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Security Notice
This letter forwards Security-Related information in accordance with 10CFR2.390. Upon removal of Enclosure 1, the balance of this letter may be considered non-Security-Related.

MFN 08-787

Docket No. 52-010

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U.S. Nuclear Regulatory Commission
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Subject: **Response to Portion of NRC Request for Additional Information Letter No. 226, Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Numbers 9.5-83 through 9.5-91**

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) response to the U.S. Nuclear Regulatory Commission Request for Additional Information (RAI) sent by NRC Letters 226, dated July 21, 2008 (Reference 1). The GEH responses to RAI Numbers 9.5-83 through 91 are addressed in Enclosure 1.

Enclosure 1 contains Security-Related information identified by the designation "{{{Security-Related Information - Withhold Under 10 CFR 2.390}}}:" GEH hereby requests this information be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390 .

Enclosure 2 contains the public version.

Should you have any questions or require additional information regarding the information provided here, please contact me.

Sincerely,

Lee F. Dougherty for

Richard E. Kingston
Vice President, ESBWR Licensing

DO68
NRO

Reference:

1. MFN 08-589, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 226 Related to ESBWR Design Certification Application,* July 21, 2008.

Enclosures:

1. Response to Portion of NRC Request for Additional Information Letter No. 226 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Numbers 9.5-83 through 9.5-91 "Security-Related" Version

2. Response to Portion of NRC Request for Additional Information Letter No. 226 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Numbers 9.5-83 through 9.5-91 Public Version

cc:	AE Cubbage	USNRC (with enclosures)
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	RE Brown	GEH (with enclosures)
	eDRF	0000-0092-3476

Enclosure 2

MFN 08-787

Response to Portion of NRC Request for

Additional Information Letter No. 226

Related to ESBWR Design Certification Application

Auxiliary Systems

RAI Numbers 9.5-83 through 9.5-91

Public Version

NRC RAI 9.5-83

DCD Tier 2, Appendix 9A, Subsection 9A.4.10 states that preaction foam sprinkler systems are provided throughout each of the ancillary diesel generator rooms and that foam deluge systems are provided throughout each of the fuel oil tank rooms. In a later paragraph, the DCD states that the same facility is fully equipped with an automatic wet-pipe sprinkler system designed for light hazard occupancy. This would indicate double coverage - is that the intention? Assuming it is intended to provide one or the other, the foam-water systems would be the appropriate design for this hazard.

GEH Response

The statement that the facility is fully equipped with an automatic wet-pipe sprinkler system designed for light hazard occupancy is in error and this paragraph will be removed. Four (4) of the six (6) rooms in the Ancillary Diesel Building contain fuel oil and are provided with foam suppression. There are two (2) ancillary diesel generator rooms and two (2) separate fuel oil tank rooms. The ancillary diesel generator rooms are covered by foam sprinkler systems and the fuel oil tank rooms are covered by foam deluge systems. There is no double coverage. GEH is revising DCD Tier 2, Appendix 9A subsection 9A.4.10 to correct this error.

Based on the extent of the issues identified in RAI 9.5-83 through 9.5-91, GEH reviewed DCD Tier 2 Chapter 9.5.1 and Appendix 9A to identify additional issues. These additional issues identified by GEH during this review are delineated in attached matrix (Table 1, GEH Identified Discrepancy Matrix) and reflected in the attached mark-ups.

DCD Impact

DCD Tier 2, Appendix 9A, subsection 9A.4.10 is being revised as noted in the attached markup to correction discussion of fire suppression coverage.

NRC RAI 9.5-84

DCD Tier 2, Appendix 9A, Subsection 9A.4.10, seventh paragraph states that manual fire alarm pull boxes are located at each fire hose and at extinguisher stations. Pull boxes should also be at each building exit. This paragraph also references the Service Building. This section describes the Ancillary Diesel Building.

GEH Response

The reference to the Service Building is incorrect and will be removed. Due to the small size of the building, manual pull boxes will only be located at each building exit. Therefore, the statement that manual fire alarm pull boxes are located at each fire hose and at extinguisher stations will be deleted and replaced with a statement that pull boxes will be located at each building exit. GEH is revising DCD Tier 2, Appendix 9A subsection 9A.4.10 to correct these discrepancies.

DCD Impact

DCD Tier 2, Appendix 9A, subsection 9A.4.10 is being revised as noted in the attached markup to delete reference to Service Building and correct description of location of manual fire alarm pull boxes.

NRC RAI 9.5-85

DCD Tier 2, Appendix 9A, Subsection 9A.4.10, ninth paragraph states the basis for not providing multiple fire areas within the ADB, implying that the building is a single fire area. This contradicts the description in Subsection 9A.6.5.5 that states the main fuel oil storage tanks are located in separate fire areas in the ADB (as they should be), as well as Table 9A.5-7 which indicates a separate fire area for each diesel generator and each fuel oil storage tank. Revise Subsection 9A.4.10 to be consistent with the rest of the DCD.

GEH Response

The implication of a single fire zone is in error. This paragraph is being removed from the DCD. The description of multiple fire areas is correct. GEH is revising DCD Tier 2, Appendix 9A, subsection 9A.4.10 to correct this inconsistency.

DCD Impact

DCD Tier 2, Appendix 9A, subsection 9A.4.10 is being revised as noted in the attached markup to delete paragraph that provided the basis for single fire area.

NRC RAI 9.5-86

DCD Tier 2, Appendix 9A, Table 9A.5-3, Fire Area F3110, was revised for Rev. 5 to add Rooms 3251 and 3252, but the identification of potential combustibles was not provided in the revised table for these rooms. Please identify the potential combustibles for these rooms.

GEH Response

Fire Area F3110 table is incorrect and is being corrected. Rooms 3251 & 3250 contain cable insulation and electrical equipment. GEH is revising DCD Tier 2, Appendix 9A, Table 9A.5-3, Fire Area F3110 to correct the discrepancy. The rooms containing potential combustibles for Fire Area 3130 are wrong. They should be Rooms 3260 and 3261 instead of Rooms 3160 and 3161.

DCD Impact

DCD Tier 2, Appendix 9A, Table 9A.5-3 Fire Area F3110 and Fire Area 3130 is being revised as shown attached to identify combustibles and correct room numbers.

NRC RAI 9.5-87

DCD Tier 2, Appendix 9A, Table 9A.5-6, Fire Areas F5201 and F5204 state that the areas contain safety-related divisional equipment or cables for all four divisions, while the safe shutdown evaluations state that a fire in the area affects no safety-related equipment. Please address this apparent contradiction. These tables should also have a revision bar to indicate that they changed for Rev. 5 of the DCD.

GEH Response

Table 9A.5-6 Fire Area F5201 and F5204 correctly state that the areas contain safety-related divisional equipment or cables for all four divisions. There are safety-related RPS transducers in these fire areas.

Failure of one transducer in a fire only results in loss of indication to RPS of 13.8 kV Bus under voltage (Table incorrectly lists the value as kW). Losing multiple transducers will result in a reactor SCRAM. Therefore, the potential adverse effect of a fire is mitigated by the fail-safe design of the sensors and their respective control systems to provide safety system protection. These RPS sensors are only classified as safety-related because they feed signals to a safety-related RPS control system. Consequently, they must be purchased to safety-related requirements. These sensors are not credited for performing any function described in the 10 CFR 50.2 definition of safety-related. They are only credited in the Chapter 15 AOO analyses (DCD Tier 2, subsection 15.2.5.2 - Loss of Non-Emergency AC Power to Station Auxiliaries which causes a Decrease in Reactor Coolant Inventory).

Given the above, it can be concluded that a fire in either Fire Area F5201 or F5204 will not have an adverse affect on safe shutdown. The safe shutdown evaluations will be revised to clarify that even though a fire in either of these two fire areas can result in the loss of safety-related components, that safe shutdown is not adversely impacted. A fire in either area only adversely affects one (1) train, on-site and off-site power and related equipment.

DCD Impact

DCD Tier 2, Appendix 9A, Table 9A.5-6 Fire Areas F5201 and F5204 is being revised as noted in the attached markup. Table 9A.6-1 is also being revised to state a fire in this fire area will result in loss of indication to RPS of 13.8 kV Bus under voltage and a SCRAM as noted in the attached markup.

NRC RAI 9.5-88

The safe shutdown evaluations on DCD Tier 2, Appendix 9A, Table 9A.5-7, Secondary Nonseismic Diesel Fire Pump and Secondary Nonseismic Motor driven Fire Pump, refer to the two nonseismic motor-driven fire pumps. One of the motor-driven fire pumps is Seismic Category II according to Tier 1, Table 2.16.3-1 and Tier 2, Subsection 9.5.1.4. Please correct this inconsistency.

GEH Response

The narrative in Table 9A.5-7 is incorrect. There is only one nonseismic motor driven fire pump. The following information from DCD subsection 9.5.1.4 is correct.

> There are two primary fire pumps located near the Control Building in a fire pump enclosure (FPE). One pump is motor-driven and one is diesel-driven. The lead fire pump is motor-driven Seismic Category II. The backup is diesel-driven Seismic Category I.
>
> There are two (2) secondary fire pumps located remote from the primary pumps to avoid any common-location failures. The secondary fire pumps are both non-seismic. The lead secondary is motor-driven and the backup is diesel-driven.

All four (4) pumps are located in separate fire areas. Therefore a fire can only affect one (1) pump and the three (3) remaining pumps will be available. However, since closed valves normally isolate the primary and secondary fire pumps, DCD Tier 2 is being revised to state the respective primary or secondary pump will be available.

The narrative in the safe shutdown evaluations on DCD Tier 2, Appendix 9A, Table 9A.5-7, Secondary Nonseismic Diesel Fire Pump and Secondary Nonseismic Motor-driven Fire Pump is being revised to reflect the other nonseismic pump as the back-up. Also, safe shutdown evaluations for Fire Areas F19160 and F19161 in Table 9A.5-7 associated with the primary diesel fire pump and fuel oil storage tank in DCD Tier 2, Appendix 9A is being revised to reflect the primary motor driven pump as the back-up. In addition, Fire Areas F19160 and F19161 did not list fuel oil as a potential combustible and incorrectly identify the anticipated combustible loading as less than 700 MJ/m^2.

DCD Impact

DCD Tier 2, Appendix 9A, Table 9A.5-7, fire pump Fire Hazard Analysis tables are being revised to clarify the back-up pump as noted in the attached markup and correct other problems identified above.

