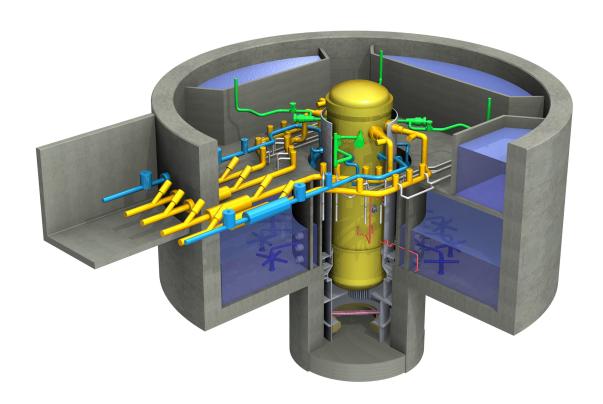
# GE-Hitachi Nuclear Energy

26A6642BB Revision 4 September 2007



# ESBWR Design Control Document Tier 2

Chapter 9
Auxiliary Systems
Appendix 9A

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#### **Abbreviations And Acronyms List**

<u>Term</u> <u>Definition</u>

10 CFR Title 10, Code of Federal Regulations
ADS Automatic Depressurization System

AHU Air handling unit

ARMS Area Radiation Monitoring System

ASHRAE American Society of Heating, Refrigerating, and Air Conditioning Engineers

ASME American Society of Mechanical Engineers
ASTM American Society of Testing Methods
BTP NRC Branch Technical Position
C&I Control and Instrumentation

CB Control Building

CFR Code of Federal Regulations
COL Combined Operating License

CR Control Rod
CRD Control Rod Drive

CRDH Control Rod Drive Housing
DAC Design Acceptance Criteria
DCS Drywell Cooling System

DCIS Distributed Control and Information System

DG Diesel-Generator

DW Drywell

EB Electrical Building

Q-DCIS Safety-Related DCIS (Distributed Control and Information System)

EHC Electrohydraulic Control (Pressure Regulator)
FAPCS Fuel and Auxiliary Pools Cooling System

FB Fuel Building

FHA Fire Hazards Analysis

FMCRD Fine Motion Control Rod Drive

FPS Fire Protection System

FW Feedwater

GDCS Gravity-Driven Cooling System

GEEN GE Energy Nuclear HCU Hydraulic Control Unit

HVAC Heating, Ventilation and Air Conditioning

IBC International Building Code

IC Ion Chamber

IC Isolation Condenser

ICS Isolation Condenser System

#### **Abbreviations And Acronyms List**

Term Definition

IEEE Institute of Electrical and Electronic Engineers

LD Logic Diagram

LD&IS Leak Detection and Isolation System

LP Low Pressure

LPRM Local Power Range Monitor

MCR Main Control Room

MS Main Steam

MSIV Main Steam Isolation Valve

MSL Main Steamline

NDE Nondestructive Examination

N-DCIS Nonsafety-Related Distributed Control and Information System

NFPA National Fire Protection Association

NMS Neutron Monitoring System
NRC Nuclear Regulatory Commission

NS Non-seismic

NSSS Nuclear Steam Supply System PCC Passive Containment Cooling

PCCS Passive Containment Cooling System

PT Pressure Transmitter
RB Reactor Building

RBCWS Reactor Building Chilled Water Subsystem

RBHVS Reactor Building HVAC system

RC&IS Rod Control and Information System

RG Regulatory Guide

RPV Reactor Pressure Vessel
RSS Remote Shutdown System

RWCU/SDC Reactor Water Cleanup/Shutdown Cooling

S/P Suppression Pool

SLC Standby Liquid Control

SSAR Standard Safety Analysis Report
SSE Safe Shutdown Earthquake
SSLC Safety System Logic and Control

TB Turbine Building WT Water Treatment

WW Wetwell XMFR Transformer

#### 9A. FIRE HAZARDS ANALYSIS

#### 9A.1 INTRODUCTION

This fire hazards analysis (FHA) establishes and evaluates distinct fire areas for the Reactor Building, Fuel Building, Control Building, Turbine Building, Radwaste Building, Electrical Building, Yard, Pump House, Guard House, Hot Machine Shop, Service Water/Water Treatment Building, Cold Machine Shop, Warehouse, Training Center, Service Building, Auxiliary Boiler Building, and Administration Building. Plan and elevation view drawings of the buildings as listed in Table 9A.2-3 are utilized to depict the resulting fire area boundaries, fire barriers, and fire suppression systems. Fire areas containing safe shutdown equipment are identified and evaluated to confirm that a sufficient number of Safety-Related safe shutdown systems remain available during and following a design basis fire to achieve hot shutdown and maintain safe shutdown.

All materials capable of supporting combustion in each of the designated fire areas are identified and quantified in Tables 9A.5-1 through 9A.5-7. In addition, the fire protection features available for each room or fire area are identified in Tables 9A.5-1 through 9A.5-7.

The primary requirement of a nuclear facility is to operate and shutdown without undue risk to the health and safety of the public. In the event of a design basis fire, this requirement means that the ESBWR plant is capable of safely shutting down and maintaining a safe shutdown condition, while not posing a hazard to the public or operating personnel, and that recovery from the fire is capable of being accomplished safely.

This FHA identifies and evaluates the hazard of fires relative to maintaining the safe shutdown capability of the plant. This FHA does not evaluate the overall fire protection program for an ESBWR, since many of an effective program's elements are administrative or procedural in nature, but rather assumes that an ESBWR Owner has an effective fire protection program in place. As described in Regulatory Guide 1.189, the primary objectives of a fire protection program at a nuclear plant are to minimize both the probability of occurrence and the consequences of fire. To meet these objectives, the fire protection program is designed to provide reasonable assurance, through defense in depth, that a fire does not prevent the performance of necessary safe shutdown functions and that radioactive releases to the environment in the event of a fire is minimized.

#### 9A.2 ANALYSIS CRITERIA

#### 9A.2.1 Codes and Standards

The Table 9A.2-1 applicable codes and standards are incorporated into the design of the ESBWR Standard Plant, including the fire detection and suppression systems designs, to the maximum extent practicable. These codes and standards may differ slightly from those listed in NRC Branch Technical Position SPLB 9.5-1 in order to reflect the applicable code titles specified in the 2004 National Fire Code by the NFPA. Tables 1.9-21, 1.9-22, and 1.9-23 identify the relevant edition for each applicable code and standard.

### 9A.2.2 Fire Area Separation and Fire Equipment Drawings

Fire Zone drawings showing the fire area separation and fire protection for the Reactor Building, Fuel Building, Control Building, Turbine Building, Radwaste Building, Electrical Building, and Yard are identified in the List of Illustrations. A Fire area separation is provided between Yard Buildings and the Nuclear and Turbine Islands in accordance with NFPA 804 Paragraph 8.9 as expanded on in NFPA 80A Section A 3.2.2 ("Recommended Practice for Protection of Buildings from Exterior Fire Exposures").

The fire protection water supplies and mains are shown schematically in Figure 9.5-1.

### 9A.2.3 Terminology

Fire Area – that portion (aggregate floor area) of a building or plant enclosed and bounded by fire walls, fire barriers, exterior walls, fire-resistance rated horizontal assemblies of a building, or other means in order to contain fire within that area.

Fire Barrier – a continuous vertical or horizontal fire-resistance rated construction assembly designed and constructed to limit the spread of heat and fire and to restrict the movement of smoke. Rated fire barriers are those fire barriers (e.g., walls, floors, ceilings, and their supports, including beams, joists, columns, penetration seals or closures, fire doors and fire dampers) that are rated, or capable of being rated, by approving laboratories in hours of resistance to fire and are used to prevent the spread of potential fire. Fire barriers that define the boundaries of a fire area should have a fire-resistance rating of at least 3 hours. All openings (doors, windows, penetrations, ductwork, etc) through fire barriers should be properly protected, sealed, and qualified by fire endurance testing to a fire resistance rating as required by the applicable codes, up to the same fire resistance rating of the fire barrier itself.

Fire Suppression – control and extinguishing of fires. Manual fire suppression includes the use of hoses, portable extinguishers, or fixed systems by plant personnel. Automatic fire suppression is the use of automatically actuated, fixed systems such as water (systems) sprinkler systems or low-pressure carbon dioxide system.

Fire Wall – a fire-resistance rated wall having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof, with sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall.

Fire Zones – subdivisions of a fire area based on the fire hazards analysis that demonstrate that the fire protection systems and features within the fire zones provide an appropriate level of protection for the associated hazards.

Noncombustible Materials – materials having any one of the following characteristics:

- Materials no part of which can ignite and burn, support combustion, or release flammable
  vapors when subjected to a fire or heat; this includes wet resin in tanks or other similar
  potentially combustible materials that are continuously immersed in water are not
  considered a viable combustible for exposure fires due to the significant amount of
  heating that would be required to dry out the material before combustion could occur;
- Materials having a structural base of non-combustible material, as defined in the above item, with a surfacing not over 1/8 inch thick which has a flame spread rating not higher than 50 when measured using ASTM E84; and
- Materials, other than as described in the above two items, having a surface flame spread
  rating not higher than 25 without evidence of continued progressive combustion and of
  such composition that surfaces that would be exposed by cutting through the material in
  any way would not have flame spread rating higher than 25 without evidence of
  continued progressive combustion.

The flame-spread ratings referred to above are obtained according to NFPA 255.

Safety-Related Structures, Systems and Components - are as defined in 10 CFR 50.2.

Sprinkler System - a network of piping connected to a reliable water supply to distribute the water throughout the area protected and discharges the water through sprinklers in sufficient quantity either to extinguish the fire entirely or to prevent its spread. The system, usually activated by heat, includes a controlling valve and a device for actuating an alarm when the system is in operation. The following categories of sprinkler systems are defined in NFPA 13:

- Wet-pipe System;
- Dry-pipe System;
- Preaction System;
- Deluge System;
- Combined Dry-pipe and Preaction System; and
- On-Off System.

Standpipe and Hose Systems - fixed piping systems with hose outlets, hoses, and nozzles connected to a reliable water supply to provide effective fire hose streams to specific areas inside of the buildings.

Water Spray System - a special fixed pipe system connected to a reliable source of fire protection water supply and equipped with open-head spray nozzles for specific water discharge and distribution over surface or area to be protected. The piping system is connected to the water supply through an automatic or manually actuated valve to initiate the flow of water.

Wet Standpipe System - the ESBWR design utilizes a Class III wet standpipe system as defined by NFPA 14. The Class III wet standpipe system has been modified to provide connections for

permanently installed 1.5-inch fire hoses, but also provides 2.5-inch and 1.5-inch hose connections made through one 2.5-inch hose valve and removable 2.5 by 1.5-inch reducer.

#### 9A.2.4 Acceptance Criteria

The following basic guidelines have been used as criteria for the fire hazard analysis, to be conducted in accordance with Regulatory Guide 1.189 and NFPA 804:

- (1) The analysis is based on the existing design and on the currently specified, but not yet purchased, equipment. The analysis provides a basis for evaluating the fire protection characteristics and features of equipment as it is purchased.
- (2) Automatic sprinkler systems are provided in the ESBWR design for areas in which either installed combustible loading is large enough to warrant the installation or a significant transient combustible loading is most likely to occur as a result of combustibles introduced by normal maintenance operations. The fire hazard analysis is based on the introduction of transient combustibles to any area of the plant, subject to administrative controls. Control of combustible transient materials is assumed to comply with Regulatory Guide 1.39 for housekeeping requirements.

As described in Appendix 9B, the combustible loading limit for electrical areas has been conservatively determined as 1400 MJ/m² (123,280 Btu/ft²) and the combustible loading limit for all other indoor areas has been conservatively determined as 700 MJ/m² (61,640 Btu/ft²) rooms that exceed these limits require automatic fire suppression. This approach conservatively assumes that all combustible material within a fire area instantaneously releases its net heat content upon ignition of the fire. Due to the considerable separation and fire barriers provided in the ESBWR plant layout, a detailed analysis or modeling of fire damage and plume temperatures resulting from any given fire was not considered necessary and has not been performed. This type of analysis could be performed later for an individual fire area if needed, but then could also include consideration of room height and volume, spatial location of combustibles and equipment, incomplete combustion, time-weighted heat release rates, thermal inertia of the structure, ventilation effects, response of installed automatic fire detection, response of installed fire suppression, and other relevant factors.

- (3) The buildings are generally of reinforced concrete construction. The walls, floors, and ceilings have 3-hour fire resistance ratings where required based on high combustible loadings (lubrication oil tank, for example) in the room or where an adjacent room contains equipment or systems from a different Safety-Related division. Corridors and stairwells that do not communicate between areas of different Safety-Related divisions may have walls and doors with a 2-hour minimum fire rating for personnel protection during egress from the areas. Non-concrete interior walls are constructed of metal studs and gypsum wallboard to the required fire resistance rating.
- (4) Doors penetrating rated fire barriers comply with NFPA ratings for that barrier. There are also doors that provide fire area separation that may not be labeled fire doors but do provide equivalent protection. Typically these are the doors for the personnel air lock into the reactor containment and the missile/tornado doors at the equipment access entrance to

the reactor building. The term "doors," where used in the analysis means doors, frames, and hardware.

The use of 1.5-hour fire rated elevator doors in 3-hour fire-rated barriers does not compromise the fire barrier. Rather, section 6-1.2.2 of NFPA 804-1995 specifically allows 1.5-hour fire-rated doors in elevator shafts. No other applicable codes (IBC, NFPA 80, NFPA 101, NFPA 252, or ASME A17.1) require elevator doors to have a fire rating of more than 1.5 hours. None of the applicable codes address 3-hour fire-rated elevator shafts. It is not unusual for a door in a fire-rated wall to have a lower fire rating than the applicable fire wall, because the area on both sides of the door is normally kept free of combustible material to ensure use of the door. Personnel evacuating from a fire are warned by signage at each elevator to use stairs (protected by 3-hour firewalls and doors) and not elevators during a fire.

- (5) The fireproofing of structural steel members, where required by calculation based on combustible loading, is accomplished by application of an UL-listed or FM-approved cementitious or ablative material, or by an UL-listed or FM-approved boxing design. The required fire rating determines the fireproofing material thickness. Gypsum board is utilized for protection of fireproofing in high traffic or office areas.
- (6) Surface finishes are specified to have a flame spread, fuel-contributed, and smoke-evolved index of 25 or less (Class A), determined by ASTM E84 (NFPA 255).
- (7) The use of plastic materials, including electrical cable insulation, is minimized in the ESBWR design.
- (8) Suspended ceilings are used in some areas of the plant. The ceilings, including the lighting fixtures, are of noncombustible construction.
- (9) The electrical cable fire-stops are tested to demonstrate a fire rating equal to the rating of the barrier they penetrate. As a minimum the penetrations meet the requirements of NUREG-1552, including Supplement 1. The tests are performed or witnessed by a representative of a qualified, independent testing laboratory. The documented test results for the acceptable fire-stops are made a part of the plant design records.
- (10) Electrical cable insulation in either solid metal enclosed raceways or concrete duct banks does not represent a combustible fire load and is excluded from the combustible loading analysis.
- (11) Control, power, or instrument cables and equipment of redundant systems used for bringing the reactor to hot shutdown and maintaining safe shutdown, are separated from each other by 3-hour rated fire barriers, except within the containment and where the equipment of more than one division is required to be located within a single fire area. Where multiple divisions of cable or equipment are located in the same fire area, the acceptability of the configuration is evaluated in Section 9A.6.
- (12) Certain areas of the plant have cable trays in stacked array. Where stacking of trays occurs, power cable, which is the most susceptible to internally generated fires, is routed in the uppermost tray to the greatest extent possible to provide isolation from other trays in the stack.

The fire loading of electrical cable in trays is based on flame-retardant, cross-linked polyethylene insulation having a maximum calorific value of 29.8 MJ/kg (12,834 Btu/lbm).

The cable trays are assumed to have the maximum (40%) design fill; actual cable fills may be lower.

The analysis uses 48.8 kilograms of insulation per square meter (10 lbm/ft²) of tray. The combustible loading is based on maximum loading. As cables drop out of (exit) trays, the fire loading decreases. Cable insulation in completely enclosed (i.e., solid-bottom and solid-cover) trays or steel conduits is not considered to be a contributory, exposed combustible fire load to the area

- (13) Cables for local indication are included in the safe shutdown analysis where failure of the cable could cause failure of functionally associated circuits or where required to provide either diagnostic or process parameter information for recovery.
- (14) Total reliance on a single fire suppression method is not used. At least two fire suppression methods are available to suppress a fire in each fire area. The plant design provides the following types of suppression methods and utilizes them in suitable combination for the fire hazard considered:
  - a. Automatic wet-pipe sprinkler system;
  - b. Automatic preaction sprinkler system;
  - c. Automatic dry-pipe sprinkler system;
  - d. Automatic preaction foam water sprinkler system;
  - e. Automatic foam water deluge system;
  - f. Automatic dry-pilot deluge system;
  - g. Internal manual water spray system;
  - h. Internal low pressure carbon dioxide flooding system;
  - i. Standpipe and hose racks;
  - j. Portable class ABC fire extinguishers;
  - k. Portable carbon dioxide class BC fire extinguishers; and
  - 1. Portable class D fire extinguishers.
- (15) The design of the water supply system ensures delivery of water to the standpipe and hose rack systems concurrent with a single active failure. The standpipe system and one diesel driven fire pump, its water supply, its suction piping, and its discharge piping throughout the Reactor, Fuel, and Control Buildings are designed to remain functional following an SSE. The standpipes which supply firewater to hose stations covering Safety-Related equipment are contained within the concrete stairwells or dedicated concrete chases, and thus, are protected from other phenomena of less severity and greater frequency.
- (16) The effect of pipe breaks in fire suppression systems and protection methods for the effect of pipe breaks meet the criteria specified in Section 3.4 and Subsection 9.5.1.

- (17) The floor drains are sized to handle both leakage from a crack in the standpipes or simultaneous operation of two fire hose streams. See Subsection 9.3.3 for details of the plant drainage system.
- (18) Piping and cable tray penetrations are provided with fire-stops when penetrating fire rated barriers.
- (19) HVAC penetrations through 2-hour or 3-hour rated fire barriers are provided with fire dampers compatible with the rating of the fire barrier.
- (20) Spill control is provided to contain the contents of any above grade oil-filled vessel or tank larger than 55 gallon and all tanks containing chemicals used in water/wastewater treatment or quality control.

In accordance with NFPA 804 and RG 1.189, the following design criteria are used for fire containment sizing:

Drainage and any associated drainage facilities for a given area is sized to accommodate the volume of liquid produced by all the following:

- (1) The spill of the largest single container of any flammable or combustible liquids in the area.
- (2) Where automatic suppression is provided throughout, the credible volume of discharge (as determined by the fire hazards analysis) for the suppression systems operating for a period of 30 minutes.
- (3) Where automatic suppression is not provided throughout, the contents of piping systems and containers that are subject to failure in a fire.
- (4) Where the installation is outside, credible environmental factors such as rain and snow.
- (5) Where automatic suppression is not provided throughout, the volume is based on a manual fire-fighting flow rate of 500 gal/min (1892.5 L/min) for a duration of 30 minutes, unless the fire hazards analysis demonstrates a different flow rate and duration.

#### 9A.2.5 Systems Required to Achieve Safe Shutdown in the Event of Fire

In case of a design basis fire, certain systems may be required when the Nuclear Steam Supply System (NSSS) is isolated from the main condenser during shutdown or accident conditions.

The main steam lines and feedwater lines provide the core-cooling path to and from the main condenser during normal operation at power or during startup or shutdown transients when the reactor is not isolated.

