cables which are in Fire Area 1FA-AB-84B would be affected, and the plant could still be safely shut down.

Fire Area 12FA-AB-122A (Control Area) communicates to Fire Areas 1&2FA-AB-122B via two 1½-hour rated fire doors in the west wall of the Control Room fire area. The combustible loading in the Control Room is approximately 49 minutes. The combustible loading in Fire Areas 1&2FA-AB-122B is approximately 6 minutes. Area-wide detection is provided for the Control Room; in addition, it is continuously manned. For a fire in the Control Room, no equipment in Fire Areas 1&2FA-AB-122B would be relied upon to shut the plant down. The major hazards in Fire Areas 1&2FA-AB-122B are protected by automatic suppression and detection systems. This combination of protection, low combustible loadings, and the 1½-hour rated doors is, therefore, considered adequate protection.

- G. Stairtowers and Elevator Shafts - The Salem Unit 1&2 Auxiliary Buildings have five stairtowers and two elevator shafts as follows:

Unit 1	-	1FA-AB-ST1 1FA-AB-EL1 1FA-AB-100C (stairs)
Unit 2	-	2FA-AB-ST2 2FA-AB-ST5 2FA-AB-100C (stairs)
Common Area	-	12FA-AB-EL2

These vertical shafts are all provided with 1½-hour rated access doors and fire dampers. The use of 1½-hour rated construction is consistent with Section C.5.(a).6 of BTP CMEB 9.5-1. The existing arrangements are, therefore, considered adequate.