NRC RAI 9.5-89

It is not clear from the descriptions of the Ancillary Diesel Generator Building fire hazards provided in the DCD where the fuel oil day tanks are located. According to DCD Section 9A.6.5.5, the day tanks are <4,164L each. DCD Tier 2, Appendix 9A, Table 9A.5-7 for fire areas F39151, F39161, F39252, F39253, and F39262 lists 20,000L of fuel oil in the Potential Combustibles section for each of these areas. One of these areas (F39253) is an electrical and control equipment room. It's unlikely that the electrical room will have that much oil and why does the diesel-generator room have the same amount of oil as the fuel oil storage tank room? Even if the day tanks are located in the diesel generator rooms, the volume of oil in those rooms should not be 20,000L. The suppression system indicated for all of these areas is a preaction foam deluge system (except F39263). The description of the fire protection for this building in DCD Subsection 9A.4.10 is inconsistent within that subsection, as noted in another RAI, and this table should be revised, as appropriate, to indicate the correct suppression system for each room. Note that electrical room B shows a preaction foam deluge system, whereas electrical room A shows only portable CO2 extinguishers as the primary fire suppression. The type of detectors is different for the A and B electrical rooms also. Please discuss any intended differences for ancillary diesels A and B in Section 9A.4.10. DCD Tier 2, Appendix 9A, Table 9A.5-7 identifies that Room 39252 is in both F39253 and F39252. The room number for F39253 should probably be 39253, not 39252 as indicated.

Please include a drawing of the Ancillary Diesel Generator Building showing the fire protection zones.

GEH Response

Table 9A.5-7, Fire Areas F39151 and F39161 contain the 20,000L fuel oil storage tanks. The Ancillary Fuel Oil Day Tanks are approximately 1500L (400 gallons). The day tanks are located in the same fire area as the Diesel, Fire Areas F39252 and F39262 for Ancillary Generators A & B. Table 9A.5-7, Fire Areas F39253 and F39263 for ADG Electrical & Control Equipment Room A and B contain the Ancillary Diesel Generator electrical and switchgear and do not contain any fuel oil storage tanks.

There are no differences between either Potential Combustibles or the fire area detection and suppression equipment for Fire Areas F39253 and F39263. The information for Fire Area F39263 is correct, except for reference to stairwell. Fire Area F39252 encloses room 39252 not 39253. As stated in DCD Tier 2, Appendix 9A, subsection 9A.4.10, the suppression system is a preaction foam deluge for the Ancillary Diesel Generator fuel oil storage areas and Fire Areas F39151 and F39161 are correct.

However, a preaction foam sprinkler system is provided for the diesel engine rooms and Fire Areas F39252 and F39262 need to be corrected to reflect this.

DCD Tier 2, Appendix 9A, subsection 9A.4.10 states, "Fire detection is provided throughout the ADB with the use of Class A supervised product-of-combustion detection systems." While the fire detection systems/equipment for the Ancillary Diesel Generator fuel oil storage areas and the engine rooms are both the same, the detection equipment is for the ADG Electrical & Control Equipment Room A and B is area wide ionization detectors. Therefore, this statement in 9A.4.10 is abbreviated to just state "Fire detection is provided throughout the ADB."

A drawing showing the fire protection zones is not currently available. Preliminary design indicates a symmetrical building with the fuel oil storage tanks in one end of the building and the ADG Electrical & Control Equipment Room A and B in the other end of the building.

Also, Fire Areas F39253 and F39263 incorrectly identify the anticipated combustible load and the combustible load limit as 700 MJ/m^2 for the ancillary diesel electrical equipment rooms.

DCD Impact

DCD Tier 2, Appendix 9A Table 9A.5-7, Fire Areas F39151, F39161, F39252, F39262, F39253, and F39263 is being revised to reflect the description in 9A.4-10, and to address similarities between rooms and detection and suppression equipment. The Potential Combustibles will also be changed to delete the size of the Fuel Oil Day Tank. DCD Tier 2, Appendix 9A, subsection 9A.4.10 is being revised to delete statement implying all the detection equipment in the ADG was the same. Also, the anticipated combustible load and the combustible load limit are changed from 700 to 1400 for Fire Areas F39253 and F39263.

NRC RAI 9.5-90

In DCD Tier 2, Appendix 9A, Table 9A.5-6, Fire Area F5163, clarify that the diesel generator in this fire area and others is the Standby Diesel Generator to distinguish it from the Ancillary Diesel Generator.

GEH Response

DCD Tier 2, Appendix 9A, Table 9A.5-6 Fire Areas F5153, F5163, F5250, F5251, F5260 and F5261 for the Standby Diesel Generator is being revised to distinguish them from Fire Areas associated with the Ancillary Diesel Generator. Also, Fire Areas F5251 and F5261 incorrectly identify the anticipated combustible load and the combustible load limit as 700 MJ/m^2 for the standby diesel electrical equipment rooms.

DCD Impact

DCD Tier 2, Appendix 9A, Table 9A.5-6 Fire Areas F5153, F5163, F5250, F5251, F5260 and F5261 is being revised as noted in the attached markups to add a standby diesel modifier. Also, the anticipated combustible load and the combustible load limit are changed from 700 to 1400 for Fire Areas F5251 and F5261.

NRC RAI 9.5-91

The title of Figure 9A.2-3 indicates an elevation of 1000. Figures 9A.2-10 and 9A.2-11 identify the elevation as (-)1000. Please correct Figure 9A.2-3.

GEH Response

DCD Tier 2, Appendix 9A, Figure 9A.2-3 title is incorrect. It should read [–1000]. GEH will revise DCD Tier 2, Appendix 9A, Figure 9A.2-3 to correct this error.

DCD Impact

DCD Tier 2, Appendix 9A, Figure 9A.2-3 is being revised as noted in the attached markup to correct building elevation.

RAI 9.5-83 GEH Identifed Discrepancy Matrix

ITEM	DESCRIPTION	DCD Section	Description of change
1	Parameter description refers to 13.8 kW Bus Undervoltage. Voltage should be units of kV, not kW.	T9A.6-1	Replaced kW in T9A.6-1 with kV (3 places). This change is reflected under RAI 9.5-87.
2	Table 9A.5-1 (reactor building Fire Area F1150 Description should be NE not NW.	T9A.5-1 F1150	Revised Description from NonSafety NW quadrant to Nonsafety NE quadrant
3	Table 9A.5-1 (reactor building Fire Area F1152 Description should be SE not NE.	T9A.5-1 F1152	Revised Description from NonSafety NE quadrant to Nonsafety SE quadrant
4	Table 9A.5-1 (reactor building Fire Area F1160 Description should be NW not SW.	T9A.5-1 F1160	Revised Description from NonSafety SW quadrant to Nonsafety NW quadrant
5	Table 9A.5-1 (reactor building Fire Area F1162 Description should be SW not SE.	T9A.5-1 F1162	Revised Description from NonSafety SE quadrant to Nonsafety SW quadrant
6	Table 9A.5-1 (reactor building Fire Area F1191 Radiological release should be "contained within building" not "None, no radiological materials present". This is RB contaminated stair tower.	T9A.5-1 F1191	Revised Radiological release from None, no radiological materials present to "contained within building"
7	Table 9A.5-1 (reactor building Fire Area F1193 Radiological release should be "contained within building" not "None, no radiological materials present". This is RB contaminated stair tower.	T9A.5-1 F1193	Revised Radiological release from None, no radiological materials present to "contained within building"
8	Table 9A.5-1 (reactor building Fire Area F1195 Radiological release should be "contained within building" not "None, no radiological materials present". This is RB contaminated stair tower (interior).	T9A.5-1 F1195	Revised Radiological release from None, no radiological materials present to "contained within building"
9	Table 9A.5-1 (reactor building Fire Area F1196 Radiological release should be "contained within building" not "None, no radiological materials present". This is RB contaminated stair tower (interior).	T9A.5-1 F1196	Revised Radiological release from None, no radiological materials present to "contained within building"
10	Table 9A.5-1 (reactor building Fire Area F1197 Radiological release should be "contained within building" not "None, no radiological materials present". This is RB contaminated stair tower (interior).	T9A.5-1 F1197	Revised Radiological release from None, no radiological materials present to "contained within building"

RAI 9.5-83 GEH Identifed Discrepancy Matrix

11	Table 9A.5-1 (reactor building Fire Area F1198 Radiological release should be "contained within building" not "None, no radiological materials present". This is RB contaminated stair tower (interior).	T9A.5-1 F1198	Revised Radiological release from None, no radiological materials present to "contained within building"
12	S9A.6.4.13 Subsection should reflect Safety-Related Instrumentation in Turbine Building and Electrical Building as reflected in Table 9A.6-1.	S9A.6.4.13	Revised title and first sentence of S 9A.6.4.13 from "Safety-Related Instrumentation in Turbine Buildings" to "Safety-Related Instrumentation in Turbine Building and Electrical Building"
13	S9A.4 incorrectly implies safety-related equipment can bring the plant to cold shutdown.	S9A.4.1(RB) S9A.4.2 (FB), S9A.4.3 (CB) S9A.4.4 (TB) S9A.4.5 (RW) S9A.4.6 (EB) S9A.4.7 (Yard) S9A.4.8 (SB) S9A.4.9 (SF/WT) S9A.4.10 (ADB)	Revised discussion in S9A.4 to discuss safe shutdown versus cold shutdown.
14	S9A.2.6 provides a generic discussion on separation of nonsafety-related trains. S9A.4 and S9A.5.9 are not consistent with discussion in S9A.2.6 of separation of redundant nonsafety-related systems of which RTNSS is a subset.	S9A.4.9 (SF/WT) S9A.4.10 (ADB) S9A.5.9 (SW)	Revised S9A.4.9, S9A.4.10 and S9A.5.9 to discuss separation of redundant nonsafety-related systems versus RTNSS.
15	The safe shutdown discussion in Fire Area Tables F3301 has an error and F3302 has a typo.	T9A.5-3 F3301 T9A.5-3 F3302	Changed Train A to Train B for F3301. Changed redundant trains to redundant train for F3302.
16	The discussion of the walls of the Ancillary Diesel Building in S9A.4.10 incorrectly discusses "other exterior wall" and uses incorrect grammer.	S9A.4.10	Changed "Other exterior walls" to "Other walls" and corrected grammer.

9A.4 FIRE HAZARD AND SAFE SHUTDOWN ANALYSIS SUMMARY

For fire hazard and safe shutdown analysis for each individual fire area (assuming that automatic and manual fire suppression equipment does not function), see Tables 9A.5-1 through 9A.5-7.

9A.4.1 Reactor Building

As shown on the fire zone drawings (Figures 9A.2-1 through 9A.2-11), with the exception of the Drywell/Containment and Main Steam Tunnel, the Reactor Building is subdivided by 3-hour fire-rated concrete barriers to inhibit fire spread and to limit fire damage to not more than one Safety division. This arrangement allows any combination of the remaining three divisions to ~~bring the reactor to hot standby and then cold shutdown conditions~~achieve and maintain safe shutdown.

Damage from a fire in the upper drywell is limited to one train of safe shutdown components because of the separation of redundant components, low combustible loading, and primary containment inerting; exceptions are justified. Redundant valves are spatially separated and are designed to fail as-is on loss of actuation power.