The safe shutdown functions are accomplished through interaction of various passive Safety-Related systems. The safe shutdown systems provide one or more of the following functions:

- Maintenance of reactor vessel water level;
- Pressure control and/or depressurization of the reactor pressure vessel;
- Heat removal;

- Heat sink;
- DC electrical power; and
- Indication and control.

Instrumentation automatically activates the safe shutdown systems or provides signals to the Main Control Room operators.

Table 9A.2-2 shows the systems that provide one or more of the safe shutdown functions in the case of fire. The table includes the operating mode or modes for each system, the functions performed, reactor conditions that require system operation, the divisional assignment, the backup system, and Tier 2 references for system description.

A sufficient number of Safety-Related safe shutdown systems remain available during and following a design basis fire to achieve hot shutdown and maintain safe shutdown.

#### 9A.2.6 Redundant Nonsafety-Related Systems and Equipment

In case of a design basis fire, no Nonsafety-Related systems are required to achieve hot shutdown and maintain safe shutdown. Nonetheless, certain Nonsafety-Related systems and equipment include redundancy to provide operational flexibility and robustness. In general terms, the redundant components within a Nonsafety-Related system are referred to as Train A and Train B (and in some cases, Train C). To maintain the redundancy and robustness for these, fire-rated separation is provided between the redundant Train A and Train B (and Train C, where applicable) components for these certain Nonsafety-Related systems.

The initial design of the ESBWR has included redundancy within the following Nonsafety-Related systems:

- Reactor Water Cleanup / Shutdown Cooling System;
- Reactor Component Cooling Water System;
- Plant Service Water System;
- Fuel and Auxiliary Pools Cooling System;
- RB and CB sumps in the Equipment and Floor Drains System;
- RB HVAC System;
- FB HVAC System;
- CB HVAC System;
- Non-IE DCS System;
- Instrument Air System;
- Chilled Water System;
- Seismic category I fire pumps within the Fire Protection System;
- Off-site power supplies (transformers);
- On-site power supplies (diesel-generators and auxiliary equipment); and

• Electrical power distribution to all of the above.

Table 9A.2-1
Fire Protection Codes and Standards

28 CFR 36	Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities
29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1926	Safety and Health Regulations for Construction
10 CFR 50	Domestic Licensing of Production/Utilization Facilities
UL Directory	Fire Protection Equipment Directory
FM	Factory Mutual Approval Guide
ANI Manual	Basic Fire Protection for Nuclear Power Plants
NFPA 10	Standard for Portable Fire Extinguishers
NFPA 11	Standard for Low-, -Medium, and -High-Expansion Foam Systems
NFPA 12	Standard for Carbon Dioxide Extinguishing Systems
NFPA 13	Standard for the Installation of Sprinkler Systems
NFPA 14	Standard for the Installation of Standpipe and Hose Systems
NFPA 15	Standard for Water Spray Fixed Systems for Fire Protection
NFPA 16	Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems
NFPA 20	Standard for the Installation of Stationary Pumps for Fire Protection
NFPA 22	Standard for Water Tanks for Private Fire Protection
NFPA 24	Standard for the Installation of Private Fire Service Mains and their Appurtenances
NFPA 30	Flammable and Combustible Liquids Code
NFPA 37	Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines
NFPA 50A	Standard for Gaseous Hydrogen Systems at Consumer Sites
	<del>-</del>

# Table 9A.2-1 Fire Protection Codes and Standards

	, , , , , , , , , , , , , , , , , , , ,
NFPA 51B	NFPA 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 70	National Electrical Code
NFPA 72	National Fire Alarm Code
NFPA 75	Standard for the Protection of Information Technology Equipment
NFPA 80	Standard for Fire Doors and Windows
NFPA 80A	Recommended Practice for Protection of Buildings from Exterior Fire Exposures
NFPA 90A	Standard for the Installation of Air-Conditioning and Ventilating Systems
NFPA 92A	Standard for Smoke-Control Systems Utilizing Barriers and Pressure Differences
NFPA 101	Life Safety Code
NFPA 241	Standard for Safeguarding Construction, Alteration, and Demolition Operations
NFPA 204	Standard for Smoke and Heat Venting
NFPA 251	Standard Methods of Tests of Fire Resistance of Building Construction and Materials
NFPA 252	Standard Methods of Fire Tests of Door Assemblies
NFPA 255	Standard Method of Test of Surface Burning Characteristics of Building Materials
NFPA 497	Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas
NFPA 600	Standard on Industrial Fire Brigades
NFPA 701	Standard Methods of Fire Tests for Flame Propagation of Textiles and Films
NFPA 780	Standard for the Installation of Lightning Protection Systems
NFPA 801	Standard for Fire Protection Practices for Facilities Handling Radioactive Materials

# Table 9A.2-1 Fire Protection Codes and Standards

	51.5 20, 1.5 21, 1.5 22, and 1.5 25 for approache eartifiers.
NFPA 804	Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants
NFPA 1404	Standard for Fire Service Respiratory Protection Training
NFPA 1451	Standard for a Fire Service Vehicle Operations Training Program
NFPA 1500	Standard on Fire Department Occupational Safety and Health Program
NFPA 1961	Standard for Fire Hose
NFPA 1962	Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose
NFPA 1963	Standard for Fire Hose Connections
NFPA 1964	Standard for Spray Nozzles
ASHRAE 15	Safety Standard for Refrigeration Systems
ASME A17.1	Safety Code for Elevators and Escalators
ASME B31.1	Power Piping
ASME NQA-1	Quality Assurance Programs Requirements for Nuclear Facilities Facility Applications
ASTM E84	Standard Test Method for Fire Tests of Building Materials
ASTM E119	Fire Standard Test Methods for Fire Tests of Building Construction and Materials
ASTM E814	Standard Test Method for Fire Tests for Through-Penetration Fire Stops
IBC	International Building Code
IFC	International Fire Code
ADA	American Disability Act Accessibility Guidelines – 28 CFR 36
IEEE C2	National Electric Safety Code
IEEE 383	Standard for Qualifying Class 1E Electric Cables and Field Splices for Nuclear Power Generating Stations

# Table 9A.2-1 Fire Protection Codes and Standards

IEEE 384	Standard Criteria for Independence of Class 1E Equipment and Circuits	
IEEE 603	Standard Criteria for Safety Systems for Nuclear Power Generating Stations	
IEEE 1202	Standard for Flame-Propagation Testing of Wire and Cable	
Regulatory Guide 1.13	Spent Fuel Storage Facility Design Basis	
Regulatory Guide 1.39	Housekeeping Requirements for Water-Cooled Nuclear Power Plants	
Regulatory Guide 1.75	Physical Independence of Electric Systems	
Regulatory Guide 1.189	Fire Protection for Operating Nuclear Power Plants	
NUREG-0800, SRP Section 9.1.3	Spent Fuel Pool Cooling and Cleanup System	
NUREG-0800, SRP Section 9.5.1	Fire Protection Program	
NUREG-0800, BTP SPLB 9.5-1	Guidelines for Fire Protection for Nuclear Power Plants	
NUREG-0800, BTP SPLB 9.5-1	Appendix B, Supplemental Fire Protection Review Criteria for Advance Reactors	
NUREG-1552	Fire Barrier Penetration Seals in Nuclear Power Plants	

Table 9A.2-2
Systems Required to Achieve Safe Shutdown in the Event of Fire

System	Function	<b>Reactor Condition</b>	Division	Backup System	Tier 2 Ref.	Remarks
ICS A	1/2/3/4	Isolation	I	ICS B ICS C ICS D	5.4.6	Closed loop to and from reactor vessel.
ICS B	1/2/3/4	Isolation	II	ICS A ICS C ICS D	5.4.6	Closed loop to and from reactor vessel.
ICS C	1/2/3/4	Isolation	III	ICS A ICS B ICS D	5.4.6	Closed loop to and from reactor vessel.
ICS D	1/2/3/4	Isolation	IV	ICS A ICS B ICS C	5.4.6	Closed loop to and from reactor vessel.
GDCS A	1	Depressurized	I	GDCS B GDCS C GDCS D	6.3.2	
GDCS B	1	Depressurized	II	GDCS A GDCS C GDCS D	6.3.2	
GDCS C	1	Depressurized	III	GDCS A GDCS B GDCS D	6.3.2	
GDCS D	1	Depressurized	IV	GDCS A GDCS B GDCS C	6.3.2	

Table 9A.2-2
Systems Required to Achieve Safe Shutdown in the Event of Fire

System	Function	<b>Reactor Condition</b>	Division	Backup System	Tier 2 Ref.	Remarks
ADS A	2	Isolated	I	ADS B, C, D ICS B, C, D	6.3.3	
ADS B	2	Isolated	II	ADS A, C, D ICS A, C, D	6.3.3	
ADS C	2	Isolated	III	ADS A, B, D ICS A, B, D	6.3.3	
ADS D	2	Isolated	IV	ADS A, B, C ICS A, B, C	6.3.3	
PCCS A	3/4	Post Depressurization	_	PCCS B, C, D, E, F	6.2.2	Closed piping connections to GDCS and suppression pools.
PCCS B	3/4	Post Depressurization		PCCS A, C, D, E, F	6.2.2	Closed piping connections to GDCS and suppression pools.
PCCS C	3/4	Post Depressurization	_	PCCS A, B, D, E, F	6.2.2	Closed piping connections to GDCS and suppression pools.
PCCS D	3/4	Post Depressurization		PCCS A, B, C, E, F	6.2.2	Closed piping connections to GDCS and suppression pools.
PCCS E	3/4	Post Depressurization	_	PCCS A, B, C, D, F	6.2.2	Closed piping connections to GDCS and suppression pools.

Table 9A.2-2
Systems Required to Achieve Safe Shutdown in the Event of Fire

System	Function	<b>Reactor Condition</b>	Division	Backup System	Tier 2 Ref.	Remarks
PCCS F	3/4	Post Depressurization		PCCS A, B, C, D, E	6.2.2	Closed piping connections to GDCS and suppression pools.
Div I instrument power & signals	5/6/7	All	Ι	Division II, III, and/or IV	7.2, 7.3	
Div II instrument power & signals	5/6/7	All	II	Division I, III, and/or IV	7.2, 7.3	
Div III instrument power & signals	5/6/7	All	III	Division I, II, and/or IV	7.2, 7.3	
Div IV instrument power & signals	5/6/7	All	IV	Division I, II, and/or III	7.2, 7.3	

### Functions:

- 1 maintain reactor water level
- 2 depressurize the reactor vessel
- 3 heat removal
- 4 heat sink
- 5 electrical power
- 6 control (includes logic systems power for initiation of RPS and safe shutdown systems)
- 7 monitoring/indication

Figure 9A.2-1. Nuclear Island Fire Protection Zones ESBWR DCD EL -11500

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Figure 9A.2-2. Nuclear Island Fire Protection Zones ESBWR DCD EL -6400

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

Figure 9A.2-4. Nuclear Island Fire Protection Zones ESBWR DCD EL 4650

Figure 9A.2-5. Nuclear Island Fire Protection Zones ESBWR DCD EL 9060

Figure 9A.2-6. Nuclear Island Fire Protection Zones ESBWR DCD EL 13570

Figure 9A.2-7. Nuclear Island Fire Protection Zones ESBWR DCD EL 17500

Figure 9A.2-8. Nuclear Island Fire Protection Zones ESBWR DCD EL 27000

Figure 9A.2-9. Nuclear Island Fire Protection Zones ESBWR DCD EL 34000

Figure 9A.2-10. Nuclear Island Fire Protection Zones ESBWR DCD Section "A-A"

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Figure 9A.2-11. Nuclear Island Fire Protection Zones ESBWR DCD Section "B-B"

Figure 9A.2-12. Turbine Building Fire Protection Zones ESBWR DCD EL -1400

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Figure 9A.2-13. Turbine Building Fire Protection Zones ESBWR DCD EL 4650

Figure 9A.2-14. Turbine Building Fire Protection Zones ESBWR DCD EL 12000

Figure 9A.2-15. Turbine Building Fire Protection Zones ESBWR DCD EL 20000

Figure 9A.2-16. Turbine Building Fire Protection Zones ESBWR DCD EL 28000

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Figure 9A.2-17. Turbine Building Fire Protection Zones ESBWR DCD EL (Various)

Figure 9A.2-18. Turbine Building Fire Protection Zones ESBWR DCD Section A-A

Figure 9A.2-19. Turbine Building Fire Protection Zones ESBWR DCD Section B-B

Figure 9A.2-20. Radwaste Building Fire Protection Zones ESBWR DCD EL -9350

Figure 9A.2-21. Radwaste Building Fire Protection Zones ESBWR DCD EL -2350

Figure 9A.2-22. Radwaste Building Fire Protection Zones ESBWR DCD EL 4650

Figure 9A.2-23. Radwaste Building Fire Protection Zones ESBWR DCD EL 10650

Figure 9A.2-24. Radwaste Building Fire Protection Zones ESBWR DCD Section A-A

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Figure 9A.2-25. Electrical Building Fire Protection Zone ESBWR DCD EL 4650

Figure 9A.2-26. Electrical Building Fire Protection Zone ESBWR DCD EL 9800

Figure 9A.2-27. Electrical Building Fire Protection Zone ESBWR DCD EL 13000

Figure 9A.2-28. Electrical Building Fire Protection Zone ESBWR DCD EL 18000

Figure 9A.2-29. Electrical Building Fire Protection Zone ESBWR DCD EL 22000

Figure 9A.2-30. Electrical Building Fire Protection Zone ESBWR DCD EL 27000

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**Design Control Document/Tier 2** 

Figure 9A.2-31. Electrical Building Fire Protection Zone ESBWR DCD EL (Various)

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Figure 9A.2-32. Electrical Building Fire Protection Zone ESBWR DCD Section A-A

Figure 9A.2-33. Site Fire Protection Zone ESBWR DCD Plot Plan

#### 9A.3 ANALYSIS APPROACH

#### 9A.3.1 Review Data

The fire hazards analysis is based on a review of every fire area, using the defense in depth approach from NFPA 804 and Regulatory Guide 1.189. Defense in depth is defined as a principle aimed at providing a high degree of fire protection by inclusion of these three concepts:

1) preventing potential fires from starting; 2) quickly detecting those fires that occur, and promptly controlling and extinguishing fires to limit damage; and, 3) providing structural protection (such as fire-rated barriers) for buildings, equipment, and circuits so that a fire that is not promptly extinguished does not prevent safe shutdown, cause loss of life, or result in radioactive release in excess of 10 CFR 20 limits. None of the defense in depth concepts is complete by itself.

The analysis is based on a review of every room for the Reactor Building, Fuel Building, Control Building, Turbine Building, Radwaste Building, Electrical Building, and Yard, as well as the overall design acceptance criteria for the Pump House, Guard House, Hot Machine Shop, Service Water/Water Treatment Building, Cold Machine Shop, Warehouse, Training Center, Service Building, Auxiliary Boiler Building, and Administration Building. The following data has been gathered for each fire area or room reviewed:

- (1) Identification for the Safety-Related equipment within each fire area. Nonsafety-Related equipment is not required for safe shutdown;
- (2) Identification of fire areas containing radioactive material that could be released to the exclusion area or beyond should a fire occur in that area;
- (3) Definition of the rated fire barriers surrounding a specific room or rooms that allow classifying the room or rooms as a separate fire area. Non-rated barriers for which an equivalency to a fire barrier is claimed are also identified;
- (4) A specific listing of types, quantities and characteristics of significant combustibles within a fire area that could constitute a combustible load;
- (5) Quantitative listing of fire loadings that represent the combustibles identified for each fire area;
- (6) Listing of all the fire detection and suppression capabilities provided and their accessibility for each room. Note that fire detection is also installed within HVAC ductwork as required by NFPA 90A but is not credited in the fire hazards analysis for early detection of any fire within a single fire area;
- (7) An analysis of each fire area identifying the design criteria employed in providing fire protection for the equipment within the fire area. Safety-Related equipment is separated on a divisional basis by 3-hour rated fire barriers, except equipment mounted in the control room or containment, as well as for equipment covered by special cases that are discussed in Section 9A.6 (for more information on Safety-Related equipment fire separation and safe shutdown, see Subsection 9.5.1). Fire detection, fire suppression, and fire stop capabilities are also discussed in the analysis;

- (8) An analysis defining the worst-case consequences of the fire for each fire area. This is stated as loss of safe shutdown function and identifies the divisional backup capability available for Safety-Related systems;
- (9) An analysis of each fire area addressing the consequences of fire, if the fire protection system functions as designed. The fire protection system is defined as having the capability to detect, contain, and extinguish the fire. The ability to restrict the fire to a discrete area, the result of the introduction of water to the fire area, and the capability of extinguishing the fire by various means of suppression are stated. See Section 3.4, for a discussion of pipe break consequences;
- (10) Design provisions for protecting the functional capability of Safety-Related systems and associated cabling from the results of inadvertent operation, careless operation, or rupture of the extinguishing systems in each fire area are stated;
- (11) The means of containing or inhibiting the progress of a fire in each fire area (defined as the use of a fire-resisting enclosure or barrier, fire-stops at wall penetrations, ventilation fire dampers, curbs, or fire doors into the area); and
- (12) Room numbers are shown on the analysis pages that conform to those shown on the fire zone drawings.

## 9A.3.2 Steam Tunnel Barrier Exception

The steam tunnel in the Reactor Building opens into the Turbine Building without a barrier wall to allow venting of steam to the Turbine Building in the event of a major steam line leak in the steam tunnel within the Reactor Building. There are no openings in the steam tunnel that are not protected by either fire dampers or doors, including the walls, floors, and ceilings. An automatic, open-head water spray system is provided to serve as a water curtain fire barrier between the Turbine Building and Reactor Building portions of the steam tunnel.

# 9A.3.3 Exceptions to Separation Criteria

A specific analysis is prepared for each fire area in the containment and Main Control Room that contains redundant systems of Safety-Related equipment or electrical cables. This analysis confirms that adequate protection has been provided by means of separation by distance, physical barriers, electrical isolation, electrical circuit characteristics, or adequate backup systems. The analyses are in Section 9A.6, Special Cases.

### **9A.3.4** Exceptions to Penetration Requirements

The Drywell Inerting System supply ductwork (piping) for the wetwell and the drywell passes through a fire barrier but does not have fire dampers. These consist of two supply lines (each 350 mm (14 in.) nominal diameter) and two exhaust lines (one 350 mm (14 in.) nominal diameter and one 400 mm (16 in.) nominal diameter). There are two containment isolation valves for each supply and exhaust piping penetration. The isolation valves are normally closed except during plant outage periods, when smoke removal could be accomplished without interruption if a fire occurs.

#### **9A.3.5** Wall Deviations

The wall descriptions below represent anticipated deviations from tested and approved 3-hr, fire-resistive assemblies. The designs were previously submitted and approved in the GESSAR II SSAR.

The Type 1 wall design exceeds the design of the tested and approved assembly from which it was adapted. The Type 2 assembly requires a UL test.

Type 1 wall—The Type 1 wall is designed with 0.15-meter (6-in) metal studs at 0.30-meter (12-in) on center (seismic design) with three layers of 0.016-meter (5/8-in) fire code gypsum board on each side of the studs. The design is adapted from ICBO 1495 for a 3-hour partition. The only deviation from the standard is that the gage thickness of the structural members has been increased to meet higher seismic requirements.

Type 2 wall—The Type 2 wall is a variation of Type 1 with 0.15-meter (6-in) metal studs at 0.30-meter (12-in) on center between 0.15-meter (6-in) steel, wide-flange columns at 1.22-meter (4-ft) on center. Three layers of 0.016-meter (5/8-in) fire code gypsum board line one side while 0.013-meter (1/2-in) thick steel plate for bullet resistance and two layers of 0.016-meter (5/8-in) fire code gypsum board line the other side.