During plant shutdown, reactor cooling is provided by either the Reactor Water Cleanup/Shutdown Cooling System (RWCU/SDC) or the Fuel and Auxiliary Pools Cooling System (FAPCS). A fire in the lower drywell, could affect the operation of the RWCU/SDC, but not the FAPCS system to maintain core cooling. A fire in the upper drywell does not prevent either the RWCU/SDC or the FAPCS from providing core cooling through the feedwater lines. A fire in the wetwell does not prevent either the RWCU/SDC or FAPCS from providing core cooling. The redundant RWCU/SDC, FAPCS, and Reactor Component Cooling Water System (RCCWS) pumps are powered from separate diesel generator backed electrical load groups.

A fire within the containment does not prevent the FAPCS from providing spent fuel pool cooling. The fire protection system can be used through a cross-connect to provide makeup water to the FAPCS.

Damage from a fire in the lower drywell is also limited to one train of safe shutdown components because of the separation of redundant components, low combustible loading, and primary containment inerting during power operation; and therefore exceptions are justified. Redundant valves are spatially separated and are designed to fail safe on loss of actuation power. Although fire damage may result to both Control Rod Drive (CRD) system and Hydraulic Control Unit (HCU) components from a postulated fire within the lower drywell during a plant outage, there would be no effect to plant safe shutdown because all control rods would already have been inserted into the reactor vessel at the onset of the outage and prior to removing the inerting environment. Further backup of reactor scram capability and maintenance of safe shutdown can be provided by other systems (such as Standby Liquid Control) that are located in other fire areas of the plant.

No additional means of fire detection or suppression is provided for the Isolation Condenser (IC), Passive Containment Cooling System (PCCS), Buffer, Dryer/Separator Storage, Reactor Well, Suppression, and IC/PCC Expansion Pools which are normally filled with water.

- Fire suppression system piping in the Reactor Building is designed and installed to withstand an SSE and remain operational;
- Fire detection and alarm in the Reactor Building is seismically mounted to not collapse; repair or restoration of fire detection and alarm would only require replacement of individual failed components from stored spares; and
- Protection of the fire protection system in the Reactor Building from design-basis storms, tornados, and floods is provided by the Reactor Building structure itself.

9A.4.2 Fuel Building

As shown on the fire zone drawings (Figures 9A.2-1 through 9A.2-11), the Fuel Building is subdivided by 3-hour fire-rated concrete barriers to inhibit fire spread and to limit fire damage to not more than one redundant train of nonsafety-related equipment. The Fuel Building does not contain any safety-related or safe shutdown components, and as such, a fire in the Fuel Building does not affect any of the four divisions used to ~~bring the reactor to hot standby and then cold shutdown conditions~~achieve and maintain safe shutdown.

No additional means of fire detection or suppression is provided for the Spent Fuel Pool which is normally filled with water.

To prevent damage from inadvertent or careless operation, as well as rupture of the fire suppression system, the following design features are included:

- Location of the manual suppression systems within stairwells and outside of rooms containing safety-related components to avoid spray water damage to electrical components;
- Seismic design of standpipes in the Fuel Building;
- Provision of adequately sized floor drains, curbs, equipment bases, and flood containment boundaries to handle the suppression flow;
- Installation of electrical equipment above expected flood level heights; and
- Provisions for curbs around open hatches.

Post-fire recovery for a design basis fire contained to a single Fuel Building fire area would involve all the components (restoration and replenishment of fire protection equipment, forensic investigation, overhaul and salvage, demolition, reconstruction to original design, and testing of restored systems to original requirements) typical of a major industrial fire, as well as the additional radiological, security access, and quality assurance controls unique to a nuclear plant. However, the resources needed to perform this restoration should be no more than that required for a major plant refueling outage. Redundancy provided in safety-related and nonsafety-related systems allows quicker restoration of plant operation, even if at a reduced power level. The inclusion of equipment access paths and hatches for all areas of the Fuel Building not only facilitates original plant construction but also major equipment replacement. Due to these factors, the potential for post-fire recovery for a design basis fire contained to a single Fuel Building fire area is considered better than currently operating nuclear plants.

Fire protection within the Fuel Building is not affected by naturally occurring hazards due to the following reasons:

- Fire barriers are an integral part of the Fuel Building, designed and installed to withstand a Safe Shutdown Earthquake (SSE);
- Fire suppression system piping in the Fuel Building is designed and installed to withstand an SSE and remain operational;
- Fire detection and alarm in the Fuel Building is seismically mounted to not collapse; repair or restoration of fire detection and alarm would only require replacement of individual failed components from stored spares; and
- Protection of the fire protection system in the Fuel Building from design-basis storms, tornados, and floods is provided by the Fuel Building structure itself.

9A.4.3 Control Building

As shown on the fire zone drawings (Figures 9A.2-1 through 9A.2-11), with the exception of the Main Control Room, the Control Building is subdivided by 3-hour fire-rated concrete barriers to inhibit fire spread and to limit fire damage to not more than one Safety division. This arrangement allows any combination of the remaining three divisions to ~~bring the reactor to hot standby and then cold shutdown conditions~~achieve and maintain safe shutdown.

The nonsafety-related MCR HVAC has redundant air handling units, but uses common ductwork. Where the common ductwork for one air handling unit could be exposed to fire involving the other redundant air handling unit, the HVAC ductwork is wrapped or encapsulated in 3-hour fire rated material.

Operators can evacuate the Main Control Room after scramming the reactor. The Safety System and Logic Control (SSLC) automatically actuates the Safety systems. The postulated fire assumes loss of all component functions within the Main Control Room, and spurious actuations are considered in the analysis. In order to cool the plant down, the operators can control the nonsafety-related systems from either Remote Shutdown System (RSS) panel, located in separate fire areas within the Reactor Building.

There are very few cable trays in the Main Control Room Complex. Cable access is through the floor from the divisional rooms below or overhead from the nonsafety-related DCIS rooms above, and consists of power cables in flexible metallic or rigid steel conduit, fiber optic cables for the multiplexed control and instrumentation cables, and hard-wired control cables. There is a raised computer floor to allow distribution of the cables via conduit (flex or rigid) or cable pathways. There is a suspended ceiling; only cables associated with nonsafety-related lighting, the fire alarm system, and communication are routed above the false ceiling. These cables are also in conduit.

Paper within the Control Room Complex is required to be stored in approved containers (cabinets, file cabinets, waste baskets) except when in use.

Manual water spray systems are provided internal to each of the charcoal filters, to provide property protection and limit the spread of the fire.

To prevent damage from inadvertent or careless operation, as well as rupture of the fire suppression system, the following design features are included:

9A.4.4 Turbine Building

As shown on the fire zone drawings (Figures 9A.2-12 through 9A.2-19), the Turbine Building is subdivided by 3-hour fire-rated concrete barriers to inhibit fire spread and to limit fire damage. While the Turbine Building does contain safety-related and safe shutdown components as described in Table 9A.6-1, a fire in the Turbine Building does not affect the ability to ~~bring the reactor to hot standby and then cold shutdown conditions~~achieve and maintain safe shutdown.

Curbs are provided at doorways and around equipment containing significant amount of oil to prevent the spread of flammable liquids.

An automatic deluge system is provided in the open steam tunnel, as a water curtain to provide the separation between Reactor and Turbine Buildings equivalent to a 3-hour fire-rated concrete barrier, and to limit the spread of the fire.

A wet-pipe sprinkler system is provided throughout the areas below the turbine that could be exposed to spreading oil, to provide personnel protection, allow egress, and limit the spread of the fire.

Preaction sprinkler systems are provided throughout the feedwater pump room and on the steam turbine bearings, to provide personnel protection, allow egress, and limit the spread of the fire.

A dry-pipe sprinkler system is provided throughout the main equipment access bay, to provide personnel protection, allow egress, and limit the spread of the fire.

Dry-pilot deluge systems are provided on the turbine hydraulic control fluid reservoir skid and seal oil units, to provide property protection and limit the spread of the fire.

A foam deluge system is provided throughout the lube oil tank room, to provide property protection and limit the spread of the fire.

Manual water spray systems are provided internal to each of the off-gas charcoal adsorbers, to provide property protection and limit the spread of the fire.

To prevent damage from inadvertent or careless operation, as well as rupture of the fire suppression system, the following design features are included:

- Use of preaction type sprinkler systems, supervised with pressurized air and requiring multiple indications of fire prior to discharging water from sprinkler heads, over redundant or critical plant equipment such as turbine bearings;
- Location of the manual suppression systems within stairwells and outside of rooms containing electrical components to avoid spray water damage to electrical components;
- Provision of adequately sized floor drains, curbs, equipment bases, and flood containment boundaries to handle the suppression flow;
- Installation of electrical equipment above expected flood level heights; and
- Provisions for curbs around open hatches.

Post-fire recovery for a design basis fire contained to a single Turbine Building fire area would involve all the components (restoration and replenishment of fire protection equipment, forensic investigation, overhaul and salvage, demolition, reconstruction to original design, and testing of restored systems to original requirements) typical of a major industrial fire, as well as the

additional radiological, security access, and quality assurance controls unique to a nuclear plant. However, the resources needed to perform this restoration should be no more than that required for a major plant refueling outage. Redundancy provided in nonsafety-related systems allows quicker restoration of plant operation, even if at a reduced power level. The inclusion of equipment access paths and hatches for all areas of the Turbine Building not only facilitates original plant construction but also major equipment replacement. Due to these factors, the potential for post-fire recovery for a design basis fire contained to a single Turbine Building fire area is considered better than currently operating nuclear plants.

The following features minimize or mitigate the effect of naturally occurring hazards on fire protection within the Turbine Building:

- Fire barriers are an integral part of the Turbine Building, designed and installed as required by the IBC for applicable seismic, wind, hydrodynamic, etc, conditions;
- Fire suppression system piping in the Turbine Building is designed and installed to meet NFPA 13 seismic requirements; and
- Protection of the fire protection system in the Turbine Building from design-basis storms, tornados, and floods is provided by the Turbine Building structure itself.

9A.4.5 Radwaste Building

As shown on the fire zone drawings (Figures 9A.2-20 through 9A.2-24), the Radwaste Building is subdivided by 3-hour fire-rated concrete barriers to inhibit fire spread and to limit fire damage. The Radwaste Building does not contain any safety-related or safe shutdown components, and as such, a fire in the Radwaste Building does not affect any equipment required to ~~bring the reactor to hot standby and then cold shutdown conditions~~achieve and maintain safe shutdown.

A wet-pipe sprinkler system is provided throughout the radwaste handling portion of the Radwaste Building, to provide personnel protection, allow egress, and limit the spread of the fire.

A manual water spray system is provided internal to the charcoal filter, to provide property protection and limit the spread of the fire.