### 9A.3.6 Door Deviations

Certain doors throughout the facility have a multi-purpose function such as fire, tornado, pressure, missile, seismic, water tight, and/or air tight. Where possible, these doors are rated and/or labeled doors and are identified as rated doors.

When other criteria require the manufacturer to design the door for some other purpose, the door is identified as equivalent to a fire rated door. The doors, except for the Reactor Building equipment access door, are required to have a UL or FM label. Where the door is not constructed as a fire door, such as a containment personnel airlock, it is identified by its main function.

The use of 1.5-hour fire rated elevator doors in 3-hour fire-rated barriers does not compromise the fire barrier. Rather, section 6-1.2.2 of NFPA 804-1995 specifically allows 1.5-hour fire-rated doors in elevator shafts. No other applicable codes (IBC, NFPA 80, NFPA 101, NFPA 252, or ASME A17.1) require elevator doors to have a fire rating of more than 1.5 hours. None of the applicable codes address 3-hour fire-rated elevator shafts. It is not unusual for a door in a fire-rated wall to have a lower fire rating than the applicable fire wall, because the area on both sides of the door is kept free of combustible material to ensure use of the door. Personnel evacuating from a fire are warned by signage at each elevator to use stairs (protected by 3-hour firewalls and doors) and not elevators during a fire.

#### 9A.3.7 Basemats

In general, concrete basemats are not required to be fire-rated because of the lack of any fire hazard in the ground beneath the basemats. The substantial thickness of concrete basemats would provide a large fire rating, if so required.

### 9A.3.8 Smoke Removal

See Subsection 9.5.1.11 for details of smoke removal provisions in Safety-Related buildings. In general, smoke, heat, and products of combustion can be exhausted from a fire area by operation of the HVAC system in the purge or exhaust mode, once the fire has been extinguished by the fire protection system.

### 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.

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 (PCC), Buffer, Dryer/Separator Storage, Reactor Well, Suppression, and IC/PCC Expansion Pools which are normally filled with water.

Access to the Steam Tunnel is provided by an opening between the Reactor and Turbine Buildings, and is protected by an open head spray water curtain and by a Class A shielded door from the Reactor Building.

A preaction sprinkler system is provided throughout the CRD pump room to provide personnel 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:

- Seismic design of the fire suppression system piping;
- Safe shutdown components located in the primary containment are normally designed to operate in 100% relative humidity environments;
- 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 CRD pumps;
- 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 Reactor 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;
- Provisions for curbs around open hatches; and
- Use of watertight doors, where required, to protect equipment.

Post-fire recovery for a design basis fire contained to a single Reactor 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 Reactor 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 Reactor Building fire area is considered better than currently operating nuclear plants.

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

- Fire barriers are an integral part of the Reactor Building, designed and installed to withstand a Safe Shutdown Earthquake (SSE);
- 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

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.

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:

 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 Control 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 Control 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 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 Control 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 Control Building fire area is considered better than currently operating nuclear plants.

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

- Fire barriers are an integral part of the Control Building, designed and installed to withstand a Safe Shutdown Earthquake (SSE);
- Fire suppression system piping in the Control Building is designed and installed to withstand an SSE and remain operational;
- Fire detection and alarm in the Control 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 Control Building from design-basis storms, tornados, and floods is provided by the Control Building structure itself.

### 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. The Turbine Building does not contain any Safety-Related or safe shutdown components, and as such, a fire in the Turbine Building does not affect any of the four divisions used to bring the reactor to hot standby and then cold shutdown conditions.

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 EHC 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.

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. The Electrical Building does not contain any Safety-Related or safe shutdown components, and as such, a fire in the Electrical Building does not affect any of the four divisions used to bring the reactor to hot standby and then cold shutdown conditions.

A fire within any of the fire areas associated with either 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 diesel generators and does not affect the passive safe shutdown components or redundant Nonsafety-Related 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.

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.

A wet-pipe sprinkler system is provided throughout the Technical Support Center Complex to provide personnel protection, allow egress, and limit the spread of the fire.

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

Preaction foam sprinkler systems are provided throughout each of the 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 day tank rooms, to provide property protection and limit the spread of the fire.

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:

- 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 diesel generators;
- 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 Electrical 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 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 Electrical 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 Electrical 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 Electrical Building:

- Fire barriers are an integral part of the Electrical Building, designed and installed as required by the IBC for applicable seismic, wind, hydrodynamic, etc, conditions;
- Fire suppression system piping in the Electrical Building is designed and installed to meet NFPA 13 seismic requirements; and
- 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 includes all portions of the plant site external to buildings. 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).

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), 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.2-12 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.

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, the diesel fire pump room, 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:

- 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 computer simulators;
- Provision of adequately sized flood containment boundaries to handle the suppression flow and prevent groundwater contamination; and
- Installation of electrical equipment above expected flood level heights.

Post-fire recovery for a design basis fire contained to a single Yard 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 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 outdoor nature of equipment in the Yard facilitates not only 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 Yard 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 for the Yard:

- Fire barriers are an integral part of the buildings, designed and installed as required by the IBC for applicable seismic, wind, hydrodynamic, etc, conditions;
- Outdoor fire barriers are designed and installed as required by the IBC for applicable seismic, wind, hydrodynamic, etc, conditions;
- Fire suppression system piping in the buildings and in the Yard are designed and installed to meet NFPA 13 seismic requirements;
- Protection of the fire protection system in the buildings from design-basis storms, tornados, and floods are provided by the building structure itself;
- Outdoor electrical components in the fire protection system are weatherproof or protected against moisture intrusion;
- Dry-pipe systems are used for all outdoor fire protection piping;
- Outdoor piping, conduit, and components in the fire protection system have the required corrosion protection coatings;
- All outdoor fire protection piping and conduit are electrically grounded and
- A Fire area separation is provided between Yard Buildings and the Nuclear and Turbine Islands in accordance with NFPA 804 Paragraph 8.9 as expanded on in NFPA 80A Section A 3.2.2 ("Recommended Practice for Protection of Buildings from Exterior Fire Exposures").

# 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.

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

The Service Building is a completely separate non-seismic 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<sup>2</sup> (0.10 gpm/ft<sup>2</sup>).

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. 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 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 component 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.5 FIRE PROTECTION ANALYSES BY ROOM OR FIRE ZONE

Cumulative damage (property loss) and restoration from fire initiation and suppression activities, but excluding replacement power costs, is subjectively categorized as follows:

Negligible: Less than \$5000Minor: Less than \$50,000

• Moderate: Less than \$2,000,000 (typical insurance deductible)

• Significant: Greater than \$2,000,000

Cumulative plant operational effects from fire initiation and suppression activities are categorized as follows:

• None: No effect to any power production or plant equipment

• Power Reduction: Event could require or cause reduction in turbine output, due to

reduced steam flow rate resulting from loss of some equipment

• Turbine Trip: Event could require or cause stopping turbine

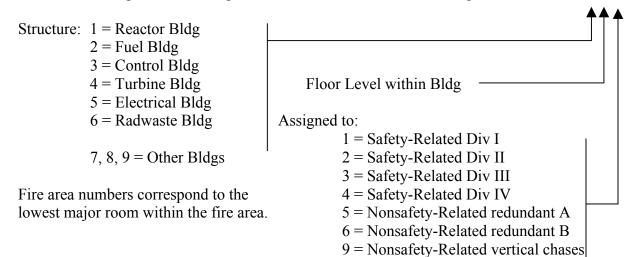
• LOPP: Event could require or cause loss of all on-site power sources

• Reactor Scram: Event could require or cause operators to scram the reactor, achieve

hot standby condition, and continue to cold shutdown condition if

necessary

The first three digits of a four-digit room number contain the following information: XXXX



#### 9A.5.1 Reactor Building

See Table 9A.5-1 for detailed fire hazards analysis of each fire area within the Reactor Building. See Figures 9A.2-1 through 9A.2-11 for Reactor Building fire zone drawings.

P = pool

#### 9A.5.2 Fuel Building

See Table 9A.5-2 for detailed fire hazards analysis of each fire area within the Fuel Building. See Figures 9A.2-1 through 9A.2-8 and Figure 9A.2-10 for Fuel Building fire zone drawings.

#### 9A.5.3 Control Building

See Table 9A.5-3 for detailed fire hazards analysis of each fire area within the Control Building. See Figures 9A.2-2 through 9A.2-5 and Figure 9A.2-11 for Control Building fire zone drawings.

#### 9A.5.4 Turbine Building

See Table 9A.5-4 for detailed fire hazards analysis of each fire area within the Turbine Building. See Figures 9A.2-12 through 9A.2-19 for Turbine Building fire drawings

#### 9A.5.5 Radwaste Building

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

See Figures 9A.2-20 through 9A.2-24 for Radwaste Building fire drawings.

#### 9A.5.6 Electrical Building

See Table 9A.5-6 for detailed fire hazards analysis of each fire area within the Electrical Building.

See Figures 9A.2-25 through 9A.2-32 for Electrical Building fire drawings.

#### 9A.5.7 Yard

See Table 9A.5-7 for detailed fire hazards analysis of each fire area for portions of the Yard. The remainder of the Yard is site specific and is designed by the COL applicant. The applicant will provide additional information (Reference Subsection 9A.4.7)..

#### **9A.5.8** Service Building

The Service Building is protected in accordance with applicable NFPA codes. The Service Building is site specific and is designed by the COL applicant. The applicant will provide additional information (Reference Subsection 9A.4.7).

#### 9A.5.9 Service Water/Water Treatment Building

The SF/WT building is protected in accordance with applicable NFPA codes. This building contains 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).

# Table 9A.5-1 Reactor Building

	Fire Area	: F1104	Description:	Elevator A			
	Building	Reactor	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1				
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-1	Electrical classification: none				
		9A.2-2			related divisional equipment or cables		
		9A.2-3			dundant trains or equipment or cables	none	
		9A.2-4	Surround	ed by fire barriers rated a			
		9A.2-5		Excep	ot: basemat (non-rated); elevator d	oors (1.5 hr rated)	
		9A.2-6	J				
Consisting (	of the following	ng Rooms:	Fire De	etection	Fire Suppres	ssion	
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
-11500	1104	Class IIIB lubricants Cable insulation Electrical equipment	Area-wide ionization	Manual pulls (outside Elev at each landing)	CO2 fire extinguisher (outside room)	Hose racks (in nearby stairwell)	
	1291	Class IIIB lubricants Cable insulation		G,	ABC fire extinguishers (outside Elev at each landing)		
		< 700 700	Anticipated combustible lo Unsprinklered combustible	*	Assuming automatic & manual FP function, impact of design basis fir	e on safe shutdown:	
P. Radiol	lant operation logical release Life safety	None None, no radiological ma Travel distance limits to Access via stairwells and	EXITs meet NFPA 101	n:	Complete burnout of all equipmore Fire Area affects no safety-relate divisions and both redundant traoperable.	ed equipment; all safety	

	Fire Area	F1105	Description: Elevator C					
	Building	Reactor	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1					
		DCD Fig:	Building code occupancy classification: <b>F-1</b>					
		9A.2-1	Electrical classification: <b>none</b>					
		9A.2-2			related divisional equipment or cables:			
		9A.2-3			dundant trains or equipment or cables:	none		
		9A.2-4	Surround	ed by fire barriers rated a				
		9A.2-5	Except: basemat (non-rated); elevator doors (1.5 hr rate					
		9A.2-6	]					
Consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
-11500	1105	Class IIIB lubricants	Area-wide ionization	Manual pulls	CO2 fire extinguisher	Hose racks		
		Cable insulation		(outside Elev	(outside room)	(in nearby stairwel		
		Electrical equipment	<u>.</u>	at each landing)				
	1292	Class IIIB lubricants			ABC fire extinguishers			
		Cable insulation			(outside Elev			
					at each landing)			
		< 700	Anticipated combustible lo	ad, MJ/m2	Assuming automatic & manual FP 6	equipment does not		
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:			
			<del></del> "					
					Complete burnout of all equipme	nt and cables within t		
			uipment, impact of fire upon	ı:	Complete burnout of all equipmer Fire Area affects no safety-related			
P	lant operation	None		1:		l equipment; all safet		
P	lant operation logical release	None None, no radiological ma	aterials present	1:	Fire Area affects no safety-related	l equipment; all safet		
P Radiol	Plant operation logical release Life safety	None None, no radiological ma Travel distance limits to	nterials present EXITs meet NFPA 101	1:	Fire Area affects no safety-related divisions and both redundant train	l equipment; all safet		
P Radiol	Plant operation logical release Life safety	None None, no radiological ma Travel distance limits to Access via stairwells and	nterials present EXITs meet NFPA 101	ı:	Fire Area affects no safety-related divisions and both redundant train	l equipment; all safet		

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

				bulluling (Colle.)				
	Fire Area:		Description:	HCU A				
	Building:	Reactor	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804					
		DCD Fig:	Building code occupancy classification: F-1					
		9A.2-1	1		Electrical classification:	none		
		9A.2-2		Safety-re	elated divisional equipment or cables:	I		
		9A.2-3		Nonsafety-related rec	dundant trains or equipment or cables:	A		
		9A.2-4	Surround	led by fire barriers rated a				
				Excep	t: basemat (non-rated)			
G : .:	6.1 6.11	D	E. D.	:	F: 0			
	of the followin			etection	Fire Suppress	•		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
-11500	1110	Cable insulation	Area-wide ionization	Manual pulls	Hose racks	ABC fire		
-9100				(outside stairwell	(in nearby stairwell)	extinguishers		
-6400				at each landing)				
-1000	1312							
					1			
		< 700	Anticipated combustible lo	nad MI/m2	Assuming automatic & manual FP e	equipment does not		
		700	Unsprinklered combustible		function, impact of design basis fire on safe shutdown:			
					Complete burnout of all equipment			
Assuming of	operation of ins	stalled fire extinguishing eq	uipment, impact of fire upor	n·	Fire Area results in loss of only re			
		Reactor scram			Division I safe shutdown equipme			
		Contained within buildir	ıg		as loss of redundant Division I an			
		Travel distance limits to			circuits; if HCUs are unavailable			
Manu		Access via stairwells			either FMCRD portion of CRD sy			
	Property loss:				can be used to scram reactor (con			
	1 3				for either are located outside this	-		
					systems, remaining three division	* *		
					redundant train B are unaffected			
					operable. Automatic logic contro			
					four redundant signals) remains of	` •		
						per anie.		

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

	Fire Area:	F1120	Description:				
	Building:		Applicable codes:	IBC; Reg Guide 1.189; N			
		DCD Fig:		Bui	uilding code occupancy classification: F-1		
		9A.2-1			Electrical classification:	none	
9A.2-2 Safet				Safety-rel	lated divisional equipment or cables:	II	
		9A.2-3		Nonsafety-related redu	andant trains or equipment or cables:	В	
		9A.2-4	Surround	ed by fire barriers rated at:	3 hours		
				Except:	basemat (non-rated)		
				•	•		
a	0.1 0.11	2			F: 0		
_	of the followin		Fire De		Fire Suppress		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
-11500	1107	Class A combustibles	Area-wide ionization	Manual pulls	Hose racks	ABC fire	
		Class IIIB lubricants		(outside stairwell	(in nearby stairwell)	extinguishers	
-11500	1120	Cable insulation		at each landing)			
-9100							
-6400							
-1000	1322						
					L		
		< 700	Anticipated combustible lo	ad MI/m2	Assuming sutametic & manual ED	aguinment does not	
		700	Unsprinklered combustible		Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:		
		700	Olispillikiered combustible	ioau iiiiit, WiJ/III2	Complete burnout of all equipment		
A saumina a	naration of inc	talled fire extinguishing equ	vinment import of fire upor				
		Reactor scram	ilpinent, impact of the upor	1.	Fire Area results in loss of only re		
		Contained within buildin			Division II safe shutdown equipm	· ·	
Kadioi		Travel distance limits to 1			as loss of redundant Division I an		
Manu	•	Access via stairwells	EXIIS MEET NFFA 101		circuits; if HCUs are unavailable	*	
Manu					either FMCRD portion of CRD sy		
	Property loss:	Moderate			can be used to scram reactor (con	-	
					for either are located outside this		
					systems, remaining three division		
					redundant train A are unaffected	•	
					operable. Automatic logic contro	` •	
					four redundant signals) remains o	perable.	

	Fire Area	F1130	Description:	Description: HCU C					
	Building	Reactor	Applicable codes:	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804					
		DCD Fig:	Building code occupancy classification: F-1						
		9A.2-1	Electrical classification: none						
		9A.2-2			elated divisional equipment or cables:				
		9A.2-3			lundant trains or equipment or cables:	A			
		9A.2-4	Surrounde	ed by fire barriers rated a					
			Except: basemat (non-rated)						
	of the following		Fire De		Fire Suppress	sion			
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup			
-11500	1130	Cable insulation	Area-wide ionization	Manual pulls	Hose racks	ABC fire			
-9100				(outside stairwell	(in nearby stairwell)	extinguishers			
-6400	1222	4		at each landing)					
-1000	1332								
		< 700	Anticipated combustible load, MJ/m2		Assuming automatic & manual FP equipment does not				
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire				
A		-4-11-1 C4: :-1::			Complete burnout of all equipme				
			quipment, impact of fire upon	i.	Fire Area results in loss of only re				
	-	Reactor scram Contained within buildi			Division III safe shutdown equipr				
Kauloi		Travel distance limits to			well as loss of redundant Division				
Manu		Access via stairwells	EXIIS MEET NFFA 101		circuits; if HCUs are unavailable				
Ivianu	Property loss:				either FMCRD portion of CRD sy	•			
	Troperty 1033	Moderate			can be used to scram reactor (confor either are located outside this	•			
						* *			
					systems, remaining three division redundant train B are unaffected				
					operable. Automatic logic contro	-			
					four redundant signals) remains (	, ,			
					Tour redundant signais, remains	วทุยา สมาย.			
					•				

	Fire Area:		Description:				
	Building:	Reactor	Applicable codes:	IBC; Reg Guide 1.189; N	FPA 10, 14, 72, 101, 804		
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-1	Electrical classification: <b>none</b>				
		9A.2-2	Safety-related divisional equipment or cables: IV				
		9A.2-3		Nonsafety-related redu	andant trains or equipment or cables:	В	
		9A.2-4	Surround	ed by fire barriers rated at:	3 hours		
				Except:	basemat (non-rated)		
Consisting (	of the followin	g Rooms.	Fire De	tection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
EE	Ttooin "	1 otential como astroles	1 minut y	Бискир	I IIII.	Вискир	
-11500	1140	Cable insulation	Area-wide ionization	Manual pulls	Hose racks	ABC fire	
-9100	1140	Cable insulation	Tirea-wide ionization	(outside stairwell	(in nearby stairwell)	extinguishers	
-6400				at each landing)	(in hear by stair wen)	extinguishers	
-1000	1342			at cach landing)			
		< 700	Anticipated combustible le	ad MI/m2	Assuming outomatic & manual ED a	aguinmant door not	
		700	Anticipated combustible load, MJ/m2 Unsprinklered combustible load limit, MJ/m2		Assuming automatic & manual FP equipment does not function, impact of design begins fire on soft abutdown:		
		700	Olispinikiered collidustidie	ioau iiiiit, ivij/iii2	function, impact of design basis fire on safe shutdown:  Complete burnout of all equipment and cables within this		
Accuming o	neration of ins	talled fire extinguishing eq	uipment, impact of fire upon	•	Fire Area results in loss of only re		
		Reactor scram	dipment, impact of fire upon		Division IV safe shutdown equipm		
		Contained within building	G		well as loss of redundant Division		
Radioi		Travel distance limits to			circuits; if HCUs are unavailable		
Manu		Access via stairwells	27113 1100 11111101		either FMCRD portion of CRD sy		
	Property loss:				can be used to scram reactor (con		
	Troperty loss.	Moderate			1	-	
					for either are located outside this	, ·	
					systems, remaining three divisions		
					redundant train A are unaffected	·	
					operable. Automatic logic contro		
					four redundant signals) remains (	perable.	