Although the Radwaste Building contains radiological materials, fire within any given fire area does not create a radiological release in excess of 10 CFR 20 limits.

To prevent damage from inadvertent or careless operation, as well as rupture of the fire suppression system, the following design features are included:

- Location of the manual suppression systems within stairwells and outside of rooms containing electrical components to avoid spray water damage to electrical components;
- Provision of adequately sized floor drains, curbs, equipment bases, and flood containment boundaries to handle the suppression flow;
- Installation of electrical equipment above expected flood level heights; and
- Provisions for curbs around open hatches.

Post-fire recovery for a design basis fire contained to a single Radwaste Building fire area would involve all the components (restoration and replenishment of fire protection equipment, forensic investigation, overhaul and salvage, demolition, reconstruction to original design, and testing of

restored systems to original requirements) typical of a major industrial fire, as well as the additional radiological, security access, and quality assurance controls unique to a nuclear plant. However, the resources needed to perform this restoration should be no more than that required for a major plant refueling outage. Redundancy provided in nonsafety-related systems allows quicker restoration of plant operation, even if at a reduced power level. The inclusion of equipment access paths and hatches for all areas of the Radwaste Building not only facilitates original plant construction but also major equipment replacement. Due to these factors, the potential for post-fire recovery for a design basis fire contained to a single Radwaste Building fire area is considered better than currently operating nuclear plants.

The following features minimize or mitigate the effect of naturally occurring hazards on fire protection within the Radwaste Building:

- Fire barriers are an integral part of the Radwaste Building, designed and installed as required by the IBC for applicable seismic, wind, hydrodynamic, etc, conditions;
- Fire suppression system piping in the Radwaste Building is designed and installed to meet NFPA 13 seismic requirements; and
- Protection of the fire protection system in the Radwaste Building from design-basis storms, tornados, and floods is provided by the Radwaste Building structure itself.

9A.4.6 Electrical Building

As shown on the fire zone drawings (Figures 9A.2-25 through 9A.2-32), the Electrical Building is subdivided by 3-hour fire-rated concrete barriers to inhibit fire spread and to limit fire damage to not more than one redundant train of nonsafety-related equipment. While the Electrical Building does contain safety-related and safe shutdown components as described in Table 9A6.1, a fire in the Electrical Building does not affect the ability to bring the reactor to ~~hot standby and then cold shutdown conditions~~achieve and maintain safe shutdown.

A fire within any of the fire areas associated with either standby diesel generator (SDG) is assumed to damage all components within the fire area resulting in loss of all function and consequential damage, including a spurious operation of any one component. Damage to the components in the fire area only affects the operation of one of the two nonsafety-related SDGs and does not affect the passive safe shutdown components or redundant nonsafety-related SDG or train of active components from performing their functions.

Curbs are provided at doorways and around equipment containing significant amount of oil, to prevent the spread of flammable liquids.

There are cable trays in the Technical Support Center. Cables consist of power cables in flexible metallic rigid steel conduit, fiber optic cables for the multiplexed information and instrumentation cables, and a few hard-wired control cables. There is a raised computer floor to allow distribution of the few cables via conduit (flex or rigid) or cable pathways. There is a suspended ceiling but only cables associated with nonsafety-related lighting, the fire alarm system, and communication. These cables are also in conduit.

Paper within the Technical Support Center is required to be stored in approved containers (cabinets, file cabinets, waste baskets) except when in use.

- Protection of the fire protection system in the Electrical Building from design-basis storms, tornados, and floods is provided by the Electrical Building structure itself.

9A.4.7 Yard

The Yard loop provides fire water to all external portions of the plant, as well as various buildings in the plant. Only those portions of the Yard containing equipment associated with Turbine and Electrical Buildings are included at this time; the COL applicant shall include fire zone drawings for those portions of the Yard except for that associated with Turbine and Electrical Building equipment (COL 9A.7-1-A).

The Fire Pump Enclosure and Ancillary diesel Building are supplied firewater by the primary fire protection system; however these building are only identified on the Yard drawing. Therefore, the FHA Tables and discussion are included in this Subsection.

This FHA includes an evaluation of the Pump House, Guard House, Hot Machine Shop, Service Water/Water Treatment Building (see Subsection 9A.4.9), Cold Machine Shop, Warehouse, Training Center, Service Building (see Subsection 9A.4.8), Fire Pump Enclosure (see Subsection 9A.4.11), Ancillary Diesel Building (see subsection 9A.4.10), Auxiliary Boiler Building, and Administration Building. A more detailed evaluation of the Service Water/Water Treatment Building, Service Building, and Yard will be added during the Combined Construction and Operating License (COL) application for a specific site (COL 9A.7-2-A).

As shown on Turbine Building and Electrical Building fire zone drawings (Figures 9A.2-13 and 9A.2-25) as well as Site fire zone drawing (Figure 9A.2-33), the significant outdoor fire hazards are separated by 3-hour fire-rated concrete barriers to inhibit fire spread and to limit fire damage to not more than one redundant train of nonsafety-related equipment. The Yard does not contain any safety-related or safe shutdown components, and as such, a fire in the Yard does not affect any of the four divisions used to ~~bring the reactor to hot standby and then cold shutdown conditions~~achieve and maintain safe shutdown.

Foam deluge systems are provided on each fuel oil storage tank and the lube oil storage area, to provide property protection and limit the spread of fire.

Automatic deluge systems are provided on each Main, Unit Auxiliary, and Reserve Auxiliary transformer, to provide property protection and limit the spread of fire.

Wet-pipe sprinkler systems are provided throughout each of the cable tunnels, and the Administration Building, to provide personnel and property protection, allow egress, and limit the spread of the fire.

A dry-pipe sprinkler system is provided throughout the Warehouse, to provide personnel and property protection, allow egress, and limit the spread of the fire.

A preaction sprinkler system is provided throughout the Training Center, to provide personnel and property protection, allow egress, and limit the spread of the fire.

To prevent damage from inadvertent or careless operation, as well as rupture of the fire suppression system, the following design features are included:

9A.4.8 Service Building

The Service Building does not contain any system or function that could affect the operation or shutdown of the reactor, nor does it contain any significant hazards. The Service Building does not contain any safety-related or safe shutdown components, and as such, a fire in the Service Building does not affect any of the four divisions used to ~~bring the reactor to hot standby and then cold shutdown conditions~~achieve and maintain safe shutdown.

The basic fire protection features are presented in a method similar to that used for other buildings.

The Service Building is a Seismic Category II structure. It has controlled access tunnels to the Reactor Building, the Turbine Building, the Radwaste Building, and the Electrical Building. The exterior wall facing these buildings is a 3-hour barrier constructed of fire-resistive concrete. The controlled access doors in this wall are rated 3-hour fire resistive, Class A doors. Other exterior walls are constructed of concrete, or of gypsum board mounted on metal studs. The stairwells are required for personnel access and egress in the event of a fire and are protected with minimum 2-hour barriers in accordance with the Life Safety Code, NFPA 101.

Due to possible variations of the fire loading during operation, the facility is fully equipped with an automatic wet-pipe sprinkler system combined with standpipes, hose systems and portable extinguishers throughout its interior. The wet-pipe sprinkler system is designed for Light Hazard Occupancy, 4.2 L/min/m^2 (0.10 gpm/ft^2).

Fire detection is provided throughout the Service Building with the use of Class A supervised product-of-combustion detection systems. Alarms, both trouble and fire, report to the Main Control Room. Fire alarms are sounded throughout the Service Building. Manual fire alarm pull boxes are located at each fire hose and at extinguisher stations.

ABC dry chemical portable fire extinguishers are provided on each floor of the facility, located at or near the hose stations and alarm pull boxes. Additional portable fire extinguishers are provided in various locations for convenience, or where increased human activity is anticipated.

Wall, floor, and ceiling penetrations for piping, HVAC, and cable trays are sealed where needed for HVAC control. However, fire dampers or stops are provided only where required for personnel protection, as the nature of the activities within the building, coupled with the complete sprinkler coverage, precludes the need to provide multiple fire areas within the Service Building.

To prevent damage from inadvertent or careless operation, as well as rupture of the fire suppression system, the following design features are included:

- Location of the manual suppression systems within stairwells and outside of rooms containing electrical components to avoid spray water damage to electrical components;
- Provision of adequately sized floor drains, curbs, equipment bases, and flood containment boundaries to handle the suppression flow;
- Installation of electrical equipment above expected flood level heights;
- Provisions for curbs around open hatches.

The following features minimize or mitigate the effect of naturally occurring hazards on fire protection within the Service Building:

- Fire barriers are an integral part of the Service Building, designed and installed as required by the IBC for applicable seismic, wind, hydrodynamic, etc, conditions;
- Fire suppression system piping in the Service Building is designed and installed to meet NFPA 13 seismic requirements;
- Protection of the fire protection system in the Service Building from design-basis storms, tornados, and floods is provided by the Service Building structure itself.

9A.4.9 Service Water/Water Treatment Building

The Service Water/Water Treatment Building (SF/WT) does not contain any system or function that could affect the operation or shutdown of the reactor, nor does it contain any significant hazards. The SF/WT does not contain any safety-related or safe shutdown components, and as such, a fire in the SF/WT does not affect any of the four divisions used to ~~bring the reactor to hot standby and then cold shutdown conditions~~achieve and maintain safe shutdown. However, ~~this building contains Service Water equipment, which has Regulatory Treatment of Non Safety Systems (RTNSS) functions. Fire barriers of three hour minimum fire resistance rating shall be provided separating redundant RTNSS trains~~the SF/WT is subdivided by 3-hour fire-rate concrete barriers to inhibit fire spread and to limit fire damage to not more than one redundant train of nonsafety-related Service Water equipment. The basic fire protection features are presented in a method similar to that used for other buildings.

The SF/WT is a non-seismic structure, and may be attached to the Cooling Towers. None of the walls or floors are required to be fire-rated, except ~~for the RTNSS~~where separating redundant components and per Life Safety Code, NFPA 101. Stairwells are required for personnel access and egress in the event of a fire and therefore are protected with minimum 2-hour barriers in accordance with the Life Safety Code, NFPA 101.

Fire detection is provided throughout the SF/WT with the use of Class A supervised product-of-combustion detection systems. Alarms, both trouble and fire, report to the Main Control Room.

ABC dry chemical portable fire extinguishers are provided on each floor of the facility, located at or near the hose stations and alarm pull boxes. Additional portable fire extinguishers are provided in various locations for convenience, or where increased human activity is anticipated.

To prevent damage from inadvertent or careless operation, as well as rupture of the fire suppression system, the following design features are included:

- Location of the manual suppression systems within stairwells and outside of rooms containing electrical components to avoid spray water damage to electrical components;
- Provision of adequately sized floor drains, curbs, equipment bases, and flood containment boundaries to handle the suppression flow;
- Provisions for curbs around open hatches.