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

	Fire Area:	E1150	Description	Noncofoty NF quadrant			
	Building:		Description: Nonsafety NE quadrant Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804				
	DCD Fig:	Reactor	Applicable codes.		ilding code occupancy classification	v: F_1	
	9A.2-1	9A.2-6		Du	Electrical classification		
	9A.2-2	9A.2-7		Safety-re	elated divisional equipment or cables		
	9A.2-3	9A.2-8			undant trains or equipment or cables		
	9A.2-4	9A.2-9	Surround	ed by fire barriers rated at			
	9A.2-5	,, -		•	basemat (non-rated); elevator d	loors (1.5 hr rated)	
Consisting	of the followin	g Rooms.	Fire De	etection	Fire Suppre	ssion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
			,	<u> </u>		<u> </u>	
-11500	1100	Electrical equipment	Area-wide ionization	Manual pulls	Hose racks	CO2 fire extinguishers,	
		Class IIIB lubricants		(outside stairwell	(in nearby stairwells)	ABC fire extinguishers	
		Cable insulation		at each landing)		_	
	1150, 1151	Class IIIB lubricants		<del>-</del> -		<b>ABC</b> fire extinguishers	
-6400	1250, 1293	Cable insulation					
-1000	1300, 1304						
4650	1400	Cable insulation					
	below floor						
5050	1400	Cable insulation			CO2 fire extinguishers	Hose racks	
9060	1500	Electrical equipment				(in nearby stairwells)	
			Anticipated combustible lo		Assuming automatic & manual FP	equipment does not	
700 EL	4650 & below;	1400 EL 5050 & above	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fit		
					Complete burnout of all equipm		
			uipment, impact of fire upor	1:	Fire Area results in loss of only		
		Reactor scram			equipment and circuits, as well a		
Radio		Contained within buildin			A; remaining three divisions of		
		Travel distance limits to	EXITs meet NFPA 101		redundant train B are unaffecte		
Manı		Access via stairwells			operable. Automatic logic contr		
	Property loss:	Moderate			four redundant signals) remains	-	
					nonsafety-related on-site power by fire and are operable.	sources are unaffected	

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

				Junuing (Cont.)			
	Fire Area:			Nonsafety SE quadrant			
	Building:	Reactor	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804				
	DCD Fig:		_	Bui	ilding code occupancy classification:		
	9A.2-1	9A.2-6			Electrical classification:		
	9A.2-2	9A.2-7		Safety-related divisional equipment or cables: I			
	9A.2-3	9A.2-8		Nonsafety-related redu	undant trains or equipment or cables:	A	
	9A.2-4	9A.2-9	Surrounde	ed by fire barriers rated at:	3 hours		
	9A.2-5		]	Except:	basemat (non-rated); elevator do	ors (1.5 hr rated)	
Consisting	of the followin	g Rooms:	Fire De	tection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
-11500	1101, 1106	Class IIIB lubricants	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers	
	1152	Cable insulation		(outside stairwell	(in nearby stairwells)		
	1153		Area-wide photoelectric	at each landing)			
-6400	1204, 1294		Area-wide ionization				
	1251, 1252						
-1000	1301, 1306						
4650	1401	Cable insulation					
	below floor		<u>. </u>				
5050	1401	Cable insulation			CO2 fire extinguishers	Hose racks	
9060	1501	Electrical equipment				(in nearby stairwells)	
			Anticipated combustible loa		Assuming automatic & manual FP	equipment does not	
700 EL 4	1650 & below;	1400 EL 5050 & above	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire		
					Complete burnout of all equipme	nt and cables within this	
			uipment, impact of fire upon		Fire Area results in loss of only D		
P	Plant operation:	Reactor scram			equipment and circuits, as well as		
Radio		Contained within building			A; remaining three divisions of s		
		Travel distance limits to	EXITs meet NFPA 101		redundant train B are unaffected	by fire and are	
Manu		Access via stairwells			operable. Automatic logic contro	` •	
	Property loss:	Moderate			four redundant signals) remains	-	
					nonsafety-related on-site power s	ources are unaffected	
					by fire and are operable.		

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

				9 ( ,					
	Fire Area:			Nonsafety NW quadrant					
	Building:	Reactor	Applicable codes:		NFPA 10, 14, 72, 90A, 101, 804				
	DCD Fig:			Bui	ilding code occupancy classification				
	9A.2-1	9A.2-6			Electrical classification				
	9A.2-2	9A.2-7		: IV					
	9A.2-3	9A.2-8		Nonsafety-related redundant trains or equipment or cables: <b>B</b>					
	9A.2-4	9A.2-9	Surround	Surrounded by fire barriers rated at: 3 hours					
	9A.2-5			Except:	basemat (non-rated)				
Consisting	of the followin	g Rooms:	Fire De	etection	Fire Suppres	sion			
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup			
-11500	1103	Electrical equipment	Area-wide ionization	Manual pulls	Hose racks	CO2 fire extinguishers,			
		Class IIIB lubricants		(outside stairwell	(in nearby stairwells)	ABC fire extinguishers			
		Cable insulation		at each landing)					
	1160, 1161	Class IIIB lubricants				ABC fire extinguishers			
-6400	1260	Cable insulation							
	1296								
-1000	1303, 1305								
4650	1403	Cable insulation							
	below floor								
5050	1403	Cable insulation			CO2 fire extinguishers	Hose racks			
9060	1503	Electrical equipment				(in nearby stairwells)			
< 700 EL 4	4650 & below;	< 1400 EL 5050 & above	Anticipated combustible lo	ad, MJ/m2	Assuming automatic & manual FP	equipment does not			
700 EL 4	4650 & below;	1400 EL 5050 & above	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fir	e on safe shutdown:			
					Complete burnout of all equipme	ent and cables within this			
Assuming of	operation of ins	talled fire extinguishing equ	uipment, impact of fire upor	1:	Fire Area results in loss of only I	Division IV shutdown			
		Reactor scram			equipment and circuits, as well a	s loss of redundant train			
Radio	logical release:	Contained within buildin	g		B; remaining three divisions of safe shutdown and				
Life safety: Travel distance limits to EXITs meet NFPA 101					redundant train A are unaffected by fire and are				
Manu	al firefighting:	Access via stairwells			operable. Automatic logic contro	•			
	Property loss:				four redundant signals) remains	` •			
				•	nonsafety-related on-site power	•			
					by fire and are operable.				
					- J				

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

				8 ( )				
	Fire Area:		Description:	Description: Nonsafety SW 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			
	9A.2-2	9A.2-7			lated divisional equipment or cables			
	9A.2-3	9A.2-8			undant trains or equipment or cables	: <b>B</b>		
	9A.2-4	9A.2-9	Surround	ed by fire barriers rated at:				
	9A.2-5			Except	basemat (non-rated); elevator de	oors (1.5 hr rated)		
Consisting	of the followin	g Rooms:	Fire De	tection	Fire Suppres	sion		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
-11500	1102	Class IIIB lubricants	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers		
	1162	Cable insulation		(outside stairwell	(in nearby stairwells)			
	1163		Area-wide photoelectric	at each landing)				
-6400	1295		Area-wide ionization					
4650	1402	Cable insulation						
	below floor		<u> </u>					
5050	1402	Cable insulation			CO2 fire extinguishers	Hose racks		
9060	1502	Electrical equipment				(in nearby stairwells)		
			Anticipated combustible lo		Assuming automatic & manual FP			
700 EL 4	1650 & below;	1400 EL 5050 & above	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fir			
					Complete burnout of all equipme			
			uipment, impact of fire upon	1:	Fire Area results in loss of only I			
		Reactor scram			equipment and circuits, as well a			
Radiol		Contained within building			B; remaining three divisions of s			
		Travel distance limits to	EXITS meet NFPA 101		redundant train A are unaffected	•		
Manu		Access via stairwells			operable. Automatic logic contro			
	Property loss:	Moderate			four redundant signals) remains	-		
					nonsafety-related on-site power s by fire and are operable.	sources are unaffected		
					1			

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

			Reactor Bu	nuing (Cont.)				
	Fire Area:	F1170		<b>Drywell and Containment</b>				
	Building:	Reactor	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804					
	DCD Fig:		Building code occupancy classification: F-1					
	9A.2-1	9A.2-6	Electrical classification: <b>none</b>					
	9A.2-2	9A.2-7			lated divisional equipment or cables:			
	9A.2-3	9A.2-8			undant trains or equipment or cables:	A, B		
	9A.2-4	9A.2-9	Surrour	nded by fire barriers rated at:				
	9A.2-5			Except	basemat (non-rated), including be	asaltic concrete		
Consisting	of the following Roon	ns:	Fire Det	ection	Fire Suppress	ion		
EL	Room #	Potential Combustibl	Primary	Backup	Primary	Backup		
-8800	1170	Class IIIB	None	Portable fire	Inerted environment during	Hose racks and		
-6400	1206	lubricants		detection used	power operation	ABC fire		
4650	14P0	Cable insulation		as needed		extinguishers		
9060	1570	Filter media		during outage		(via hatches at EL		
17500	17P0, 17P1, 17P2	None		activities		-6400, EL 13570		
27000	18P3A, 18P3B,					and EL 17500)		
	18P4A, 18P4B,					(extra fire hose and		
	18P4C, 18P5A,					fire extinguishers		
	18P5B, 18P5C					staged at hatches as		
	18P3C, 18P3D,					required)		
	18P4D, 18P4E,					,		
	18P4F, 18P6A,							
	18P6B, 18P6C							
		< 700	Anticipated combustible load,	MJ/m2	Assuming automatic & manual FP	equipment does not		
		700	Unsprinklered combustible loa		function, impact of design basis fire			
			•		During plant operation, this entir			
Assuming of			pment, impact of fire upon:	_	by nitrogen and will not support	combustion. When no		
			age required to restore		inerted (during shutdowns and or	utages), complete		
			ontainment structure		burnout of all equipment and cab	oles within this Fire		
			ts to EXITs meet NFPA 101		Area is prevented by limited amo	unt of combustibles		
	Manual firefighting:				and spatial separation between re	edundant divisional		
	Property loss:	Significant			circuits to ensure that no more th	at two divisions of safe		
					shutdown equipment will be affect	cted by a single fire.		
					See also section 9A.6.	-		
					,			

	Fire Area:	E1100	Description	Stairwells A and E			
	Building:				NFPA 10, 14, 72, 101, 804		
	DCD Fig:	Reactor	Applicable codes.		uilding code occupancy classification	n: <b>F-1</b>	
	9A.2-1	9A.2-6	Electrical classification: none				
	9A.2-2	9A.2-7		Safety-r	elated divisional equipment or cables		
	9A.2-3	9A.2-8			dundant trains or equipment or cables		
	9A.2-4	9A.2-9	Surround	ed by fire barriers rated a		•	
	9A.2-5				t: basemat (non-rated)		
,							
	of the followin		Fire De		Fire Suppres	•	
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
-11500 -6400	1190	None	Area-wide ionization	Manual pulls (outside stairwell	Hose racks	ABC fire extinguishers	
-1000				at each landing)			
4650	ļ						
9060	1.00						
13570	1690						
17500	1						
27000 34000	1						
34000							
	operation of instant operation:		Anticipated combustible lo Unsprinklered combustible uipment, impact of fire upor	e load limit, MJ/m2	Assuming automatic & manual FP function, impact of design basis fit Complete burnout of all equipm Fire Area affects no safety-related	re on safe shutdown: ent and cables within this ed equipment; all safety	
		None, no radiological ma	atorials prosont		divisions and both redundant tra	ains A and B are	
Kauloi		Travel distance limits to			operable.		
Manu		Access via exterior and i					
ivialiu	Property loss:		inclior doors				
	Troperty 10ss.	regugiore			L		

Building:   Reactor   DCD Fig:	none none	
Potential Combustibles   Primary   Backup   Primary   Pri	none none none	
Safety-related divisional equipment or cables:   10   10   1191   None   Area-wide ionization   Area-wide ionization   13570   17500   27000   34000	none none	
9A.2-3 9A.2-4 9A.2-5  Surrounded by fire barriers rated at: 3 hours Except: basemat (non-rated)  Consisting of the following Rooms:  EL Room # Potential Combustibles  Primary Backup  Primary  Primary  Area-wide ionization  Area-wide ionization  Area-wide stairwell at each landing)  4650 9060 13570 17500 27000 34000	on	
9A.2-4   9A.2-9   Surrounded by fire barriers rated at:	on	
Second   S		
Consisting of the following Rooms:   Fire Detection   Primary   Backup   Primary		
EL   Room #   Potential Combustibles   Primary   Backup   Primary		
EL   Room #   Potential Combustibles   Primary   Backup   Primary    -11500		
-11500	Васкир	
-6400 -1000 4650 9060 13570 17500 27000 34000		
-1000 4650 9060 13570 17500 27000 34000	ABC fire extinguishers	
4650 9060 13570 17500 27000 34000		
9060 13570 17500 27000 34000		
13570 17500 27000 34000		
17500 27000 34000		
27000 34000		
34000		
3/000		
negligible Anticipated combustible load, MJ/m2 Assuming automatic & manual FP equ	uipment does not	
	function, impact of design basis fire on safe shutdown:	
Complete burnout of all equipment a		
Assuming operation of installed fire extinguishing equipment, impact of fire upon:  Fire Area affects no safety-related each of the upon installed fire extinguishing equipment, impact of fire upon:		
Plant operation: None divisions and both redundant trains		
Radiological release: None, no radiological materials present operable.		
Life safety: Travel distance limits to EXITs meet NFPA 101		
Manual firefighting: Access via exterior and interior doors		
Property loss: Negligible		
Tropolog rossil regulate		

Fire Area: <b>F1192</b>			Description:	Description: Stairwells C and F			
	Building:		Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
	DCD Fig:	•	Building code occupancy classification: F-1				
	9A.2-1	9A.2-6			Electrical classification		
	9A.2-2	9A.2-7		Safety-r	elated divisional equipment or cable	es: none	
	9A.2-3	9A.2-8	Nonsafety-related redundant trains or equipment or cables: <b>none</b>				
	9A.2-4	9A.2-9	Surrounded by fire barriers rated at: 3 hours				
	9A.2-5			Excep	t: basemat (non-rated)		
Consisting	of the followin	a Dooms.	Fire De	staction	Fire Suppre	accion	
EL		Potential Combustibles	Primary	Backup	Primary	Backup	
ĽЪ	Koom π	1 otential Combustibles	Tilliary	Баскир	1 Illiary	Баскир	
-11500 -6400 -1000 4650 9060	1192	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers	
13570 17500 27000 34000	1691						
P Radiol	Plant operation: logical release: Life safety:	None None, no radiological ma Travel distance limits to Access via exterior and i	EXITs meet NFPA 101	load limit, MJ/m2	Assuming automatic & manual FF function, impact of design basis fi Complete burnout of all equipm Fire Area affects no safety-relat divisions and both redundant troperable.	ire on safe shutdown: nent and cables within this ted equipment; all safety	

	Fire Area:	F1193	Description: Stairwell D				
Building: Reactor			Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
	DCD Fig:	11000001	Building code occupancy classification: F-1				
l	9A.2-1	9A.2-6	]		Electrical classification		
	9A.2-2	9A.2-7		Safety-r	elated divisional equipment or cables	none	
	9A.2-3	9A.2-8			dundant trains or equipment or cables		
	9A.2-4	9A.2-9	Surround	ed by fire barriers rated a	t: 3 hours		
	9A.2-5			Excep	t: basemat (non-rated)		
	of the followin		Fire De	i de la companya de	Fire Suppres		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
-11500 -6400	1193	None	Area-wide ionization	Manual pulls (outside stairwell	Hose racks	ABC fire extinguishers	
-1000				at each landing)			
4650				at cach fanding)			
9060							
13570							
17500							
27000							
34000							
			1				
		negligible	Anticipated combustible lo		Assuming automatic & manual FP		
		700	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fit		
		-4-11-1-6			Complete burnout of all equipme		
	peration of instant operation:		uipment, impact of fire upor	1; 	Fire Area affects no safety-related equipment; all safety		
		None, no radiological ma	atarials arresent		divisions and both redundant trains A and B are		
Kauloi		Travel distance limits to			operable.		
Manus	•	Access via exterior and in					
	Property loss:		itterior doors				
	Troperty 1035.	regugiore		I			

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

	Fire Area	: F1194	Description:	Elevator B				
	Building	Reactor	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1					
<u>.</u>	DCD Fig:		_	Building code occupancy classification: F-1				
	9A.2-1	9A.2-6		Electrical classification: no				
	9A.2-2	9A.2-7			related divisional equipment or cables:			
	9A.2-3	9A.2-8			dundant trains or equipment or cables:	none		
	9A.2-4	9A.2-9	Surround	led by fire barriers rated a				
[	9A.2-5			Excep	t: basemat (non-rated); elevator do	ors (1.5 hr rated)		
Consisting of	of the followi	ng Rooms	Fire De	etection	Fire Suppress	sion		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
-11500 37000	1194	Class IIIB lubricants Cable insulation  Class IIIB lubricants Cable insulation Electrical equipment	Area-wide ionization	Manual pulls (outside Elev at each landing)	ABC fire extinguishers (outside Elev at each landing) CO2 fire extinguisher (outside room)	Hose racks (in nearby stairwell)		
Pl Radiolo Manua	lant operation ogical release Life safety	None None, no radiological maximum Travel distance limits to Access via stairwells and	EXITs meet NFPA 101	e load limit, MJ/m2	Assuming automatic & manual FP efunction, impact of design basis fire Complete burnout of all equipme Fire Area affects no safety-related divisions and both redundant train operable.	e on safe shutdown: nt and cables within thi d equipment; all safety		

	Fire Area:	F1195	Description:	Interior Stairwell A			
	Building:	Reactor	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-1			Electrical classification:	none	
		9A.2-2		Safety-rel	ated divisional equipment or cables:	none	
		9A.2-3			indant trains or equipment or cables:	none	
		9A.2-4	Surround	ed by fire barriers rated at:			
				Except:	basemat (non-rated)		
	of the followin			etection	Fire Suppress	sion	
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
-11200	1195	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers	
-9100				(outside stairwell			
-6400				at each landing)			
-1000							
			•				
		negligible	Anticipated combustible lo		Assuming automatic & manual FP e		
		700	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire on safe shutdown:		
					Complete burnout of all equipment		
			uipment, impact of fire upor	1:	Fire Area affects no safety-related		
	lant operation:				divisions and both redundant trai	ins A and B are	
Radiol		None, no radiological ma			operable.		
		Travel distance limits to					
Manu		Access via interior doors					
	Property loss:	Negligible					