9A.4.10 Ancillary Diesel Building

The Ancillary Diesel Building (ADB) is a Seismic Category II structure that contains redundant Ancillary Diesel Generator equipment~~, which has (RTNSS) functions~~. This building does not contain any other systems or functions that could affect the operation or shutdown of the reactor, ~~nor does it contain any significant hazards~~. However, fuel oil storage tanks for the Ancillary Diesel Generators are located within the ADB. The ADB does not contain any safety-related components, and as such, a fire in the ADB does not affect any of the four divisions used to ~~bring the reactor to hot standby~~achieve and maintain safe shutdown. ~~However, the Ancillary Diesel Generators are credited for bringing the unit to cold shutdown conditions.~~

A fire within any of the fire areas associated with either ancillary diesel generator is assumed to damage all components within the fire area resulting in loss of all function and consequential damage, including a spurious operation of any one component. Damage to the components in the fire area only affects the operation of one of the two nonsafety-related ancillary diesel generators and does not affect the passive safe shutdown components or redundant nonsafety-related ancillary diesel generator or train of active components from performing their functions.

Curbs are provided at doorways and around equipment containing significant amount of oil, to prevent the spread of flammable liquids.

Preaction foam sprinkler systems are provided throughout each of the ancillary diesel generator rooms, to provide personnel protection, allow egress, and limit the spread of the fire. Foam deluge systems are provided throughout each of the fuel oil tank rooms, to provide property protection and limit the spread of the fire. The basic fire protection features are presented in a method similar to that used for other buildings.

The ADB is a completely separate Seismic Category II structure. The exterior walls of this building ~~is a~~are 3-hour barriers constructed of fire-resistive concrete. The controlled access doors in ~~this~~ these walls are rated 3-hour fire resistive, Class A doors. Other ~~exterior~~ walls are constructed of concrete, or of gypsum board mounted on metal studs. The ADB is a one-story building.

~~Due to possible variations of the fire loading during operation, the facility is fully equipped with an automatic wet pipe sprinkler system combined with standpipes, hose systems and portable extinguishers throughout its interior. The wet pipe sprinkler system is designed for Light Hazard Occupancy, 4.2 L/min/m^2 (0.10 gpm/ft^2).~~

Fire detection is provided throughout the ADB ~~with the use of Class A supervised product of combustion detection systems~~. Alarms, both trouble and fire, report to the Main Control Room. ~~Fire alarms are sounded throughout the Service Building.~~ Manual fire alarm pull boxes are located at ~~each fire hose and at extinguisher stations~~building exits.

ABC dry chemical portable fire extinguishers are provided for the facility, located at or near the hose stations and alarm pull boxes. Additional portable fire extinguishers are provided in various locations for convenience, or where increased human activity is anticipated.

~~Wall, floor, and ceiling penetrations for piping, HVAC, and cable trays are sealed where needed for HVAC control. However, fire dampers or stops are provided only where required for personnel protection, as the nature of the activities within the building, coupled with the complete sprinkler coverage, precludes the need to provide multiple fire areas within the ADB.~~

9A.5.9 Service Water/Water Treatment Building

The SF/WT building is protected in accordance with applicable NFPA codes. This building contains redundant Service Water equipment~~, which has Regulatory Treatment of Non Safety Systems (RTNSS) functions~~. The SF/WT is site specific and is designed by the COL applicant. The applicant will provide additional information (Reference Subsection 9A.4.7).

9A.5.10 Ancillary Diesel Building

See Table 9A.5-7 for detailed fire hazards analysis of each fire area within the ADB.

See Figures 9A.2-33 for ADB location.

9A.5.11 Fire Pump Enclosure

See Table 9A.5-7 for detailed fire hazards analysis of each fire area within the Fire Pump Enclosure.

See Figures 9A.2-33 for Fire Pump Enclosure location

9A.6.4.12 Main Control Room Separation

All four divisions are present in the Main Control Room. In the event of a fire the Main Control Room is evacuated and plant shutdown is controlled from the independent divisionally separated Remote Shutdown System. Operators can evacuate the Main Control Room after scramming the reactor. The Safety System and Logic Control (SSLC) automatically actuates the safety systems. The postulated fire assumes loss of all component functions within the Main Control Room, and spurious actuations are considered in the analysis. In order to cool the plant down, the operators can control the nonsafety-related systems from either Remote Shutdown System (RSS) panel, located in separate fire areas within the Reactor Building.

9A.6.4.13 Safety-Related Instrumentation in Turbine and Electrical Buildings

Safety-related devices within the Turbine Building and Electrical Building are limited to the instrumentation listed in the Table 9A.6-1.

The safety-related RPS input devices listed in the table provide a monitoring function of the measured parameter. The devices listed in the Table 9A.6-1 are provided for DCD Tier 2, Chapter 15, Analysis of Anticipated Operating Occurrences, and DCD Tier 2, Chapter 15, Analysis of Infrequent Events, and do not perform a safe-shutdown function in the event of a fire.

The cables associated with these devices are routed in individual raceway specific to their associated division, and are separated in accordance with IEEE 384 criteria and Subsection 8.3.1.4.1. Since these devices and their associated cables do not perform a safe shutdown function, complete burnout of all of these devices and their associated cables within their fire area does not affect the ability to achieve and maintain post-fire safe-shutdown, as shown in the Table 9A.6-1.

9A.6.5 Comparison to BTP SBLP 9.5-1 and Regulatory Guide 1.189

The ESBWR fire protection design follows the recommendations of BTP SPLB 9.5-1 and Regulatory Guide 1.189 with the following exceptions:

9A.6.5.1 No Fire Detection within Electrical Cabinets in Main Control Room Complex

Section 7.1.4 of BTP SPLB 9.5-1 recommends that electrical cabinets should be protected as described in Regulatory Guide 1.189. Section 6.1.2.2 of Regulatory Guide 1.189 states in part:

"Smoke detectors should be provided in the control room, cabinets, and consoles."

Consoles and electrical cabinets do not have fire detectors installed inside them.

Justification: The electrical cabinets and consoles contain limited combustibles and are air-cooled so that smoke from an interior fire exhausts to the room. Early warning fire detection, primarily consisting of ionization smoke detectors, is provided in all rooms containing consoles or electrical cabinets. A fire in any single cabinet or console does not disable the capability to safely shut down the plant. Except in the Main Control Room Complex, all safety-related electrical cabinets and consoles are located in divisional rooms, and all divisional rooms are separated from each other by 3-hour fire-rated barriers such that a single fire does not affect electrical cabinets or consoles from multiple divisions. The Main Control Room Complex is continuously manned so that any fire is quickly detected and manual fire suppression activities

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	F1150	Description:	Nonsafety NE quadrant
Building:	Reactor	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804
DCD Fig:		Building code occupancy classification:	F-1
9A.2-1	9A.2-6	Electrical classification:	none
9A.2-2	9A.2-7	Safety-related divisional equipment or cables:	1
9A.2-3	9A.2-8	Nonsafety-related redundant trains or equipment or cables:	A
9A.2-4	9A.2-10	Surrounded by fire barriers rated at:	3 hours
9A.2-5	9A.2-11	Except:	basemat (non-rated); elevator doors (1.5 hr rated)

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-11500	1100	Electrical equipment Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks (in nearby stairwells)	CO2 fire extinguishers, ABC fire extinguishers
	1150, 1151	Class IIIB lubricants				ABC fire extinguishers
-6400	1250, 1293	Cable insulation				
-1000	1300, 1304, 1293					
4650	1400 below floor 1293	Cable insulation				
5050	1400	Cable insulation			CO2 fire extinguishers	Hose racks (in nearby stairwells)
9060	1500, 1293	Electrical equipment				
13570 17500 27000	1293					

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	**F1150 (continued)**	Description:	**Nonsafety NE quadrant**

< 700 EL 4650 & below; < 1400 EL 5050 & above	Anticipated combustible load, MJ/m2
700 EL 4650 & below; 1400 EL 5050 & above	Unsprinklered combustible load limit, MJ/m2

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**Reactor scram**
Radiological release:	**Contained within building**
Life safety:	**Travel distance limits to EXITs meet NFPA 101**
Manual firefighting:	**Access via stairwells**
Property loss:	**Moderate**

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area results in loss of only Division I shutdown equipment and circuits, as well as loss of redundant train A; remaining three divisions of safe shutdown and redundant train B are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable. Both A and B nonsafety-related on-site power sources are unaffected by fire and are operable.

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	F1152	Description:	Nonsafety SE quadrant
Building:	Reactor	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804
DCD Fig:	9A.2-1, 9A.2-2, 9A.2-3, 9A.2-4, 9A.2-5, 9A.2-6, 9A.2-7, 9A.2-8, 9A.2-10	Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	3
		Nonsafety-related redundant trains or equipment or cables:	A
		Surrounded by fire barriers rated at:	3 hours
		Except:	basemat (non-rated); elevator doors (1.5 hr rated)

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-11500	1101, 1106, 1152	Class IIIB lubricants, Cable insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers
	1153		Area-wide photoelectric			
-6400	1204, 1294		Area-wide ionization			
-1000	1301, 1306, 1294					
4650	1401 below floor 1294	Cable insulation				
5050	1401	Cable insulation			CO_2 fire extinguishers	Hose racks (in nearby
9060	1501, 1294	Electrical equipment				
13570, 17500, 27000	1294					

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	**F1152 (continued)**	Description:	**Nonsafety SE quadrant**
< 700 EL 4650 & below; < 1400 EL 5050 & above	Anticipated combustible load, MJ/m2	Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:	
700 EL 4650 & below; 1400 EL 5050 & above	Unsprinklered combustible load limit, MJ		

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**Reactor scram**
Radiological release:	**Contained within building**
Life safety:	**Travel distance limits to EXITs meet NFPA 101**
Manual firefighting:	**Access via stairwells**
Property loss:	**Moderate**

Complete burnout of all equipment and cables within this Fire Area results in loss of only Division III shutdown equipment and circuits, as well as loss of redundant train A; remaining three divisions of safe shutdown and redundant train B are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable. Both A and B nonsafety-related on-site power sources are unaffected by fire and are operable.

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	F1160	Description:	Nonsafety NW quadrant
Building:	Reactor	Applicable codes:	~~IBC; Reg Guide 1.189;~~ NFPA 10, 14, 72, 90A, 101, 804
DCD Fig:		Building code occupancy classification:	F-1
9A.2-1, 9A.2-6		Electrical classification:	none
9A.2-2, 9A.2-7		Safety-related divisional equipment or cables:	4
9A.2-3, 9A.2-8		Nonsafety-related redundant trains or equipment or cables:	B
9A.2-4, 9A.2-10		Surrounded by fire barriers rated at:	3 hours
9A.2-5, 9A.2-11		Except:	basemat (non-rated)

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-11500	1103	Electrical equipment Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks (in nearby stairwells)	CO_2 fire extinguishers, ABC fire extinguishers
	1160, 1161	Class IIIB lubricants				ABC fire extinguishers
-6400	1260 1296	Cable insulation				
-1000	1303, 1305, 1296					
4650	1403 below floor 1296	Cable insulation				
5050	1403	Cable insulation			CO_2 fire extinguishers	Hose racks (in nearby stairwells)
9060	1503, 1296	Electrical equipment				
13570 17500 27000	1296					

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	**F1160 (continued)**	Description:	**Nonsafety NW quadrant**
< 700 EL 4650 & below; < 1400 EL 5050 & above	Anticipated combustible load, MJ/m2	Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:	
700 EL 4650 & below; 1400 EL 5050 & above	Unsprinklered combustible load limit, MJ/m2		

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**Reactor scram**
Radiological release:	**Contained within building**
Life safety:	**Travel distance limits to EXITs meet NFPA 101**
Manual firefighting:	**Access via stairwells**
Property loss:	**Moderate**

Complete burnout of all equipment and cables within this Fire Area results in loss of only Division 4 shutdown equipment and circuits, as well as loss of redundant train B; remaining three divisions of safe shutdown and redundant train A are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable. Both A and B nonsafety-related on-site power sources are unaffected by fire and are operable.

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	F1162	Description:	Nonsafety SW quadrant
Building:	Reactor	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804
DCD Fig:	9A.2-1, 9A.2-2, 9A.2-3, 9A.2-4, 9A.2-5, 9A.2-6, 9A.2-7, 9A.2-8, 9A.2-9	Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	2
		Nonsafety-related redundant trains or equipment or cables:	B
		Surrounded by fire barriers rated at:	3 hours
		Except:	basemat (non-rated); elevator doors (1.5 hr rated)

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-11500	1102, 1162	Class IIIB lubricants, Cable insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers
	1163		Area-wide photoelectric			
-6400, -1000	1295		Area-wide ionization			
4650	1402, below floor, 1295	Cable insulation				
5050	1402	Cable insulation, Electrical equipment			CO2 fire extinguishers	Hose racks (in nearby stairwells)
9060	1502, 1295					
13570, 17500, 27000, 34000	1295					

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	**F1162 (continued)**	Description	**Nonsafety SW quadrant**
< 700 EL 4650 & below; < 1400 EL 5050 & above		Anticipated combustible load, MJ/m2	
700 EL 4650 & below; 1400 EL 5050 & above		Unsprinklered combustible load limit, MJ/m2	

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**Reactor scram**
Radiological release:	**Contained within building**
Life safety:	**Travel distance limits to EXITs meet NFPA 101**
Manual firefighting:	**Access via stairwells**
Property loss:	**Moderate**

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area results in loss of only Division 2 shutdown equipment and circuits, as well as loss of redundant train B; remaining three divisions of safe shutdown and redundant train A are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable. Both A and B nonsafety-related on-site power sources are unaffected by fire and are operable.

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	F1191	Description:	Stairwell B
Building:	Reactor	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804
		Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	none
		Surrounded by fire barriers rated at:	3 hours
		Except:	basemat (non-rated)

DCD Fig:

9A.2-1	9A.2-6
9A.2-2	9A.2-7
9A.2-3	9A.2-8
9A.2-4	9A.2-9
9A.2-5	

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-11500	1191	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-6400						
-1000						
4650						
9060						
13570						
17500						
27000						
34000						
37000						

negligible	Anticipated combustible load, MJ/m2	Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:
700	Unsprinklered combustible load limit, MJ/m2	Complete burnout of all equipment and cables within this Fire Area affects no safety-related equipment; all safety divisions and both redundant trains A and B are operable.

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	Contained within building
Life safety:	Travel distance limits to EXITs meet NFPA 101
Manual firefighting:	Access via exterior and interior doors
Property loss:	Negligible

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	F1193	Description:	Stairwell D
Building:	Reactor	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804
		Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	none
		Surrounded by fire barriers rated at:	3 hours
		Except:	basemat (non-rated)

DCD Fig:

9A.2-1	9A.2-6
9A.2-2	9A.2-7
9A.2-3	9A.2-8
9A.2-4	9A.2-9
9A.2-5	

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-11500	1193	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-6400						
-1000						
4650						
9060						
13570						
17500						
27000						
34000						

negligible	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects no safety-related equipment; all safety divisions and both redundant trains A and B are operable.

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	Contained within building
Life safety:	Travel distance limits to EXITs meet NFPA 101
Manual firefighting:	Access via exterior and interior doors
Property loss:	Negligible

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	**F1195**	Description:	**Interior Stairwell A**
Building:	**Reactor**	Applicable codes:	**IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804**
DCD Fig:	**9A.2-1** **9A.2-2** **9A.2-3**	Building code occupancy classification:	**F-1**
		Electrical classification:	**none**
		Safety-related divisional equipment or cables:	**none**
		Nonsafety-related redundant trains or equipment or cables:	**none**
		Surrounded by fire barriers rated at:	**3 hours**
		Except:	**basemat (non-rated)**

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-11200 **-9100** **-6400** **-1000**	**1195**	**None**	**Area-wide ionization**	**Manual pulls (outside stairwell at each landing)**	**Hose racks**	**ABC fire extinguishers**

negligible	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**None**
Radiological release:	**Contained within building**
Life safety:	**Travel distance limits to EXITs meet NFPA 101**
Manual firefighting:	**Access via interior doors**
Property loss:	**Negligible**

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects no safety-related equipment; all safety divisions and both redundant trains A and B are operable.

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	**F1196**	Description:	**Interior Stairwell B**
Building:	**Reactor**	Applicable codes:	**IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804**
DCD Fig:	**9A.2-1** **9A.2-2**	Building code occupancy classification:	**F-1**
		Electrical classification:	**none**
		Safety-related divisional equipment or cables:	**none**
		Nonsafety-related redundant trains or equipment or cables:	**none**
		Surrounded by fire barriers rated at:	**3 hours**
		Except:	**basemat (non-rated)**

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-11200 **-9100**	**1196**	**None**	**Area-wide ionization**	**Manual pulls (outside stairwell at each landing)**	**Hose racks**	**ABC fire extinguishers**

negligible	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects no safety-related equipment; all safety divisions and both redundant trains A and B are operable.

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**None**
Radiological release:	**Contained within building**
Life safety:	**Travel distance limits to EXITs meet NFPA 101**
Manual firefighting:	**Access via interior doors**
Property loss:	**Negligible**

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	F1197	Description:	Interior Stairwell C
Building:	Reactor	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804
DCD Fig:	9A.2-1 9A.2-2	Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	none
		Surrounded by fire barriers rated at:	3 hours
		Except:	basemat (non-rated)

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-11200 -6400	1197	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers

negligible	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	Contained within building
Life safety:	Travel distance limits to EXITs meet NFPA 101
Manual firefighting:	Access via interior doors
Property loss:	Negligible

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects no safety-related equipment; all safety divisions and both redundant trains A and B are operable.

Table 9A.5-1
Reactor Building (Cont.)

Fire Area:	**F1198**	Description:	**Interior Stairwell D**
Building:	**Reactor**	Applicable codes:	**IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804**
DCD Fig:	**9A.2-1** **9A.2-2**	Building code occupancy classification:	**F-1**
		Electrical classification:	**none**
		Safety-related divisional equipment or cables:	**none**
		Nonsafety-related redundant trains or equipment or cables:	**none**
		Surrounded by fire barriers rated at:	**3 hours**
		Except:	**basemat (non-rated)**

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-11200 **-9100** **-6400**	**1198**	**None**	**Area-wide ionization**	**Manual pulls (outside stairwell at each landing)**	**Hose racks**	**ABC fire extinguishers**

negligible	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**None**
Radiological release:	**Contained within building**
Life safety:	**Travel distance limits to EXITs meet NFPA 101**
Manual firefighting:	**Access via interior doors**
Property loss:	**Negligible**

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects no safety-related equipment; all safety divisions and both redundant trains A and B are operable.

Table 9A.5-3
Control Building (cont.)

Fire Area:	F3110	Description:	Division 1 Electrical
Building:	Control	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 90A, 101, 804
DCD Fig:		Building code occupancy classification:	F-1
9A.2-2		Electrical classification:	none
9A.2-3		Safety-related divisional equipment or cables:	1
9A.2-4		Nonsafety-related redundant trains or equipment or cables:	A
9A.2-5		Surrounded by fire barriers rated at:	3 hours
9A.2-11		Except:	basemat (non-rated)

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-7400	duct bank	Cable insulation	None	None	None	None
	3110 below floor		Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO2 fire extinguishers	Hose racks (in nearby stairwells)
-6800	3110	Cable insulation Electrical equipment				
-2000	3250				Hose racks (in nearby stairwells)	ABC fire extinguishers
-1400	3251					
5250						
9060		Class IIIB lubricants				
	3403	Cable insulation				
	3406	Filter media				
	Charcoal Filter	Charcoal	HVAC temperature indication		Internal manual spray	

Table 9A.5-3
Control Building (cont.)

Fire Area:	F3130	Description:	Division 3 Electrical
Building:	Control	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 90A, 101, 804
DCD Fig:		Building code occupancy classification:	F-1
9A.2-2		Electrical classification:	none
9A.2-3		Safety-related divisional equipment or cables:	3
9A.2-4		Nonsafety-related redundant trains or equipment or cables:	B
9A.2-5		Surrounded by fire barriers rated at:	3 hours
		Except:	basemat (non-rated)

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-7400	duct bank	Cable insulation	None	None	None	None
	3130 below floor		Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO_2 fire extinguishers	Hose racks (in nearby stairwells)
-6800	3130	Cable insulation Electrical equipment Insulation				
-1400	3260, 3261				Hose racks (in nearby stairwells)	ABC fire extinguishers
4650						
9060	3404 3407	Class IIIB lubricants Cable insulation Filter media				
	Charcoal Filter	Charcoal	HVAC temperature indication		Internal manual spray	

Table 9A.5-3
Control Building (cont.)

Fire Area:	F3301	Description:	Nonsafety-related Electrical Train A
Building:	Control	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 101, 804
DCD Fig:	9A.2-3 9A.2-4 9A.2-11	Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	A
		Surrounded by fire barriers rated at:	3 hours
		Except:	none

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-2000	electrical chase	Cable insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO2 fire extinguishers	Hose racks (in nearby stairwells)
4650	3301 below access floor					
5250	3301	Electrical equipment				
9060	3401, 3402	Cable insulation				

< 1400	Anticipated combustible load, MJ/m2
1400	Unsprinklered combustible load limit, MJ/m2

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects no safety-related or safe shutdown equipment; all safety divisions and redundant train B are operable.