	Fire Area:	F1196	Description:	Description: Interior Stairwell B				
	Building:	Reactor	Applicable codes:	IBC; Reg Guide 1.189; I	NFPA 10, 14, 72, 101, 804			
		DCD Fig:		Bu	ilding code occupancy classification:	F-1		
		9A.2-1	Electrical classification: <b>none</b>					
		9A.2-2	Safety-related divisional equipment or cables: none					
		9A.2-3			undant trains or equipment or cables:	none		
			Surround	ed by fire barriers rated at	3 hours			
				Except	basemat (non-rated)			
	of the followin		Fire De	İ	Fire Suppress			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
-11200	1196	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers		
-9100				(outside stairwell				
				at each landing)				
			-					
		negligible	Anticipated combustible lo		Assuming automatic & manual FP			
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire			
					Complete burnout of all equipme			
			uipment, impact of fire upor	1:	Fire Area affects no safety-relate	d equipment; all safety		
	lant operation:				divisions and both redundant tra	ins A and B are		
Radiol	Radiological release: None, no radiological materials present				operable.			
	Life safety: Travel distance limits to EXITs meet NFPA 101							
Manual firefighting: Access via interior doors			3					
	Property loss:	Negligible						

	Fire Area:	F1197	Description: Interior Stairwell C					
	Building:	Reactor	Applicable codes:	IBC; Reg Guide 1.189;	NFPA 10, 14, 72, 101, 804			
		DCD Fig:	_	Building code occupancy classification: F-1				
		9A.2-1			Electrical classification:	none		
		9A.2-2		Safety-r	related divisional equipment or cables:	none		
		9A.2-3			dundant trains or equipment or cables:			
			Surround	led by fire barriers rated a				
				Excep	ot: basemat (non-rated)			
				-	•			
Consisting (	of the following	g Rooms:	Fire De	etection	Fire Suppress	sion		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
					I	1		
-11200	1197	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers		
-6400				(outside stairwell		9		
				at each landing)				
		negligible	Anticipated combustible loa	oad, MJ/m2	Assuming automatic & manual FP	equipment does not		
1		700	Unsprinklered combustible		function, impact of design basis fire			
	,		1	,	Complete burnout of all equipme			
Assuming o	peration of ins	stalled fire extinguishing eq	juipment, impact of fire upon	n:	Fire Area affects no safety-related			
	lant operation:				divisions and both redundant train			
	-	None, no radiological ma	aterials present		operable.			
		Travel distance limits to			орегиеле			
Manu		Access via interior doors						
	Property loss:							
	110P411, 1222.	1108-18-10-1		ı				

	Fire Area:	F1198	Description:	Description: Interior Stairwell D				
	Building:	Reactor	Applicable codes:	IBC; Reg Guide 1.189;	NFPA 10, 14, 72, 101, 804			
		DCD Fig:		Bı	uilding code occupancy classification	: <b>F-1</b>		
		9A.2-1	Electrical classification: <b>none</b>					
		9A.2-2		Safety-re	elated divisional equipment or cables	none		
		9A.2-3		Nonsafety-related rec	lundant trains or equipment or cables	none		
			Surround	ed by fire barriers rated a	t: 3 hours			
				Excep	t: basemat (non-rated)			
Consisting	of the followin		Fire De	etection	Fire Suppres	sion		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
-11200 -9100	1198	None	Area-wide ionization	Manual pulls (outside stairwell	Hose racks	ABC fire extinguishers		
-6400	1			at each landing)				
-0400				at each fanding)				
	I					<u>I</u>		
		negligible	Anticipated combustible lo	ad MJ/m2	Assuming automatic & manual FP	equipment does not		
		700	Unsprinklered combustible		function, impact of design basis fire on safe shutdown:			
		700	o noprimilar ou como usulore	1044 111110, 1110/1112	Complete burnout of all equipme			
Assuming of	operation of ins	stalled fire extinguishing ea	uipment, impact of fire upon	1:	Fire Area affects no safety-relate			
	lant operation:		The state of the s	, *	divisions and both redundant tra			
	Radiological release: None, no radiological materials present				operable.			
	Life safety: Travel distance limits to EXITs meet NFPA 101				operanie.			
Manual firefighting: Access via interior doors								
	Property loss:							
	T i ij ossi							

	Fire Area:	F1203	Description: CRD and Containment Access					
	Building:	Reactor	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804					
		DCD Fig:	Building code occupancy classification: F-1					
		9A.2-2	Electrical classification: none					
		9A.2-3		Safety-re	ated divisional equipment or cables:	II		
		9A.2-4		Nonsafety-related redu	indant trains or equipment or cables:	A, B		
			Surround	led by fire barriers rated at:	3 hours			
				Except:	none			
	of the followin			etection	Fire Suppress			
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
-6400	1203	Class IIIB lubricants	Cross-zoned ionization	Suppression flowswitch	Preaction sprinkler	Hose racks		
		Cable insulation	and spot heat		12.2 L/min per m2	(in nearby stairwells)		
					over entire area			
-1000	1302, 1308	Class IIIB lubricants	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers		
		Cable insulation		(outside stairwells	(in nearby stairwells)			
	1307	Electical equipment		at each landing)		CO2 fire extinguishers,		
		Class IIIB lubricants				ABC fire extinguishers		
		Cable insulation						
			1					
		> 700 (room 1203)	Anticipated combustible lo					
		< 700 (other rooms)	Anticipated combustible lo		Assuming automatic & manual FP			
		700	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire			
<b>.</b> .	0:	. 11 1 %			Complete burnout of all equipme			
			uipment, impact of fire upon	n: 1	Fire Area affects redundant nonsafety-related CRD			
		Reactor scram; outage re			pumps A and B, but does not affe			
Kadio		Contained within buildin			equipment; all safety divisions an			
M	•	Travel distance limits to	LAIIS MEET NFPA 101		nonsafety-related on-site power s	ources are unaffected		
Manu		Access via stairwells		-	by fire and are operable.			
	Property loss:	Moderate		J				

	Fire Area: F1210 Description: Division I Battery							
	Building:	Reactor	Applicable codes:		NFPA 10, 14, 72, 101, 804			
		DCD Fig:		Bu	ilding code occupancy classification:			
		9A.2-2	Electrical classification: <b>none</b>					
		9A.2-3		Safety-re	lated divisional equipment or cables:	I		
				Nonsafety-related red	undant trains or equipment or cables:	none		
			Surround	ed by fire barriers rated at	3 hours			
				Except	elevator doors (1.5 hr rated)			
Consisting	of the followin		Fire De	etection	Fire Suppress	sion		
		Potential Combustibles						
EL	Room #	and Hazards	Primary	Backup	Primary	Backup		
-6400	1210	12,360 L of battery acid	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks		
		Battery cell cases		(outside stairwell)		(in nearby stairwell)		
		Cable insulation						
			•					
		< 1400	Anticipated combustible lo	· ·	Assuming automatic & manual FP equipment does not			
		1400	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire on safe shutdown:			
					Complete burnout of all equipme			
			uipment, impact of fire upor	1:	Fire Area results in loss of only S	•		
	lant operation:				equipment; remaining three safe	•		
Radio		None, no radiological ma			redundant A and B equipment are unaffected by fire and			
Life safety: Travel distance limits to					are operable. Automatic logic control scheme (any two			
Manual firefighting: Access via stairwell and			nterior doors		out of four redundant signals) rea			
	Property loss:	Moderate			exhaust fans are alarmed to MCI	₹.		

	Fire Area:	F1220	Description:	<b>Division II Battery</b>				
	Building:	Reactor	Applicable codes:	IBC; Reg Guide 1.189; N	NFPA 10, 14, 72, 101, 804			
DCD Fig:				Bu	ilding code occupancy classification:			
		9A.2-2			Electrical classification:	none		
		9A.2-3	Safety-related divisional equipment or cables: II					
					undant trains or equipment or cables:	none		
			Surround	ed by fire barriers rated at	3 hours			
				Except	elevator doors (1.5 hr rated)			
Consisting	of the followin		Fire De	etection	Fire Suppress	sion		
		Potential Combustibles						
EL	Room #	and Hazards	Primary	Backup	Primary	Backup		
-6400	1220	12,360 L of battery acid	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks		
		Battery cell cases		(outside stairwell)		(in nearby stairwell)		
		Cable insulation						
			1					
		< 1400	Anticipated combustible lo	· ·	Assuming automatic & manual FP equipment does not			
		1400	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:			
					Complete burnout of all equipme			
_	•	stalled fire extinguishing equ	ipment, impact of fire upor	1:	Fire Area results in loss of only Sa			
	lant operation:				equipment; remaining three safety divisions and both			
Radiol		None, no radiological ma			redundant A and B equipment are unaffected by fire and			
	Life safety: Travel distance limits to				are operable. Automatic logic control scheme (any two			
Manu		Access via stairwell and i	interior doors out of four redundant signals) remains operable.			nains operable. Battery		
	Property loss:	Moderate			exhaust fans are alarmed to MCF	₹.		

	Fire Area: F1230 Description: Division III Battery						
	Building	Reactor	Applicable codes:	IBC; Reg Guide 1.189; N	NFPA 10, 14, 72, 101, 804		
		DCD Fig:	Building code occupancy classification: F-1 per IBC 307.9.11				
		9A.2-2			Electrical classification:	none	
		9A.2-3		Safety-re	elated divisional equipment or cables:	Ш	
				Nonsafety-related red	undant trains or equipment or cables:	none	
			Surround	led by fire barriers rated at	3 hours		
				Except	none		
Consisting	of the following		Fire De	etection	Fire Suppress	sion	
		Potential Combustibles					
EL	Room#	and Hazards	Primary	Backup	Primary	Backup	
-6400	1230	6840 L of battery acid	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks	
		Battery cell cases		(outside stairwell)		(in nearby stairwell)	
		Cable insulation					
		1400		1 3 67/ 0			
		< 1400	Anticipated combustible lo		Assuming automatic & manual FP equipment does not		
		1400	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire on safe shutdown:		
A		-4-11-4 Cm401-1-1			Complete burnout of all equipme		
			uipment, impact of fire upor	1: 1	Fire Area results in loss of only S		
	Plant operation		-4		equipment; remaining three safe	-	
Kaulo		None, no radiological ma			redundant A and B equipment are unaffected by fire and		
Life safety: Travel distance limits to							
					out of four redundant signals) rea		
	1 Topetty 1088	. Iviouel ate			exhaust fans are alarmed to MCF	₹.	

	Fire Area:			
	Building:	Reactor		
		DCD Fig:	Building code occupancy classification:	F-1 per IBC 307.9.11
		9A.2-2	Electrical classification:	none
		9A.2-3	Safety-related divisional equipment or cables:	IV
		Nonsafe	ety-related redundant trains or equipment or cables:	
		Surrounded by fire barriers rated at		•
		Except		
			_	
Consisting	of the following	g Rooms:	Fire Suppression	
		Potential Combustibles	_	1
EL	Room#	and Hazards	Primary	Backup
-6400	1240	6840 L of battery acid	CO2 fire extinguishers	Hose racks
-0400	1240	Battery cell cases	CO2 in c extinguishers	(in nearby stairwell)
		Cable insulation		(iii iicai by staii weii)
		< 1400	Assuming automatic & manual FP equipment doe	a not
		1400	function, impact of design basis fire on safe shutd	
		1400	Complete burnout of all equipment and cables	
Accumina c	paration of inc	talled fire extinguishing equipment, impact of fire upon:		
	lant operation:		results in loss of only Safety Division IV equipment to and B	
		None, no radiological materials present	safety divisions and both redundant A and B ed	
Kauloi		Travel distance limits to EXITs meet NFPA 101	by fire and are operable. Automatic logic con	` •
Manus			out of four redundant signals) remains operable	le. Battery exhaust fans
Manu		Access via stairwell and interior doors	are alarmed to MCR.	
	Property loss:	Moderate	4	

	Fire Area:	F1262	Description: B Demineralizers					
	Building:	Reactor	Applicable codes:	IBC; Reg Guide 1.189;	NFPA 10, 14, 72, 101, 804			
		DCD Fig:	Building code occupancy classification: F-1					
		9A.2-2			Electrical classification:	none		
		9A.2-3		Safety-re	elated divisional equipment or cables:	none		
				Nonsafety-related red	lundant trains or equipment or cables:	В		
			Surround	ed by fire barriers rated at	: 3 hours			
				Except	i: none			
			]					
Consisting of the following Rooms:			Fire De	etection	Fire Suppression			
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
-6400	1261	Class IIIB lubricants	Area-wide ionization	Process indication	Hose racks at stairwells	ABC fire extinguishers		
	1262	Cable insulation			(via hatches at EL -1000)	(at EL -1000)		
			<b>,</b>					
		< 700	Anticipated combustible lo		Assuming automatic & manual FP equipment does not			
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:			
					Complete burnout of all equipme			
			uipment, impact of fire upor	1:	Fire Area results in loss of only re			
	lant operation:			equipment; all safety divisions and train A equipme				
Radio	-	Contained within building			are unaffected by fire and are ope			
.,		Travel distance limits to			site power sources are unaffected	by fire and are		
Manu		Limited access via hatch	es		operable.			
	Property loss:	Minor						

Fire Area: F1311			Description: Division I Electrical						
	Building:	Reactor	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804						
	DCD Fig:		_	Building code occupancy classification: F-1					
	9A.2-2	9A.2-6			Electrical classification:	trical classification: <b>none</b>			
	9A.2-3	9A.2-7		Safety-re	elated divisional equipment or cables:	I			
	9A.2-4	9A.2-8		Nonsafety-related red	undant trains or equipment or cables:	none			
	9A.2-5		Surround	ed by fire barriers rated at	: 3 hours				
·			_	Except	elevator doors (1.5 hr rated)				
	of the followin		Fire De		Fire Suppress	ion			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup			
-6400	1211	Cable insulation	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks			
-1000	1311	Electrical equipment		(outside stairwell		at stairwells			
	1313	Cable insulation		at each landing)					
13570	1610								
17500	1711		1						
	1700, 1712	Cable insulation			ABC fire extinguishers				
	1713	Class IIIB lubricants	1						
	1710	Electical equipment			ABC fire extinguishers, CO2 fire				
		Cable insulation			extinguishers				
		Class IIIB lubricants			_				
			7						
		< 1400	Anticipated combustible load, MJ/m2		Assuming automatic & manual FP equipment does not				
		1400	Unsprinklered combustible	load limit, MJ/m2					
					Complete burnout of all equipmen				
			uipment, impact of fire upor	1:	Fire Area results in loss of only Sa	•			
Plant operation: None					equipment; remaining three safet				
Radiological release: None, no radiological ma					redundant A and B equipment are	•			
Life safety: Travel distance limits to					are operable. Automatic logic con	ntrol scheme (any two			
Manu		Access via stairwell and	interior doors		out of four redundant signals) ren	nains operable.			
	Property loss:	Significant							

Fire Area: <b>F1321</b>		Description: Division II Electrical						
	Building	g: Reactor	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804					
	DCD Fig:		Building code occupancy classification: F-1					
	9A.2-2	9A.2-6			Electrical classification:			
	9A.2-3	9A.2-7			elated divisional equipment or cables:			
	9A.2-4	9A.2-8			lundant trains or equipment or cables:	none		
	9A.2-5		Surround	led by fire barriers rated a				
				Excep	t: elevator doors (1.5 hr rated)			
Consisting	of the followi	ng Rooms:	Fire De	etection	Fire Suppress	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
6400	1001				G04 #			
-6400	1221	Cable insulation	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks		
-1000	1321	Electrical equipment		(outside stairwell		at stairwells		
13570	1323 1620	Cable insulation		at each landing)				
17500	1721	+						
17300	1721	Cable insulation	-		ABC fire extinguishers	1		
	1720	Class IIIB lubricants			Abe life extinguishers			
	1723	Class IIID lubi Rants						
		< 1400	Anticipated combustible lo	and MI/m2	Assuming automatic & manual FP 6	equipment does not		
		1400	Unsprinklered combustible		function, impact of design basis fire			
		1100		7 10 44 111110, 1110, 1112	Complete burnout of all equipme			
Assuming o	peration of in	nstalled fire extinguishing ed	quipment, impact of fire upor	1:	Fire Area results in loss of only S			
	lant operation				equipment; remaining three safe	•		
Radiol		None, no radiological m			redundant A and B equipment ar	•		
		Travel distance limits to			are operable. Automatic logic co	•		
Manu		Access via stairwell and	interior doors		out of four redundant signals) rea	` ·		
	Property loss	S: Significant			,			

	Fire Area:	F1331	Description:	<b>Division III Electrical</b>				
		Reactor			NFPA 10, 14, 72, 101, 804			
	DCD Fig:	1100001	Building code occupancy classification: F-1					
1	9A.2-2	9A.2-6	Electrical classification: <b>none</b>					
	9A.2-3	9A.2-7		Safety-r	elated divisional equipment or cables:	III		
	9A.2-4	9A.2-8			dundant trains or equipment or cables:			
	9A.2-5		Surround	ed by fire barriers rated a				
· •			_	Excep	t: elevator doors (1.5 hr rated)			
	of the followin		<u>-</u>	etection	Fire Suppress			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
-6400	1231	Cable insulation	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks		
-1000	1331	Electrical equipment		(outside stairwell		at stairwells		
13570	1630	Cable insulation		at each landing)				
17500	1731	C 11 ' 14'			ADC C			
	1703	Cable insulation			ABC fire extinguishers			
	1730 1732	Class IIIB lubricants						
	1/32							
					<u> </u>			
		< 1400	Anticipated combustible lo	oad, MJ/m2	Assuming automatic & manual FP e	equipment does not		
		1400	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire			
			_		Complete burnout of all equipmen	nt and cables within this		
			uipment, impact of fire upor	1:	Fire Area results in loss of only Sa	afety Division III		
	lant operation:				equipment; remaining three safet	ty divisions and both		
Radiol		None, no radiological ma			redundant A and B equipment are	e unaffected by fire and		
		Travel distance limits to			are operable. Automatic logic co	ntrol scheme (any two		
		Access via stairwell and	interior doors		out of four redundant signals) ren	nains operable.		
	Property loss:	Significant						

	Fire Area:	F1341	Description:	<b>Division IV Electrical</b>					
		Reactor		Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804					
	DCD Fig:		Building code occupancy classification: F-1						
	9A.2-2	9A.2-6	1		Electrical classification:	none			
	9A.2-3	9A.2-7			related divisional equipment or cables:				
	9A.2-4	9A.2-8			dundant trains or equipment or cables:	none			
	9A.2-5		Surround	ed by fire barriers rated a					
				Excep	t: none				
Consisting	of the followin	ig Rooms:	Fire De	etection	Fire Suppressi	on			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup			
				-					
-6400	1241	Cable insulation	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks			
-1000	1341	Electrical equipment	1	(outside stairwell	G	at stairwells			
13570	1640	Cable insulation		at each landing)					
17500	1741								
	1701, 1742	Cable insulation			ABC fire extinguishers				
		Class IIIB lubricants	_						
	1740	Electrical equipment			ABC fire extinguishers, CO2 fire				
		Cable insulation			extinguishers				
		Class IIIB lubricants			+				
		1100	7	1 3 67/ 2	150				
		< 1400	Anticipated combustible lo		Assuming automatic & manual FP ed				
		1400	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire				
<b>.</b>		-1-11-1 C1:			Complete burnout of all equipmen				
			quipment, impact of fire upor	1. 	Fire Area results in loss of only Sa	•			
Plant operation: None			atorials present		equipment; remaining three safety				
Kaulo	Radiological release: None, no radiological ma Life safety: Travel distance limits to				redundant A and B equipment are	•			
Manu		Access via stairwell and			are operable. Automatic logic con	` •			
iviallu		Significant	interior doors		out of four redundant signals) rem	iains operabie.			