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	None, no radiological materials present
Life safety:	Travel distance limits to EXITs meet NFPA 101
Manual firefighting:	Access via stairwells
Property loss:	Significant

Table 9A.5-3
Control Building (cont.)

Fire Area:	**F3302**	Description:	**Nonsafety-related Electrical Train B**
Building:	**Control**	Applicable codes:	**IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 101, 804**
DCD Fig:	**9A.2-4** **9A.2-11**	Building code occupancy classification:	**F-1**
		Electrical classification:	**none**
		Safety-related divisional equipment or cables:	**none**
		Nonsafety-related redundant trains or equipment or cables:	**B**
		Surrounded by fire barriers rated at:	**3 hours**
		Except:	**none**

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	**3302 below access floor**	**Cable insulation**	**Area-wide ionization**	**Manual pulls (outside stairwell at each landing)**	**CO2 fire extinguishers**	**Hose racks (in nearby stairwells)**
5250	**3302**	**Electrical equipment Cable insulation**				

< 1400	Anticipated combustible load, MJ/m2
1400	Unsprinklered combustible load limit, MJ/m2

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**None**
Radiological release:	**None, no radiological materials present**
Life safety:	**Travel distance limits to EXITs meet NFPA 101**
Manual firefighting:	**Access via stairwells**
Property loss:	**Significant**

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects no safety-related or safe shutdown equipment; all safety divisions and redundant train A are operable.

Table 9A.5-6, Electrical Building (Cont.)

Fire Area:	F5153	Description:	Stand-by Diesel Generator A
Building:	Electrical	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 13, 16, 24, 37, 72, 101, 804
DCD Fig:	9A.2-25 9A.2-26	Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	A
		Surrounded by fire barriers rated at:	3 hours
		Except:	basemat (non-rated)

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650 9800	5153	Cable insulation Class IIIB lubricants Class II fuel oil	Cross-zoned UV/IR and spot heat	Suppression flowswitch	Preaction foam sprinkler 10.2 L/min per m2 over entire area	Hydrants

> 700	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	None, no radiological materials present
Life safety:	Travel distance limits to EXITs meet NFPA 101
Manual firefighting:	Access via doors
Property loss:	Significant

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects only redundant train A on-site power and related equipment and no Safety Related equipment. All redundant train B on-site power and related equipment is operable.

Table 9A.5-6, Electrical Building (Cont.)

Fire Area:	**F5163**
Building:	**Electrical**
DCD Fig:	**9A.2-25** **9A.2-26** **9A.2-32**
Description:	**Stand-by Diesel Generator B**
Applicable codes:	**IBC; Reg Guide 1.189; NFPA 10, 13, 16, 24, 37, 72, 101, 804**
Building code occupancy classification:	**F-1**
Electrical classification:	**none**
Safety-related divisional equipment or cables:	**none**
Nonsafety-related redundant trains or equipment or cables:	**B**
Surrounded by fire barriers rated at:	**3 hours**
Except:	**basemat (non-rated)**

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650 9800 18000	**5163**	**Cable insulation Class IIIB lubricants Class II fuel oil**	**Cross-zoned UV/IR and spot heat**	**Suppression flowswitch**	**Preaction foam sprinkler 10.2 L/min per m2 over entire area**	**Hydrants**

> 700	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects only redundant train B on-site power and related equipment and no Safety Related equipment. All redundant train A on-site power and related equipment is operable.

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**None**
Radiological release:	**None, no radiological materials present**
Life safety:	**Travel distance limits to EXITs meet NFPA 101**
Manual firefighting:	**Access via doors**
Property loss:	**Significant**

Table 9A.5-6, Electrical Building (Cont.)

Fire Area:	**F5201**	Description:	**Switchgear, Lower Cable & Battery Charger I**
Building:	**Electrical**	Applicable codes:	**IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804**
DCD Fig:	**9A.2-26**	Building code occupancy classification:	**F-1**
		Electrical classification:	**none**
		Safety-related divisional equipment or cables:	**1,2,3,4**
		Nonsafety-related redundant trains or equipment or cables:	**A**
		Surrounded by fire barriers rated at:	**3 hours**
		Except:	**none**

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
9800	**5201**	**Electrical equipment Cable insulation**	**Area-wide ionization**	**Manual pulls (outside stairwell)**	**CO2 fire extinguishers**	**Hose racks (outside each room)**

> 1400	Anticipated combustible load, MJ/m2
1400	Unsprinklered combustible load limit, MJ/m2

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**None**
Radiological release:	**None, no radiological materials present**
Life safety:	**Travel distance limits to EXITs meet NFPA 101**
Manual firefighting:	**Access via doors**
Property loss:	**Moderate**

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects only redundant train A on-site and off-site power and related equipment. All redundant train B on-site and off-site power and related equipment is operable. Fire-related failure of safety-related instrumentation may cause reactor scram. See Section 15.2.5.2.

Table 9A.5-6, Electrical Building (Cont.)

Fire Area:	F5204	Description:	Switchgear, Lower Cable & Battery Charger II
Building:	Electrical	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804
DCD Fig:	9A.2-26 9A.2-32	Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	1,2,3,4
		Nonsafety-related redundant trains or equipment or cables:	B
		Surrounded by fire barriers rated at:	3 hours
		Except:	none

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
9800	5204	Electrical equipment Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (outside stairwell)

> 1400	Anticipated combustible load, MJ/m2
1400	Unsprinklered combustible load limit, MJ/m2

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	None, no radiological materials present
Life safety:	Travel distance limits to EXITs meet NFPA 101
Manual firefighting:	Access via doors
Property loss:	Moderate

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects only redundant train B on-site and off-site power and related equipment. All redundant train A on-site and off-site power and related equipment is operable. Fire-related failure of safety-related instrumentation may cause reactor scram. See Section 15.2.5.2.

Table 9A.5-6, Electrical Building (Cont.)

Fire Area:	F5250	Description:	Stand-by Diesel Generator Day Tank A
Building:	Electrical	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 13, 15, 16, 24, 30, 37, 72, 101, 804
DCD Fig:	9A.2-26 9A.2-28	Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	A
		Surrounded by fire barriers rated at:	3 hours, roof and roof grating 1.5 hours
		Except:	

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
12000	5250	Cable insulation Class IIIB lubricants 20,000L Class II fuel oil	Cross-zoned UV/IR and spot heat	Suppression flowswitch	Preaction foam deluge 16.3 L/min per m2	Hydrants

> 700	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	None, no radiological materials present
Life safety:	Confined space entry
Manual firefighting:	Access via roof hatch
Property loss:	Moderate

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects only redundant train A on-site power and related equipment and no Safety Related equipment. All redundant train B on-site power and related equipment is operable.

Table 9A.5-6, Electrical Building (Cont.)

Fire Area:	F5251	Description:	Stand-by Diesel Generator Electrical & Control Equipment Room A
Building:	Electrical	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 13, 16, 24, 37, 72, 101, 804
DCD Fig:	9A.2-26	Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	A
		Surrounded by fire barriers rated at:	3 hours
		Except:	basemat (non-rated)

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
9800 13900	5206, 5251 5252	Electrical equipment Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (inside vestibule 4)

> 1400	Anticipated combustible load, MJ/m2
1400	Unsprinklered combustible load limit, MJ/m2

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects only redundant train A on-site power and related equipment and no Safety Related equipment. All redundant train B on-site power and related equipment is operable.

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	None, no radiological materials present
Life safety:	Travel distance limits to EXITs meet NFPA 101
Manual firefighting:	Access via doors
Property loss:	Significant

Table 9A.5-6, Electrical Building (Cont.)

Fire Area:	F5260	Description:	Stand-by Diesel Generator Day Tank B
Building:	Electrical	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 13, 15, 16, 24, 30, 37, 72, 101, 804
DCD Fig:	9A.2-26 9A.2-32	Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	B
		Surrounded by fire barriers rated at:	3 hours
		Except:	none

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
12000	5260	Cable insulation Class IIIB lubricants 20,000L Class II fuel oil	Cross-zoned UV/IR and spot heat	Suppression flowswitch	Preaction foam deluge 16.3 L/min per m2	Hydrants

> 700	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects only redundant train B on-site power and related equipment and no Safety Related equipment. All redundant train A on-site power and related equipment is operable.

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	None, no radiological materials present
Life safety:	Confined space entry
Manual firefighting:	Access via roof hatch
Property loss:	Moderate

Table 9A.5-6, Electrical Building (Cont.)

Fire Area:	F5261	Description:	Stand-by Diesel Generator Electrical & Control Equipment Room B
Building:	Electrical	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 13, 16, 24, 37, 72, 101, 804
DCD Fig:	9A.2-26	Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	B
		Surrounded by fire barriers rated at:	3 hours
		Except:	basemat (non-rated)

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
9800	5261	Electrical equipment	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks
13900	5262	Cable insulation		(outside stairwell)		(inside vestibule 4)

> 1400	Anticipated combustible load, MJ/m2	
1400	Unsprinklered combustible load limit, MJ/m2	

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	None, no radiological materials present
Life safety:	Travel distance limits to EXITs meet NFPA 101
Manual firefighting:	Access via doors
Property loss:	Significant

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects only redundant train B on-site power and related equipment and no Safety Related equipment. All redundant train A on-site power and related equipment is operable.

Table 9A.5-7
Yard (Cont.)

Fire Area:	**Site Specific**	Description:	**Secondary Nonseismic Diesel Fire Pump**
Building:	**Yard**	Applicable codes:	**IBC; Reg Guide 1.189; NFPA 10, 13, 20, 24, 30, 37, 72, 101, 804**
DCD Fig:	**9A.2-33** **Site Specific**	Building code occupancy classification:	**F-1 per IBC 307.9.5**
		Electrical classification:	**none**
		Safety-related divisional equipment or cables:	**none**
		Nonsafety-related redundant trains or equipment or cables:	**none**
		Surrounded by fire barriers rated at:	**Site Specific**
		Except:	**Site Specific**

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	**Site Specific**	**Site Specific**	**Site Specific**	**Site Specific**	**Site Specific**	**Hydrant**

> 700	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**None**
Radiological release:	**None, no radiological materials present**
Life safety:	**Site Specific**
Manual firefighting:	**Site Specific**
Property loss:	**Minor**

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area results in loss of only the nonseismic diesel-driven fire pump; remaining secondary motor-driven fire pump is unaffected by fire and is operable. All safe shutdown equipment and both A and B on-site power sources are unaffected by fire and are operable.

Table 9A.5-7
Yard (Cont.)