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

Fire Area: <b>F1450</b>			Description: Hydrogen Gas A				
	Building:	Reactor	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 24, 50A, 72, 101, 497, 804				
DCD Fig:			Building code occupancy classification: F-1				
		9A.2-4	7		Electrical classification:	Group B Class I Div II	
				Safety-r	elated divisional equipment or cables:	none	
					dundant trains or equipment or cables:		
			Surround	ed by fire barriers rated a			
					t: basemat (non-rated)		
Consisting	of the followin		Fire De	tection	Fire Suppress	ion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	1450	Fl 4	A 21 41	M 1 . 11	A DC Constitution to the second	П. 1	
4650	1450	Electrical equipment	Area-wide spot heat	Manual pull	ABC fire extinguisher	Hydrant	
		Cable insulation		(outside room)			
		16 m3 Hydrogen					
		. 700	TA 22 2 4 1 29 1 1	1 144/ 0	A : 4 : 0 1ED		
		< 700	Anticipated combustible lo		Assuming automatic & manual FP e		
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire		
Ai					Complete burnout of all equipmen		
	lant operation:		uipment, impact of fire upon	i.	Fire Area affects only redundant t		
		None, no radiological ma	ataniala muagant		no safety-related equipment; all sa	v	
Kauloi		Travel distance limits to			redundant train B are operable. I		
Manu		Access via door	EXIIS MEET NFFA 101		power sources are unaffected by fi		
Manu	Property loss:				Potential for hydrogen buildup is		
	Property loss.	Minor			the top and bottom of the 3-hr fire		
					Ignition within is prevented by rec		
					devices to be rated NEC Group B		
					the event of an ignition and explos		
					Reactor Building or Control Build		
					hr fire rated reinforced concrete w		
					approximately 1.5 meters thick for		
					Building and approximately 0.7 m		
					Control Building which is further	· O	
					redundant hydrogen systems is pr		
					separating them by over 50 meters		
					by 3-hr fire rated concrete walls, i	including penetration	
					seals and doors.		

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

Fire Area: <b>F1460</b>			Description:	Hydrogen Gas B			
В	Building:	Reactor	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 24, 50A, 72, 101, 497, 804				
DCD Fig:		Building code occupancy classification: F-1					
9A.2-4					Electrical classification:		
				Safety-re	elated divisional equipment or cables:	none	
					undant trains or equipment or cables:	В	
			Surrounde	ed by fire barriers rated at			
				Except	t: basemat		
Consisting of the f			Fire Det		Fire Suppress		
EL Ro	om #	Potential Combustibles	Primary	Backup	Primary	Backup	
4650 14	460	Electrical equipment Cable insulation 16 m3 Hydrogen	Area-wide spot heat	Manual pull (outside room)	ABC fire extinguisher	Hydrant	
Plant op Radiological Life Manual firef	peration: release: e safety:	None None, no radiological ma Travel distance limits to Access via door		load limit, MJ/m2	Assuming automatic & manual FP en function, impact of design basis fire.  Complete burnout of all equipment Fire Area affects only redundant to no safety-related equipment; all saredundant train A are operable. It power sources are unaffected by five Potential for hydrogen buildup is the top and bottom of the 3-hr fire Ignition within is prevented by reducives to be rated NEC Group B the event of an ignition and explose Reactor Building or Control Building fire rated reinforced concrete wapproximately 1.5 meters thick for Building and approximately 0.7 m Control Building which is further redundant hydrogen systems is preparating them by over 50 meters by 3-hr fire rated concrete walls, i	on safe shutdown:  It and cables within this train B equipment and afety divisions and Both A and B on-site ire and are operable. It is a compared by louvers in the rated exterior wall. It is a compared by 3- walls that are It the nearby Reactor the sevented by Damage to the away. Damage to the evented by physically and surrounding each	

Fire Area: F1600			Description: Refueling Floor and Common Access Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804			
	Building:	Reactor	Applicable codes:			
	DCD Fig:			Building	g code occupancy classification	
	9A.2-4	9A.2-7			Electrical classification	
	9A.2-5	9A.2-8			divisional equipment or cable	
	9A.2-6	9A.2-9			nt trains or equipment or cable	es: <b>A</b> , <b>B</b>
			Surround	ed by fire barriers rated at		
				Except	t: driveway (non-rated); ele	vator doors (1.5 hr rated)
onsisting	of the following Roo	oms:	Fire De	etection	Fire Su	appression
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	1490	Transient combustibles	Area-wide linear heat	Manual pulls	Hose racks	ABC fire extinguishers
13570	1600	Class IIIB lubricants		(outside stairwell	at stairwells	
		Electrical equipment		at each landing)		
		Cable insulation		0,		
17500	17P3	None				
27000	18P0,18P1,18P2					
34000	1900	Transient combustibles	Area-wide ionization			
	1903	Electrical equipment				
	1904	Cable insulation				
	1905	Class A combustibles				
	1906	Filter media				
	above ceiling	Cable insulation				
	1905,1906					
	1901, 1902	None				
	1907, 1908					
		< 700	Anticipated combustible lo	ad, MJ/m2	Assuming automatic & man	ual FP equipment does not
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design b	pasis fire on safe shutdown:
					Complete burnout of all e	quipment and cables within
ssuming o		I fire extinguishing equipme			this Fire Area affects only	redundant train A and B
		None; restoration require			equipment, but does not a	ffect any safety-related
Radiological release: Contained within buildin				equipment; all safety divis	sions are unaffected by a fir	
Life safety: Travel distance limits to		EXITs meet NFPA 101		and are operable. Both A	and B on-site power source	
		Access via stairwells			are unaffected by fire and	_
	Property loss:	Moderate				_

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

	Fire Area:	F1770	Description:	Main Steam Tunnel				
	Building	Reactor & Turbine	Applicable codes:	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
	DCD Fig:		- -	Ві	uilding code occupancy classification			
	9A.2-7	9A.2-13	Electrical classification: <b>none</b>					
	9A.2-8	9A.2-14			elated divisional equipment or cable			
		9A.2-15			lundant trains or equipment or cable	s: none		
		9A.2-16	Surrounded by fire barriers rated at: 3 hours					
				Excep	t: north side (water curtain sprink	ders in F4100)		
Consisting	onsisting of the following Rooms:		Fire De	tection	Fire Suppre	ession		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
8200	part of 4293	Class IIIB lubricants Cable insulation	Area-wide linear heat	Manual pulls (outside stairwell	Hose racks at stairwells	ABC fire extinguishers		
	4393			at each landing)				
17500	1770							
		< 700 700	Anticipated combustible loa Unsprinklered combustible		Assuming automatic & manual FF function, impact of design basis fi	re on safe shutdown:		
Assuming	operation of in	stalled fire extinguishing ed	uipment, impact of fire upon	:	Complete burnout of all equipm Fire Area results in loss of Divis			
		Reactor scram; turbine			containment isolation instrumer			
	•	outage required to resto	re		isolation is maintained by inboard MSIVs, outside of thi Fire Area. No safe shutdown functions are affected by			
Radio	ological release:	Contained within building						
Life safety: Travel distance limits to I								
	Manual firefighting: Access via interior doors				redundant train A and B equipment are unaffected by			
Man	ual firefighting:	Access via interior doors			redundant train A and B equipi	nent are unaffected by		

Table 9A.5-2
Fuel Building

	Fire Area:	E2100	Descriptions	N	. 412			
		Fuel & Reactor		New and Spent Fuel Han				
	DCD Fig:	ruel & Reactor	Applicable codes.	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804  Building code occupancy classification: F-1				
	9A.2-1	9A.2-5	Electrical classification: none					
	9A.2-2	9A.2-6		Safety_re	lated divisional equipment or cables:			
	9A.2-3	9A.2-7			and trains or equipment or cables:			
	9A.2-4	9A.2-8	Surround	ed by fire barriers rated at:		м, в		
	711,2 1	)/1.2 U	Junouna		basemat (non-rated); elevator do	ors (1.5 hr rated)		
Consisting	of the following Roc	oms:	Fire De	etection	Fire Suppress	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
-11500	2101	Class IIIB lubricants	Area-wide photoelectric	Manual pulls	Hose racks	ABC fire		
	2100, 2150, 2160,	Cable insulation	Area-wide ionization	(outside stairwell	(in nearby stairwells)	extinguishers		
	2151, 2161,			at each landing)	,			
	2102, 2190, 2191			<u> </u>				
	21P0, 21P1, 21P2	None	Area-wide linear heat					
-6400	2200, 2201, 2202,	Class IIIB lubricants	Area-wide ionization					
	2251, 2261	Cable insulation						
-1000	2300, 2301, 2302	Electrical equipment						
4650	2400	Class IIIB lubricants	Area-wide linear heat					
		Cable insulation						
	2401	Transient combustibles	Area-wide ionization					
		Class A combustibles						
17500	1702	None						
		< 700	Anticipated combustible lo	ad, MJ/m2	Assuming automatic & manual FP	equipment does not		
		700	Unsprinklered combustible		function, impact of design basis fire	* *		
			•	,	Complete burnout of all equipme			
Assuming o	operation of installed	I fire extinguishing equipme	ent, impact of fire upon:		Fire Area results in loss of only re			
_	Plant operation:	None; restoration requir	ed before refueling		equipment; all safety-related and			
F		Contained within building			equipment is unaffected by fire a			
		Travel distance limits to			Makeup water capability to the S	-		
	Manual firefighting:	Access via stairwells			FP system is unaffected by fire an			
	Property loss:	Moderate			and B on-site power sources are u	_		
					are operable.			

	E. 1	E2102		Fl. (Cont.)				
	Fire Area:		Description: Elevator A					
	Building:	DCD Fig:	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1  Building code occupancy classification: F-1					
		9A.2-1	Electrical classification: none					
		9A.2-2		Safety-r	elated divisional equipment or cables			
		9A.2-3			lundant trains or equipment or cables			
		9A.2-4	Surround	ed by fire barriers rated a		5. Hone		
		9A.2-5	Surrouna	-	t: basemat (non-rated); elevator d	loors (1.5 hr rated)		
		71 <b>N2</b> 0		Encep	Museum (non ruccu), elevator u	ioors (Tie III Tutcu)		
	0.1 0.11		E' D		P: 0			
	of the following		Fire De	i de la companya de	Fire Suppre	•		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
-11500	2192	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside Elev at each landing)	ABC fire extinguishers (outside Elev at each landing)	Hose racks (in nearby stairwell		
9060	2500	Class IIIB lubricants Cable insulation Electrical equipment	-		CO2 fire extinguisher (outside room)			
P	lant operation:	None	Anticipated combustible lo Unsprinklered combustible uipment, impact of fire upon	e load limit, MJ/m2	Assuming automatic & manual FP function, impact of design basis fin Complete burnout of all equipm Fire Area affects no safety-relate equipment; all safety divisions a	re on safe shutdown: ent and cables within the ed or safe shutdown		
	Life safety:	None, no radiological ma Travel distance limits to Access via stairwell and	EXITs meet NFPA 101		A and B are operable.			
	Property loss:							
	1 ,							

	Fire Area: F2193			Description: Stairwell A					
	Building:	Fuel	Applicable codes:	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804					
	DCD Fig:		Building code occupancy classification: F-1						
	9A.2-1	9A.2-5			Electrical classification				
	9A.2-2	9A.2-6			elated divisional equipment or cables				
	9A.2-3	9A.2-7			lundant trains or equipment or cables	none			
	9A.2-4	9A.2-8	Surround	led by fire barriers rated a					
				Excep	t: basemat				
Consisting o	of the following	g Rooms:	Fire De	etection	Fire Suppres	sion			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup			
-11500	2193	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers			
-6400				(outside stairwell					
-1000				at each landing)					
4650									
9060	ł								
22500									
		negligible	Anticipated combustible lo		Assuming automatic & manual FP				
		700	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire				
		. 11 1 6			Complete burnout of all equipme				
			ipment, impact of fire upon	: !	Fire Area affects no safety-relate				
	lant operation:		4*.14		equipment; all safety divisions ar	nd both redundant trains			
Kadiol		None, no radiological ma			A and B are operable.				
Me		Travel distance limits to							
		Access via exterior and i	nterior doors						
	Property loss:	rvegiigibie							

	Fire Area:	F2490	Description: Stairwell B					
	Building	Fuel	Applicable codes:	IBC; Reg Guide 1.189;	NFPA 10, 14, 72, 101, 804			
		DCD Fig:	<u> </u>	В	uilding code occupancy classification	: <b>F-1</b>		
		9A.2-4		Electrical classification: <b>none</b>				
		9A.2-5		Safety-related divisional equipment or cables: <b>none</b>				
		9A.2-6		Nonsafety-related re-	dundant trains or equipment or cables	none		
		9A.2-7	Surround	led by fire barriers rated a	at: 3 hours			
		9A.2-8		Excep	ot: basemat			
Consisting	of the following	g Rooms:	Fire De	etection	Fire Suppres	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	2490	None	Area-wide ionization	Manual pulls (outside stairwell	Hose racks	ABC fire extinguishers		
22500				at each landing)				
		negligible	Anticipated combustible lo		Assuming automatic & manual FP			
		700	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire	e on safe shutdown:		
		. 11 1 6			Complete burnout of all equipme			
			quipment, impact of fire upon	l: <b>1</b>	Fire Area affects no safety-relate			
	Plant operation:		4 • 1		equipment; all safety divisions and both redundant trains			
Radio		None, no radiological m			A and B are operable.			
3.4		Travel distance limits to						
Manu		Access via exterior door	<u>*</u>					
	Property loss:	: Negligible						

i	Fire Area:	F2600	Description: HVAC Penthouse A					
	Building:	Fuel	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804					
		DCD Fig:	_	Ві	uilding code occupancy classificatio	n: <b>F-1</b>		
		9A.2-7	Electrical classification: none					
		9A.2-8	Safety-related divisional equipment or cables: <b>none</b>					
			Nonsafety-related redundant trains or equipment or cables: A					
			Surround	led by fire barriers rated a				
				Excep	t: none			
			<u></u>					
Consisting of	of the following	g Rooms:	Fire De	etection	Fire Suppre	ession		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
22500	2600	Class IIIB lubricants Cable insulation Filter media	Area-wide ionization	Manual pulls (outside stairwells)	Hose racks (in nearby stairwells)	ABC fire extinguishers		
		< 700 700	Anticipated combustible lo Unsprinklered combustible	*	Assuming automatic & manual FI function, impact of design basis fi			
		700	Onsprinklered combustible	ioad IIIIIt, WIJ/III2	Complete burnout of all equipm			
Assuming o	neration of inst	alled fire extinguishing ea	uipment, impact of fire upon					
		None; restoration requi		•	Fire Area results in loss of only redundant train A; all safety-related or safe shutdown and redundant train B			
		None, no radiological m			equipment is unaffected by fire			
		Travel distance limits to			and B on-site power sources are unaffected by fire and			
Mani	Manual firefighting: Access via stairwells				are operable.			
iviallu		Moderate						

Assuming operation of installed fire extinguishing equipment of Plant operation: Radiological release: None, no radiological match Life safety: Manual firefighting: Property loss: Moderate Access via stairwells Moderate			ed before refueling aterials present		Assuming automatic & manual FP function, impact of design basis fir Complete burnout of all equipme Fire Area results in loss of only resafety-related or safe shutdown a equipment is unaffected by fire a and B on-site power sources are are operable.	e on safe shutdown: ent and cables within this edundant train B; all and redundant train A and are operable. Both A	
-11500 22500	2194 2601	Cable insulation Class IIIB lubricants Cable insulation Filter media	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers	
Consisting of the following Rooms:  EL Room # Potential Combustibles		Fire De Primary	etection Backup	Fire Suppres Primary	ssion Backup		
9A.2-2 9A.2-6 9A.2-3 9A.2-7 9A.2-4 9A.2-8			Safety-related divisional equipment or cables:  Nonsafety-related redundant trains or equipment or cables:  Surrounded by fire barriers rated at:  Except: basemat (non-rated)				
	Building DCD Fig: 9A.2-1	9A.2-5	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804  Building code occupancy classification: F-1  Electrical classification: none			none	
	Fire Area		Description: HVAC Penthouse B				

### **Table 9A.5-3**

### **Control Building**

	Fire Area:	F3100	Description: C	Description: Corridor A				
	Building	Control		Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804				
		DCD Fig:		Building code occupancy classification: F-1				
		9A.2-2	Electrical classification: <b>none</b>					
		9A.2-3		•	related divisional equipment or cables:			
		9A.2-4			edundant trains or equipment or cables:	none		
		9A.2-5	Surrounde	d by fire barriers rated				
				Exce	pt: basemat (non-rated); elevator de	oors (1.5 hr rated)		
	Consisting of the following Rooms:		Fire Dete		Fire Suppres			
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
	2100					1.50.5		
-7400	3100	Cable insulation	Area-wide photoelectric	Manual pulls	Hose racks	ABC fire extinguishers		
	over sump	Class A combustibles		(at EXITs)	(in nearby stairwells)			
2000	3100	4	Area-wide ionization					
-2000	3200							
4650	3203	-						
4650	3300							
		< 700	Anticipated combustible load	d, MJ/m2	Assuming automatic & manual FP	equipment does not		
		700	Unsprinklered combustible l		function, impact of design basis fir			
			<b>-</b>	•	Complete burnout of all equipme			
Assuming	operation of ins	stalled fire extinguishing ed	quipment, impact of fire upon:		this Fire Area affects no safety-r			
	Plant operation:				equipment; all safety divisions ar			
Radio	ological release:	None, no radiological m	aterials present		trains A and B are operable.			
		Travel distance limits to	EXITs meet NFPA 101					
Manu		Access via doors						
	Property loss:	Negligible						

	Fire Area:	F3101	Description: Corridor B				
	Building:	Control	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804				
		DCD Fig:			ilding code occupancy classification:	F-1	
		9A.2-2	Electrical classification: none				
		9A.2-3		Safety-re	elated divisional equipment or cables:	none	
		9A.2-4		Nonsafety-related red	undant trains or equipment or cables:	none	
		9A.2-5	Surrounde	ed by fire barriers rated at	t: 3 hours		
				Except	t: basemat (non-rated); elevator do	oors (1.5 hr rated)	
Consisting of the following Rooms:			Fire De	tection	Fire Suppres	sion	
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
-7400	3101	Cable insulation	Area-wide photoelectric	Manual pulls	Hose racks	ABC fire extinguishers	
	over sump	Class A combustibles	-	(at EXITs)	(in nearby stairwells)		
-2000	rest of 3101		Area-wide ionization	,			
			_				
		< 700	Anticipated combustible loa	ad, MJ/m2	Assuming automatic & manual FP	equipment does not	
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:		
					Complete burnout of all equipme	ent and cables within	
Assuming	operation of ins	stalled fire extinguishing eq	uipment, impact of fire upon	:	this Fire Area affects no safety-re	elated or safe shutdown	
	Plant operation:				equipment; all safety divisions ar	id both redundant	
Radio		None, no radiological ma			trains A and B are operable.		
Life safety: Travel distance limits to EXITs meet NF			EXITs meet NFPA 101				
Manı		Access via doors					
	Property loss:	Negligible					

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

	Fire Area:	F3110		Division I Electrica		
	Building:	Control	Applicable codes:	IBC; Reg Guide 1.1	89; NFPA 10, 14, 72, 75, 90A, 101	, 804
		DCD Fig:	_	Building code occupancy classification: F-1		
		9A.2-2		Electrical classification: <b>none</b>		
		9A.2-3		Safety-related divisional equipment or cables: I		
		9A.2-4			indant trains or equipment or cables:	A
		9A.2-5	Surrounded by	fire barriers rated at:	3 hours	
				Except:	basemat (non-rated)	
Consisting	of the followin	g Rooms:	Fire Dete	ction	Fire Sup	pression
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-7400	duct bank	Cable insulation	None	None	None	None
	3110		Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks
	below floor			(outside stairwell		(in nearby stairwells)
-6800	3250			at each landing)		
	3110	Cable insulation				
		Electrical equipment				
	3251	None			Hose racks	ABC fire
9060	3401	Class IIIB lubricants			(in nearby stairwells)	extinguishers
	3404	Cable insulation				
	3406	Filter media				
	Charcoal	Charcoal	HVAC temperature		Internal manual spray	
	Filter		indication			
< 700 a	t EL 9060; < 1	400 EL -6800 & below	Anticipated combustible lo	oad, MJ/m2	Assuming automatic & manual FP	equipment does not
700 at	t EL 9060; 14	00 EL -6800 & below	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire	e on safe shutdown:
			-		The nonsafety-related MCR HVA	AC has redundant air handling
		talled fire extinguishing equ	uipment, impact of fire upor	n:	units, but uses common ductworl	. Where the common ductwork
P	lant operation:	None			for one air handling unit could be	e exposed to fire involving the
Radio	logical release:	None, no radiological ma	terials present		other redundant air handling uni	t, the HVAC ductwork will be
	Life safety:	Travel distance limits to	EXITs meet NFPA 101		wrapped or encapsulated in 3-ho	ur fire rated material.Complete
Manu		Access via stairwells			burnout of all equipment and cab	oles within this Fire Area results
	Property loss:	Significant			in loss of only Division I safe shut	
					as redundant train A non-safety	equipment; remaining three
					divisions of safe shutdown and re	
					unaffected by fire and are operat	
					scheme (any two out of four redu	
					1	5 Perusie

	Fire Area:	F3120	Description:	Division II Electrical				
	Building:	Control	Applicable codes:	IBC; Reg Guide 1.189; N	NFPA 10, 14, 72, 75, 101, 804			
		DCD Fig:		Bui	Ilding code occupancy classification:	F-1		
		9A.2-2		Electrical classification: <b>none</b>				
		9A.2-3		Safety-re	lated divisional equipment or cables:	II		
					undant trains or equipment or cables:	none		
			Surround	ed by fire barriers rated at	3 hours			
				Except	: basemat (non-rated)			
Consisting	of the followin		Fire De	etection	Fire Suppress	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
-7400	duct bank	Cable insulation	None	None	None	None		
	3120		Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks		
	below floor			(outside stairwell		(in nearby stairwells)		
-6800	3120	Cable insulation		at each landing)				
		Electrical equipment						
			7					
		< 1400	Anticipated combustible lo	· ·	Assuming automatic & manual FP equipment does not			
		1400	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:			
					Complete burnout of all equipment and cables within			
			uipment, impact of fire upon	1:	this Fire Area results in loss of or	=		
	Plant operation:				shutdown equipment circuits; re	O		
Radio		None, no radiological m			of safe shutdown and redundant			
		Travel distance limits to	EXITs meet NFPA 101		equipment are unaffected by fire	=		
Manu		Access via stairwells		Automatic logic control scheme (any two out of				
	Property loss:	Significant			redundant signals) remains opera	able.		

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

			Contro	I Building (cont.)		
	Fire Area:	F3130		<b>Division III Electric</b>		
	Building	Control	Applicable codes:	IBC; Reg Guide 1.1	189; NFPA 10, 14, 72, 75, 90A, 101, 804	
		DCD Fig:	_		Building code occupancy classification:	
		9A.2-2	Electrical classification: <b>none</b>			
		9A.2-3			fety-related divisional equipment or cables:	
		9A.2-4			ed redundant trains or equipment or cables:	В
		9A.2-5	Surrounded by	fire barriers rated at:		
					basemat (non-rated)	
Consisting	of the followin		Fire Dete	ction	Fire Suppressi	on
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
-7400	duct bank	Cable insulation	None	None	None	None
	3130		Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks
	below floor			(outside stairwell		(in nearby stairwells)
-6800	3260			at each landing)		
	3130	Cable insulation				
		Electrical equipment				
	3261	Insulation			Hose racks	ABC fire
9060	3402	Class IIIB lubricants			(in nearby stairwells)	extinguishers
	3403	Cable insulation				
	3407	Filter media				_
	Charcoal	Charcoal	HVAC temperature		Internal manual spray	
	Filter		indication			
< 700 a	rt E.L. 9060 · < 1	1400 EL -6800 & below	Anticipated combustible lo	nad MI/m2	Assuming automatic & manual FP equipr	ment does not
		00 EL -6800 & below	Unsprinklered combustible		function, impact of design basis fire on sa	
			onsprinkierea combustion	c 1044 11111t, 1413/1112	The nonsafety-related MCR HVAC ha	
Assuming	operation of in	stalled fire extinguishing eq	uipment, impact of fire upor	n:	units, but uses common ductwork. Wh	0
	Plant operation:		· F · · · · F · · · · · · · · · · · · ·	1	for one air handling unit could be expo	
		None, no radiological ma	iterials present	1	other redundant air handling unit, the	
		Travel distance limits to		1	wrapped or encapsulated in 3-hour fire	
Mani	•	Access via stairwells		1	burnout of all equipment and cables w	
	Property loss:			1	in loss of only Division III safe shutdow	
				•	well as redundant train B non-safety ed	
					divisions of safe shutdown and redund	
					unaffected by fire and are operable. A	
					scheme (any two out of four redundant	
					peneme (any two out of four redundant	signais, i cinams operable.

				building (cont.)			
	Fire Area:		_	Description: Division VI Electrical			
	Building:	Control	Applicable codes:	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 101, 804			
		DCD Fig:		Building code occupancy classification: F-1			
		9A.2-2	1	Electrical classification: <b>none</b>			
		9A.2-3		Safety-rel	ated divisional equipment or cables:	IV	
		9A.2-4			indant trains or equipment or cables:	none	
		9A.2-5	Surround	led by fire barriers rated at:	3 hours		
				Except:	basemat (non-rated)		
Consisting	of the followin	g Rooms:	Fire De	etection	Fire Suppres	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
-7400	duct bank	Cable insulation	None	None	None	None	
-7400	3140		Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks	
	below floor			(outside stairwell		(in nearby stairwells)	
-6800	3140	Cable insulation		at each landing)			
		Electrical equipment	_				
4650	3301	Cable insulation					
	below floor		_				
5250	3301	Cable insulation					
		Electrical equipment					
					<u> </u>		
		< 1400	Anticipated combustible lo	oad, MJ/m2	Assuming automatic & manual FP	equipment does not	
		1400	Unsprinklered combustible		function, impact of design basis fire		
			<b>_</b> .	,	Complete burnout of all equipme		
Assuming	operation of ins	stalled fire extinguishing e	quipment, impact of fire upor	1:	this Fire Area results in loss of or		
	Plant operation:				shutdown equipment circuits; remaining three divisions		
Radio	logical release:	None, no radiological m	aterials present		of safe shutdown and redundant	_	
		Travel distance limits to			equipment are unaffected by fire	and are operable.	
Mani	ual firefighting:	Access via stairwells			Automatic logic control scheme (	-	
	Property loss:				redundant signals) remains oper	=	
				1			

			Control Bu	numg (cont.)				
	Fire Area:	F3150	description:	<b>DPS Control Room</b>				
	Building:	Control	applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 101, 804					
		Fire Zone Dwgs:	_	building code occupancy classification: F-1				
		9A.2-4			electrical classification:	none		
				safety-related	I divisional equipment or cables:	IV		
					nt trains or equipment or cables:	none		
			surrounded b	by fire barriers rated at:				
				except:	basemat (non-rated)			
consisting o	of the following R	ooms:	Fire De	tection	Fire Supp	ression		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	3303	Cable insulation	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks		
4030	below floor	Capic insulation	Ai ca-wide folization	(outside stairwell	CO2 me extinguishers	(in nearby stairwells)		
5250	3303	Cable Insulation		at each landing)				
		Electrical Equipment						
	ļ	1						
		< 1400	Anticipated combustible	e load, MJ/m2	Assuming automatic & manual	FP equipment does not		
		1400	Unsprinklered combusti		function, impact of design basis	• •		
			<b>.</b>		Complete burnout of all equi	pment and cables within		
Assuming o	peration of install	led fire extinguishing equip	ment, impact of fire upon	:	this Fire Area results in loss of	of Diverse Protection		
	Plant operation:				System (DPS) equipment circuits; four divisions of			
Rac	diological release:	None, no radiological ma	aterials present		safe shutdown and redundan	t trains A and B		
		Travel distance limits to	<b>EXITs meet NFPA 101</b>		equipment are unaffected by	fire and are operable.		
Ma	Manual firefighting: Access via stairwells		Automatic logic control scheme (an		ne (any two out of four			
	Property loss:	Significant			redundant signals) remains o	perable.		

	Fire Area: F3190 Description: Stairwell A						
	Building:	Control	Applicable codes:	IBC; Reg Guide 1.189; N	NFPA 10, 14, 72, 101, 804		
		DCD Fig:	•		llding code occupancy classification:	F-1	
		9A.2-2	Electrical classification: <b>none</b>				
		9A.2-3		Safety-rel	lated divisional equipment or cables:	none	
9A.2-4				Nonsafety-related redu	undant trains or equipment or cables:	none	
		9A.2-5	Surround	led by fire barriers rated at	3 hours		
			Except: basemat (non-rated)				
Consisting of the following Rooms:			Fire De	etection	Fire Suppres	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
-7400	3190	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers	
-2000				(outside stairwell			
4650	1			at each landing)			
9060				<i>O</i> ,			
			_				
		negligible	Anticipated combustible lo	oad, MJ/m2	Assuming automatic & manual FP	equipment does not	
		700	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire	e on safe shutdown:	
			<del>-</del>		Complete burnout of all equipme	ent and cables within	
Assuming of	operation of ins	stalled fire extinguishing eq	uipment, impact of fire upor	1:	this Fire Area affects no safety-re	elated or safe shutdown	
P	lant operation:	None			equipment; all safety divisions ar	id both redundant	
Radiol	logical release:	None, no radiological ma					
	Life safety:	Travel distance limits to					
Manu	al firefighting:	Access via exterior and i	nterior doors				
	Property loss:						
		<u> </u>		•			

	Fire Area	: F3191	Description:	Elevator A			
	Building	: Control	Applicable codes:	IBC; Reg Guide 1.189;	NFPA 10, 14, 72, 101, 804; ASME A	A17.1	
		DCD Fig:	_	Bu	ilding code occupancy classification:	F-1	
		9A.2-2	Electrical classification: <b>none</b>				
		9A.2-3		Safety-re	elated divisional equipment or cables:	none	
		9A.2-4			undant trains or equipment or cables:	none	
		9A.2-5	Surround	ed by fire barriers rated at			
				Except	basemat (non-rated); elevator do	oors (1.5 hr rated)	
Consisting	of the following		Fire De	i de la companya de	Fire Suppress		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
-7400	3191	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside Elev	ABC fire extinguishers (outside Elev	Hose racks (in nearby stairwell)	
				at each landing)	at each landing)	()	
9060	3405	Class IIIB lubricants		8)	CO2 fire extinguisher		
		Cable insulation			(outside room)		
		Electrical equipment					
			=				
		< 700	Anticipated combustible lo		Assuming automatic & manual FP		
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:		
					Complete burnout of all equipme		
			uipment, impact of fire upor	1:	this Fire Area affects no safety-re		
	lant operation				equipment; all safety divisions an	d both redundant	
Radiol		None, no radiological ma			trains A and B are operable.		
3.6		Travel distance limits to					
Manu	~ ~	Access via stairwells and	l hoistway doors				
	Property loss	: Negligible					

Fire A	Area: <b>F3192</b>	Description:	Stairwell B			
Buile	ding: Control	Applicable codes:	IBC; Reg Guide 1.189;	NFPA 10, 14, 72, 101, 804		
	DCD Fig:		Bu	ilding code occupancy classification		
	9A.2-2			Electrical classification	none	
	9A.2-3		Safety-re	elated divisional equipment or cables	none	
	9A.2-4	Nonsafety-related redundant trains or equipment or cables: <b>none</b>				
	9A.2-5	Surround	led by fire barriers rated at	t: 3 hours		
			Except	t: basemat (non-rated)		
Consisting of the foll		Fire De	etection	Fire Suppres		
EL Room	# Potential Combustibles	Primary	Backup	Primary	Backup	
-7400 3192	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers	
-2000			(outside stairwell			
4650			at each landing)			
9060						
		_				
	negligible	Anticipated combustible lo		Assuming automatic & manual FP		
	700	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire on safe shutdown:		
				Complete burnout of all equipme		
	of installed fire extinguishing e	equipment, impact of fire upor	1:	this Fire Area affects no safety-r		
_	tion: None			equipment; all safety divisions an	nd both redundant	
	ease: None, no radiological n			trains A and B are operable.		
	fety: Travel distance limits t					
	ting: Access via exterior and	interior doors				
Property	loss: Negligible					

Fire Area: F3270				Main Control Roon			
	Building	Control	Applicable codes:		89; NFPA 10, 14, 72, 75, 101, 804		
		DCD Fig:	_	Building code occupancy classification: <b>B</b>			
		9A.2-3			Electrical classification:		
9A.2-4					ated divisional equipment or cables:		
					ndant trains or equipment or cables:	none	
				fire barriers rated at:			
			interior	r fire barriers rated at:	1 hour, around room 3275 Main	Control Room	
Consisting of	Consisting of the following Rooms:		Fire Detection	on	Fire Suppres	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
-2000	below	Cable insulation	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks	
	access floor			(outside stairwells		(in nearby stairwells)	
	3274	Cable insulation	1	at each landing)			
	3276	Class A combustibles		8,			
-1400	3275	Cable insulation	1				
	3270	Electrical equipment			Hose racks	ABC fire	
	3271	Class A combustibles			(in nearby stairwells)	extinguishers	
	3273	Filter media					
	3274	Class IIIA lubricants					
	3204, 3205						
	3201, 3202	Class A combustibles	Area-wide photoelectric				
í	above ceiling	Insulation	Area-wide ionization				
		< 1400	Anticipated combustible load, M	1.J/m2	Assuming automatic & manual FP	equipment does not	
		1400	Unsprinklered combustible load		function, impact of design basis fire		
			r	.,	Complete burnout of all equipme		
Assuming or	peration of in	stalled fire extinguishing eq	uipment, impact of fire upon:		this Fire Area affects MCR conti		
			trip; outage required to restore	1	of safe shutdown equipment. Op		
		None, no radiological ma		1	reactor before evacuating MCR.		
		Travel distance limits to		1	shutdown control transferred to		
Manua		Access via stairwells			Shutdown Panel (located in separ		
		Significant			and F1323). All safety-related ci		
	-			-	redundant circuits are optically i		
					area, so all safety divisional equi		
					trains A and B are operable. See	-	

	Fire Area: Building:		Description: Non-1E Electrical Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 101, 804  Building code occupancy classification: Electrical classification: Safety-related divisional equipment or cables: Nonsafety-related redundant trains or equipment or cables: Nonsafety-related at: 3 hours				
			Surrounded by fire barriers rated at: 3 hours Except: none				
	of the followin		Fire De		Fire Suppres	1	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
4650 5250	3302 below access floor 3302	Cable insulation  Electrical equipment  Cable insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO2 fire extinguishers	Hose racks (in nearby stairwells)	
Radio	Plant operation: logical release: Life safety:	None None, no radiological ma Travel distance limits to Access via stairwells		e load limit, MJ/m2	Assuming automatic & manual FP function, impact of design basis fir Complete burnout of all equipment this Fire Area affects no safety-requipment; all safety divisions and trains A and B are operable.	e on safe shutdown: ent and cables within elated or safe shutdown	

Table 9A.5-4
Turbine Building

	Fire Area:	F4100		Turbine Equipment				
	Building:	Turbine	Applicable codes:		FPA 10, 12, 13, 14, 15, 72, 90A, 49			
		DCD Fig:	_	Bui	lding code occupancy classification:	F-1		
		9A.2-12			Electrical classification:			
		9A.2-13	Safety-related divisional equipment or cables: I, II, III, IV					
		9A.2-14		Nonsafety-related redu	ndant trains or equipment or cables:	none		
		9A.2-15		ed by fire barriers rated at:				
		9A.2-16			evator doors (1.5 hr rated); exteri			
		9A.2-17	walls (non-rated); exterior walls above EL 12000 (non-rated)					
Consisting	of the following Rooms:		Fire De	etection	Fire Suppressi	on		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
				r	<u> </u>	<u>r</u>		
-1400	4180, 4181, 4182	Class IIIB lubricants	Area-wide photoelectric	Manual pulls	ABC fire extinguishers	Hose racks		
	41F1A,41F1B,41F1C,	Cable insulation	Area-wide ionization	(outside stairwell		(in nearby		
	41F1D,41F1E,41F1F,			at each landing)		stairwells)		
	41F1G, 41F0, 41F3,							
	41F4, 41F5, 41F6,							
	41F7, 41F8, 41F9		1					
	4100, 4101, 4102	Class IIIB lubricants						
	4105, 4107, 4199	Cable insulation						
	4103, 4107, 4199	Filter media						
	4106, 4184	Class IIIB lubricants	Suppression flowswitch		Wet-pipe sprinkler			
	4185, 4186	Cable insulation			16.3 L/min per m2			
4650	4205, 4206, 4207				over most remote 465 m2			
	4202, 4203							
	4281, 4282,	< 28 m3 Hydrogen	Area-wide spot heat		ABC fire extinguishers			
		Class IIIB lubricants						
	4201, 4204, 4280,	Class IIIB lubricants	Area-wide ionization					
	4284, 4290, 4291,	Cable insulation						
	42F1A,42F1B,42F1C,							
	42F1D,42F1E,42F1F,							
	42F1G, 42F1H, 4283,							
	42F2A,42F2B,42F2C,							
	42F2D,42F2E,42F2F,							
	42F2G, 42F2H,							
	42F4, 4295							

Table 9A5-4
Turbine Building (Cont.)

			Turbine bundi	mg (00mw)				
	Fire Area:	F4100 (continued)	Description:	<b>Turbine Equipment (con</b>	tinued)			
	Building:	Turbine	Applicable codes:	IBC; Reg Guide 1.189; N	VFPA 10, 12, 13, 14, 15, 72, 90A, 49	07, 101, 804		
		DCD Fig:	Building code occupancy classification: F-1					
		9A.2-12	1	Electrical classification: <b>none</b>				
		9A.2-13		Safety-rel	ated divisional equipment or cables:	I, II, III, IV		
		9A.2-14		Nonsafety-related redu	indant trains or equipment or cables:	none		
		9A.2-15	Surround	ed by fire barriers rated at:	3 hours			
		9A.2-16	Except: basemat (non-rated); elevator doors (1.5 hr rated); exterior underground					
		9A.2-17	walls (non-rated); exterior walls above EL 12000 (non-rated)					
Consisting	of the following Rooms:		Fire De	Fire Detection Fire Suppression				
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
EL	ROUIII π	1 otential Compusitores	i iiiiai y	Баскир	1 milai y	Баскир		
4650	4200, 4294	Electrical equipment	Suppression flowswitch	Manual pulls	Dry-pipe sprinkler	Hose racks		
4030	4200, 4294	Cable insulation	Suppression nowswitch	(outside stairwell	8.1 L/min per m2	(in nearby		
		Class IIIB lubricants		at each landing)	over most remote 181 m2	stairwells)		
		Transient combustibles		at each fanding)	over most remote 181 m2	stair weils)		
7650	42F0	Class IIIB lubricants	Area-wide ionization		ABC fire extinguishers			
7030	7210	Cable insulation	Area-wide follization		Abe in extinguishers			
		Cable insulation						
8200	4293							
0200	4293 (end of tunnel)		Suppression flowswitch		Dry-pilot deluge			
	12/0 (0114 01 0411101)		suppression nowswitten		37.2 L/min per meter			
					(water curtain)			
12000	4300, 4301, 4302,	Class IIIB lubricants	Area-wide ionization		ABC fire extinguishers			
	4303, 4304, 4305,	Cable insulation						
	4306, 4309, 4383,	Filter media						
	4387, 4394							
	4380, 4381, 4382	Cable insulation	Suppression flowswitch		Wet-pipe sprinkler			
16000	4391, 4392	Class IIIB lubricants			16.3 L/min per m2			
23500					over most remote 465 m2			
20000	4390							
	4405 curbed area							
	rest of 4405	Class IIIB lubricants	Area-wide ionization		ABC fire extinguishers			
	4400, 4401, 4402	Cable insulation						
	4403, 4404	Filter media						

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Table 9A5-4
Turbine Building (Cont.)