Fire Area:	Site Specific	Description:	Secondary Nonseismic Motor-driven Fire Pump
Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 13, 20, 24, 30, 37, 72, 101, 804
DCD Fig:	9A.2-33 Site Specific	Building code occupancy classification:	F-1 per IBC 307.9.5
		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	Site Specific
		Surrounded by fire barriers rated at:	Site Specific
		Except:	Site Specific

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	Site Specific	Site Specific	Site Specific	Site Specific	Site Specific	Hydrant

> 700	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	None, no radiological materials present
Life safety:	Site Specific
Manual firefighting:	Site Specific
Property loss:	Minor

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area results in loss of only the nonseismic motor driven fire pump; remaining secondary diesel fire pump is unaffected by fire and is operable. All safe shutdown equipment and both A and B on-site power sources are unaffected by fire and are operable.

Table 9A.5-7
Yard (Cont.)

Fire Area:	**F19160**	Description:	**Primary Diesel Driven Fire Pump**
Building:	**Fire Pump Enclosure**	Applicable codes:	**IBC; Reg Guide 1.189; NFPA 10, 11, 13, 20, 24, 30, 37, 72, 101, 804**
DCD Fig:	**9A.2-33**	Building code occupancy classification:	**F-1**
		Electrical classification:	**none**
		Safety-related divisional equipment or cables:	**none**
		Nonsafety-related redundant trains or equipment or cables:	**B**
		Surrounded by fire barriers rated at:	**3 hours**
		Except:	**exterior walls (non-rated), roof (non-rated)**

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	**19160**	**Class IIIB lubricants** **Cable insulation** **Class II fuel oil**	**Suppression Flowswitch**	**Manual pull**	**Dry Pilot foam Water Sprinklers 12.2 L/min per m2 over entire area**	**Hydrant**

> 700	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**None**
Radiological release:	**None, no radiological materials present**
Life safety:	**Travel distance limits to EXITs meet NFPA 101**
Manual firefighting:	**Access via door**
Property loss:	**Minor**

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area results in loss of only the diesel-driven fire pump; remaining electric motor driven fire pump, (Seismic Cat II) is available and all safe shutdown equipment are unaffected by fire and are operable. Both A and B on-site power sources are unaffected by fire and are operable.

Table 9A.5-7
Yard (Cont.)

Fire Area:	**F19161**	Description:	**Primary Diesel Fire Pump Fuel Oil Storage Tank**
Building:	**Fire Pump Enclosure**	Applicable codes:	**IBC; Reg Guide 1.189; NFPA 10, 11, 13, 20, 24, 30, 37, 72, 101, 804**
DCD Fig:	**9A.2-33**	Building code occupancy classification:	**F-1 per IBC 307.9.5**
		Electrical classification:	**none**
		Safety-related divisional equipment or cables:	**none**
		Nonsafety-related redundant trains or equipment or cables:	**B**
		Surrounded by fire barriers rated at:	**3 hours**
		Except:	**none**

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	**19161**	**Class IIIB lubricants** **Cable insulation** **Class II fuel oil**	**Suppression Flowswitch**	**Manual pull**	**Foam Water Deluge**	**Hydrant**

> 700	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area results in loss of only the diesel-driven fire pump; remaining electric motor driven fire pump, (Seismic Cat II) is available and all safe shutdown equipment are unaffected by fire and are operable. Both A and B on-site power sources are unaffected by fire and are operable.

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**None**
Radiological release:	**None, no radiological materials present**
Life safety:	**Travel distance limits to EXITs meet NFPA 101**
Manual firefighting:	**Access via door**
Property loss:	**Minor**

Table 9A.5-7, Yard (Cont.)

Fire Area:	F39151	Description:	Ancilliary Diesel Generator A/Fuel Oil Storage
Building:	Yard - ADB	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 13, 15, 16, 24, 30, 37, 72, 101, 804
DCD Fig:		Building code occupancy classification:	F-1
9A.2-33		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	A
		Surrounded by fire barriers rated at:	3 hours
		Except:	none

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	39151	Cable insulation Class IIIB lubricants 20,000L Class II fuel oil	Cross-zoned UV/IR and spot heat	Suppression flowswitch	Preaction foam deluge 16.3 L/min per m2	Hydrants and ABC fire extinguishers

> 700	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	None, no radiological materials present
Life safety:	Travel distance limits to EXITs meet NFPA 101
Manual firefighting:	Access via doors
Property loss:	Moderate

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects only redundant train A on-site power and related equipment and no Safety Related equipment. All redundant train B on-site power and related equipment is operable.

Table 9A.5-7, Yard (Cont.)

Fire Area:	F39161	Description:	Ancilliary Diesel Generator B/Fuel Oil Storage
Building:	Yard - ADB	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 13, 15, 16, 24, 30, 37, 72, 101, 804
DCD Fig:		Building code occupancy classification:	F-1
9A.2-33		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	B
		Surrounded by fire barriers rated at:	3 hours
		Except:	none

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	39161	Cable insulation Class IIIB lubricants 20,000L Class II fuel oil	Cross-zoned UV/IR and spot heat	Suppression flowswitch	Preaction foam deluge 16.3 L/min per m2	Hydrants and ABC fire extinguishers

> 700	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects only redundant train B on-site power and related equipment and no Safety Related equipment. All redundant train A on-site power and related equipment is operable.

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	None, no radiological materials present
Life safety:	Travel distances limits to EXITs meet NFPA 101
Manual firefighting:	Access via doors
Property loss:	Moderate

Table 9A.5-7, Yard (Cont.)

Fire Area:	F39252	Description:	Ancilliary Diesel Generator A
Building:	Yard - ADB	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 13, 16, 24, 37, 101, 804
DCD Fig:	9A.2-33	Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	A
		Surrounded by fire barriers rated at:	3 hours
		Except:	basemat (nonrated)

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	39252	Cable insulation Class IIIB lubricants Class II fuel oil	Cross-zoned UV/IR and spot heat	Suppression flowswitch	Preaction foam sprinkler 10.2 L/min per m2 over entire area	Hydrants and ABC fire extinguishers

> 700	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects only redundant train A on-site power and related equipment and no Safety Related equipment. All redundant train B on-site power and related equipment is operable.

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	None, no radiological materials present
Life safety:	Travel distance limits to EXITs meet NFPA 101
Manual firefighting:	Access via doors
Property loss:	Significant

Table 9A.5-7, Yard (Cont.)

Fire Area:	**F39253**	Description:	**ADG Electrical & Control Equipment Room A**
Building:	**Yard - ADB**	Applicable codes:	**IBC; Reg Guide 1.189; NFPA 10, 13, 16, 24, 37, 72, 101, 804**
DCD Fig:	**9A.2-33**	Building code occupancy classification:	**F-1**
		Electrical classification:	**none**
		Safety-related divisional equipment or cables:	**none**
		Nonsafety-related redundant trains or equipment or cables:	**A**
		Surrounded by fire barriers rated at:	**3 hours**
		Except:	**basemat (nonrated)**

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	**39253**	**Electrical Equipment and Cable insulation**	**Area wide ionization**	**Manual pulls**	**CO_2 fire extinguishers**	**Hydrants and ABC fire extinguishers**

> 1400	Anticipated combustible load, MJ/m2
1400	Unsprinklered combustible load limit, MJ/m2

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects only redundant train A on-site power and related equipment and no Safety Related equipment. All redundant train B on-site power and related equipment is operable.

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	**None**
Radiological release:	**None, no radiological materials present**
Life safety:	**Travel distance limits to EXITs meet NFPA 101**
Manual firefighting:	**Access via doors**
Property loss:	**Significant**

Table 9A.5-7, Yard (Cont.)

Fire Area:	F39262	Description:	Ancillary Diesel Generator B
Building:	Yard - ADB	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 13, 16, 24, 37, 101, 804
DCD Fig:	9A.2-33	Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	B
		Surrounded by fire barriers rated at:	3 hours
		Except:	basemat (nonrated)

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	39262	Cable insulation Class IIIB lubricants Class II fuel oil	Cross-zoned UV/IR and spot heat	Suppression flowswitch	Preaction foam sprinkler 10.2 L/min per m2 over entire area	Hydrants and ABC fire extinguishers

> 700	Anticipated combustible load, MJ/m2
700	Unsprinklered combustible load limit, MJ/m2

Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:

Complete burnout of all equipment and cables within this Fire Area affects only redundant train B on-site power and related equipment and no Safety Related equipment. All redundant train A on-site power and related equipment is operable.

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	None, no radiological materials present
Life safety:	Travel distance limits to EXITs meet NFPA 101
Manual firefighting:	Access via doors
Property loss:	Significant

Table 9A.5-7, Yard (Cont.)

Fire Area:	F39263	Description:	ADG Electrical & Control Equipment room B
Building:	Yard - ADB	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 13, 16, 24, 37, 72, 101, 804
DCD Fig:	9A.2-33	Building code occupancy classification:	F-1
		Electrical classification:	none
		Safety-related divisional equipment or cables:	none
		Nonsafety-related redundant trains or equipment or cables:	B
		Surrounded by fire barriers rated at:	3 hours
		Except:	basemat (nonrated)

Consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	39263	Electric equipment and Cable insulation	Area-wide ionization	Manual pulls	CO_2 fire extinguishers	Hydrants and ABC fire extinguishers

>1400	Anticipated combustible load, MJ/m2	Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:
1400	Unsprinklered combustible load limit, MJ/m2	Complete burnout of all equipment and cables within this Fire Area affects only redundant train B on-site power and related equipment and no Safety Related equipment. All redundant train A on-site power and related equipment is operable.

Assuming operation of installed fire extinguishing equipment, impact of fire upon:

Plant operation:	None
Radiological release:	None, no radiological materials present
Life safety:	Travel distance limits to EXITs meet NFPA 101
Manual firefighting:	Access via doors
Property loss:	Significant

Table 9A.6-1

Turbine and Electrical Building Safety-Related Monitoring Devices (continued)

Parameter Description	RPS Input or Output	Parameter Measuring or Actuating Device	Building	Room	Divisions	Total Burnout Impact With No Hot Short	Total Burnout Impact With Hot Short
Turbine Area Temperatures (Main Steam Leak Detection)	Input	Temperature Elements (Analog signal between upper and lower limits)	TB	4390 and 4393	1, 2, 3, 4	Indication to RPS of Main Steamline Leak; Refer to Subsections 9A.6.4.2 and 15.2.2.7	Indication to RPS of Main Steamline Leak; Refer to Subsections 9A.6.4.2 and 15.2.2.7
13.8 kV~~W~~ Bus Under voltage	Input	Transducer	EB	5201 and 5204	1, 2, 3, 4	Indication to RPS of 13.8 kV~~W~~ Bus under voltage resulting in a SCRAM; refer to Subsection 15.2.5.2	Indication to RPS of 13.8 kV~~W~~ Bus under voltage resulting in a SCRAM; refer to Subsection 15.2.5.2

Figure 9A.2-3. Nuclear Island Fire Protection Zones ESBWR DCD EL -1000

{{{Security-Related Information - Withheld Under 10 CFR 2.390.}}}