			Turbine Bundi	8			
	Fire Area:	F4100 (continued)		Turbine Equipment (con			
	Building:	Turbine	Applicable codes:	IBC; Reg Guide 1.189; N	FPA 10, 12, 13, 14, 15, 72, 90A, 49	7, 101, 804	
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-12			Electrical classification:		
		9A.2-13			ated divisional equipment or cables:		
		9A.2-14	Nonsafety-related redundant trains or equipment or cables: none				
		9A.2-15		ed by fire barriers rated at:			
		9A.2-16	Except: basemat (non-rated); elevator doors (1.5 hr rated); exterior underground				
		9A.2-17	walls (non-rated); exterior walls above EL 12000 (non-rated)				
Consisting	of the following Rooms:		Fire De	etection	Fire Suppression	on	
EL		Potential Combustibles	Primary	Backup	Primary	Backup	
				-		-	
20000	H2 seal oil unit	Class IIIB lubricants	Suppression flowswitch	Manual pulls	Dry-pilot deluge	Hose racks	
		< 11,000 L Class IIIA		(outside stairwells	12.2 L/min per m2	(in nearby	
		seal oil		at each landing)		stairwells)	
28000	4580 above ceiling	Cable insulation	Area-wide ionization		ABC fire extinguishers		
	4500, 4501, 4502	Class IIIB lubricants					
	4503, 4504, 4580	Cable insulation					
	4581, 4582, 4583	Filter media					
	4505, 4508, 4509		Area-wide linear heat				
	4506, 4507		Area-wide spot heat				
	Turbine-generator	Class IIIB lubricants	Spot heat over each		Automatic preaction spray		
	bearings		bearing		16.3 L/min per m2		
			B . H .		over entire area	G Q <b>4</b> #	
	Generator housing	< 56 m3 Hydrogen	Process indication		Manual low pressure CO2	CO2 fire	
	Exciter housing	1	Area-wide ionization		30% concentration	extinguishers	
					two-shot volume		
33000	4600, 4602	Class IIIB lubricants	Area-wide ionization		ABC fire extinguishers	Hose racks	
42.500	4505	Cable insulation				(in nearby	
43500	4505	Filter media				stairwells)	
54000							

Fire Area: F4100 (continued)	Description: Turbine Equipment (	continued)	
Building: Turbine	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 12, 13, 14, 15, 72, 90A, 497, 101, 804		
DCD Fig:		Building code occupancy classification: F-1	
9A.2-12		Electrical classification: <b>none</b>	
9A.2-13	Safety	-related divisional equipment or cables: I, II, III, IV	
9A.2-14	Nonsafety-related r	edundant trains or equipment or cables: <b>none</b>	
9A.2-15	Surrounded by fire barriers rated	at: 3 hours	
9A.2-16	Except: basemat (non-rated);	elevator doors (1.5 hr rated); exterior underground	
9A.2-17	walls (non-rated); ex	terior walls above EL 12000 (non-rated)	
> 700 in rooms where turbine oil can flow			
< 700 in all other rooms	Anticipated combustible load, MJ/m2	Assuming automatic & manual FP equipment does not	
700	Unsprinklered combustible load limit, MJ/m2	function, impact of design basis fire on safe shutdown:	
		Complete burnout of all equipment and cables within	
Assuming operation of installed fire extinguishing equipment, in	· · · · · · · · · · · · · · · · · · ·	this Fire Area affects no safety-related or safe	
Plant operation: Turbine trip; restoration		shutdown divisional equipment; all safety divisions	
Radiological release: Contained within buildin	ıg	and both redundant trains A and B are operable. Fire	
Life safety: Travel distance limits to	EXITs meet NFPA 101	related failure of safety-related instrumentaion may	
Manual firefighting: Access via stairwells		cause reactor scram or containment isolation. See	
Property loss: Significant		Sections 9A.6.4.2, 9A.6.4.3, 9A.6.4.5 and 9A.6.4.13.	

	Fire Area			Feedwater Pumps				
	Building	Turbine	Applicable codes:	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804				
		DCD Fig:	Building code occupancy classification: F-1					
		9A.2-12		Electrical classification: <b>none</b>				
		9A.2-13			lated divisional equipment or cables			
		9A.2-14			undant trains or equipment or cables	: A, B		
		9A.2-15	Surrounde	ed by fire barriers rated at				
		9A.2-16		Except	basemat (non-rated)			
Consisting	of the following	ng Rooms:	Fire De	tection	Fire Suppres	ssion		
EL Room # Potential Combustibles		Primary	Backup	Primary	Backup			
1400	4183	Class IIIB lubricants	A March A. Jack Ma	A 11 11	December 2011	Hose racks		
-1400	-1400 4103	Cable insulation	Area-wide photoelectric	Area-wide spot heat	Preaction sprinkler	(in nearby stairwells)		
	4104	Class IIIB lubricants	Dry-pilot detection		12.2 L/min per m2 over most remote 302 m2	(in nearby stairwens)		
	4104	Cable insulation	Dry-phot detection		over most remote 302 m2			
		< 28 m3 Hydrogen						
	4103	Class IIIB lubricants	Area-wide ionization					
	4105	Cable insulation	Area-wide ionization					
		Filter media						
	4292	None	Area-wide ionization					
	12/2	Tione	Tiren wine formation					
		> 700	Anticipated combustible loa		Assuming automatic & manual FP			
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fin	e on safe shutdown:		
					Complete burnout of all equipme			
			quipment, impact of fire upon	:	this Fire Area affects up to all fo	ur redundant FW		
		Turbine trip; outage re			pumps, but affects no safety-rela	ted or safe shutdown		
Radio	Radiological release: Contained within buildi				divisional equipment; all safety of	livisions and both		
	Life safety: Travel distance limits to		EXITs meet NFPA 101		redundant trains A and B are operable.			
Manu		Access via stairwells						
		Moderate						

				bunding (Cont.)			
	Fire Area:		Description:	Charcoal Adsorbers			
	Building:	Turbine	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 15, 72, 101, 804				
		DCD Fig:		Building code occupancy classification: F-1			
		9A.2-12	Electrical classification: <b>none</b>				
		9A.2-13		Safety-re	elated divisional equipment or cables:	none	
		9A.2-14		Nonsafety-related red	undant trains or equipment or cables:	none	
		9A.2-15	Surround	ed by fire barriers rated at	t: 3 hours		
				Except	t: basemat (non-rated)		
Consisting	of the followin	g Rooms:	Fire De	etection	Fire Suppress	sion	
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
-1400 12000	Adsorber A Adsorber B Adsorber C Adsorber D Adsorber E Adsorber F Adsorber G Adsorber H 4108	Charcoal  Class IIIB lubricants Cable insulation	Process indication  Area-wide ionization	Manual pulls (outside Elev at each landing)	ABC fire extinguishers (outside Elev at each landing)	Hose racks (in nearby stairwell)	
Radio	Plant operation: logical release: Life safety:	None Contained within buildi Travel distance limits to Access via stairwells and	EXITs meet NFPA 101	load limit, MJ/m2	Assuming automatic & manual FP of function, impact of design basis fire Complete burnout of all equipme this Fire Area affects no safety-redivisional equipment; all safety deredundant trains A and B are open	e on safe shutdown: nt and cables within clated or safe shutdown ivisions and both	

Table 9A5-4
Turbine Building (Cont.)

	Fire Area:	E4100	Dagarintian	Eleveter A			
	Building:		Description: Elevator A Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1				
	Building.	DCD Fig:	Building code occupancy classification: F-1				
		9A.2-12	Electrical classification: none				
		9A.2-12 9A.2-13	Safety-related divisional equipment or cables: none				
		9A.2-14			undant trains or equipment or cables		
		9A.2-14	Surround	ed by fire barriers rated at		. [11011¢	
		9A.2-16	Surround		basemat (non-rated); elevator d	oors (1.5 hr rated)	
		9A.2-17		Елесрі	Dasemat (non-rateu), elevator u	0018 (1.5 III Tateu)	
	of the followin		Fire De		Fire Suppres		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
-1400	4190	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside Elev at each landing)	ABC fire extinguishers (outside Elev at each landing)	Hose racks (in nearby stairwell)	
36000	4680	Class IIIB lubricants Cable insulation Electrical equipment			CO2 fire extinguisher (outside room)		
Assuming operation of installed fire extinguishing equivalent Plant operation: None Radiological release: Life safety: Manual firefighting: Access via stairwells and Property loss: Negligible		aterials present EXITs meet NFPA 101	e load limit, MJ/m2	Assuming automatic & manual FP function, impact of design basis fin Complete burnout of all equipment this Fire Area affects no safety-r divisional equipment; all safety or redundant trains A and B are op	e on safe shutdown: ent and cables within elated or safe shutdown divisions and both		

	Fire Area:	F4191	Description: Stairwell A					
	Building:	Turbine	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804					
		DCD Fig:	Building code occupancy classification: F-1					
		9A.2-12	Electrical classification: <b>none</b>					
		9A.2-13		Safety-re	lated divisional equipment or cables:	none		
		9A.2-14		Nonsafety-related redu	undant trains or equipment or cables:	none		
		9A.2-15	Surround	ed by fire barriers rated at	3 hours			
		9A.2-16		Except	: basemat (non-rated)			
		9A.2-17						
Consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
-1400 4650 12000 20000 28000 33000 36000	4191	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers		
		negligible	Anticipated combustible lo	ad, MJ/m2	Assuming automatic & manual FP	equipment does not		
		700	Unsprinklered combustible		function, impact of design basis fire			
Assuming operation of installed fire extinguishing ederation:  Plant operation:  Radiological release:  Life safety:  Manual firefighting:  Property loss:  None  None, no radiological material			uipment, impact of fire upon:  aterials present  EXITs meet NFPA 101		Complete burnout of all equipment and cables within this Fire Area affects no safety-related or safe shutdown divisional equipment; all safety divisions and both redundant trains A and B are operable.			

	г. т	E4103	D : .:	EL 4 D					
	Fire Area		Description: Elevator B						
	Building	: Turbine DCD Fig:	Applicable codes:	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1  Building code occupancy classification: F-1					
			Electrical classification: none						
		9A.2-12 9A.2-13		Cafatri	related divisional equipment or cables				
		9A.2-13 9A.2-14			dundant trains or equipment or cables				
		9A.2-14 9A.2-15	Surround	ed by fire barriers rated		. none			
		9A.2-15 9A.2-16	Surround		ot: basemat (non-rated); elevator d	oous (1 5 hu motod)			
		9A.2-10 9A.2-17		Exce	Distribution (non-rated); elevator d	oors (1.5 nr rateu)			
Consisting	of the followir		Fire De	ntaction	Fire Suppres	ssion			
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup			
ĽL	Koom #	Totential Combustibles	Timary	Баскир	1 Tilliai y	Баскир			
-1400	4192	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside Elev at each landing)	ABC fire extinguishers (outside Elev at each landing)	Hose racks (in nearby stairwell)			
57000	4681	Class IIIB lubricants Cable insulation Electrical equipment			CO2 fire extinguisher (outside room)				
P: Radiol	lant operation ogical release Life safety	None None, no radiological m Travel distance limits to Access via stairwells and	EXITs meet NFPA 101	load limit, MJ/m2	Assuming automatic & manual FP function, impact of design basis fin Complete burnout of all equipment this Fire Area affects no safety-r divisional equipment; all safety or redundant trains A and B are op	e on safe shutdown: ent and cables within elated or safe shutdown livisions and both			

		•	,				
	Fire Area:		Description: Stairwell B				
	Building:	Turbine	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-12			Electrical classification:		
		9A.2-13		-	elated divisional equipment or cables		
		9A.2-14			lundant trains or equipment or cables:	none	
		9A.2-15	Surround	ed by fire barriers rated a			
		9A.2-16		Excep	t: basemat (non-rated)		
		9A.2-17					
Consisting of	of the followin	g Rooms:	Fire De	etection	Fire Suppres	sion	
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
-1400	4193	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers	
4650				(outside stairwell			
12000				at each landing)			
20000							
28000							
33000							
43500							
54000							
57000							
						<u> </u>	
		negligible	Anticipated combustible lo		Assuming automatic & manual FP	1 1	
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fir		
					Complete burnout of all equipme		
			uipment, impact of fire upor	1:	this Fire Area affects no safety-related or safe shutdown		
	lant operation:				divisional equipment; all safety divisions and both		
Radiol		None, no radiological ma				erable.	
			EXITs meet NFPA 101				
		Access via exterior and i	nterior doors				
	Property loss:	Negligible					

Fire Area		Description: Elevator C				
Building						
		Building code occupancy classification: <b>F-1</b>				
	•		2	1 1		
					s: none	
		Surround				
			Except	basemat (non-rated); elevator d	loors (1.5 hr rated)	
	9A.2-17	]				
the following	g Rooms:	Fire De	etection	Fire Suppre	ssion	
Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
4194	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside Elev at each landing)	ABC fire extinguishers (outside Elev at each landing)	Hose racks (in nearby stairwell)	
4682	Class IIIB lubricants Cable insulation Electrical equipment			CO2 fire extinguisher (outside room)		
	< 700 700	-		function, impact of design basis fi	re on safe shutdown:	
nt operation:	None		1:	this Fire Area affects no safety- divisional equipment; all safety	related or safe shutdow divisions and both	
Life safety: firefighting	Travel distance limits to	EXITs meet NFPA 101		redundant trains it and 2 are of		
1	4194 4682 eration of insum toperation: gical release: Life safety:	4194 Class IIIB lubricants Cable insulation  4682 Class IIIB lubricants Cable insulation Electrical equipment  < 700 700  eration of installed fire extinguishing equipment operation: Spical release: Life safety:  Travel distance limits to	DCD Fig:  9A.2-12  9A.2-13  9A.2-14  9A.2-15  9A.2-16  9A.2-17  The following Rooms:  Room # Potential Combustibles  Primary  4194 Class IIIB lubricants Cable insulation  Cable insulation  Flectrical equipment	DCD Fig:  9A.2-12  9A.2-13  Safety-re Nonsafety-related red 9A.2-15  Surrounded by fire barriers rated at 9A.2-16  9A.2-17  The following Rooms: Room # Potential Combustibles  Room # Potential Combustibles  Area-wide ionization  Cable insulation  Area-wide ionization  Manual pulls (outside Elev at each landing)  4682  Class IIIB lubricants Cable insulation  Electrical equipment  Anticipated combustible load, MJ/m2 Unsprinklered combustible load limit, MJ/m2  eration of installed fire extinguishing equipment, impact of fire upon: nt operation: nt operation: nt operation: None gical release: Life safety: Travel distance limits to EXITs meet NFPA 101	DCD Fig:    PA,2-12   Building code occupancy classification   Electrical classification	

	Fire Area:	F4195	Description: Stairwell C						
	Building:	Turbine	Applicable codes:	IBC; Reg Guide 1.189; N	NFPA 10, 14, 72, 101, 804				
		DCD Fig:	Building code occupancy classification: F-1						
		9A.2-12	Electrical classification: <b>none</b>						
		9A.2-13		Safety-re	lated divisional equipment or cables:	none			
		9A.2-14		Nonsafety-related redu	undant trains or equipment or cables:	none			
		9A.2-15	Surround	ed by fire barriers rated at	3 hours				
		9A.2-16		Except	: basemat (non-rated)				
		9A.2-17							
Consisting of the following Rooms:			Fire De	etection	Fire Suppres	sion			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup			
-1400	4195	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers			
8200				(outside stairwell					
12000				at each landing)					
20000									
28000									
31000									
			_						
		negligible	Anticipated combustible lo		Assuming automatic & manual FP				
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire	e on safe shutdown:			
					Complete burnout of all equipme	ent and cables within			
			uipment, impact of fire upor	1:	this Fire Area affects no safety-re	elated or safe shutdown			
	ant operation:				divisional equipment; all safety d	ivisions and both			
Radiolo		None, no radiological ma			redundant trains A and B are op	erable.			
		Travel distance limits to							
		Access via exterior and in	nterior doors						
	Property loss:	Negligible							

	Fire Area	F/106	Description:	Florestor D			
		Turbine	Description: Elevator D Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1				
	Bulluling.	DCD Fig:	Building code occupancy classification: F-1				
		9A.2-12	Electrical classification: none				
		9A.2-12 9A.2-13		Cofoty m			
		9A.2-13 9A.2-14			elated divisional equipment or cables:		
		9A.2-14 9A.2-15	G 1		lundant trains or equipment or cables:	none	
			Surround	ed by fire barriers rated a		(1 5 1 4 . 1)	
		9A.2-16		Excep	t: basemat (non-rated); elevator do	oors (1.5 hr rated)	
		9A.2-17	_				
Consisting of	of the following	ng Rooms:	Fire De	etection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
-1400	4196	Class IIIB lubricants	Area-wide ionization	Manual pulls	ABC fire extinguishers	Hose racks	
		Cable insulation		(outside Elev	(outside Elev	(in nearby stairwell)	
				at each landing)	at each landing)		
				<u>s</u> )			
31000	4683	Class IIIB lubricants			CO2 fire extinguisher	1	
		Cable insulation			(outside room)		
		Electrical equipment			(outside room)		
		Electrical equipment					
			1	1.357/ 6			
		< 700	Anticipated combustible lo		Assuming automatic & manual FP equipment does not		
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:		
					Complete burnout of all equipme		
			uipment, impact of fire upor	1:	this Fire Area affects no safety-re		
	lant operation				divisional equipment; all safety divisions and both		
Radiol		None, no radiological ma			redundant trains A and B are op	erable.	
		Travel distance limits to					
Manu		Access via stairwells and	l hoistway doors				
	Property loss	Negligible					

	Fire Area:	· E4107	Description:	Stairwall D			
		Turbine	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
	Bullanig.	DCD Fig:	пррпецые соцез.		ailding code occupancy classification:	F-1	
		9A.2-12	Electrical classification: none				
		9A.2-13		Safety-re	elated divisional equipment or cables:		
		9A.2-14			lundant trains or equipment or cables:		
		9A.2-15	Surround	ed by fire barriers rated a			
		9A.2-16		-	t: basemat (non-rated)		
		9A.2-17	]	•			
Consisting	of the followin	ng Rooms:	Fire De	etection	Fire Suppres	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
-1400 4650 12000 20000	4197	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers	
28000 31000							
		negligible	Anticipated combustible lo	ad, MJ/m2	Assuming automatic & manual FP	equipment does not	
		700	Unsprinklered combustible	*	function, impact of design basis fire on safe shutdown:		
Assuming operation of installed fire extinguishing equipment, impact of fire upon:  Plant operation:  Radiological release:  Life safety:  Manual firefighting:  Access via exterior and interior doors					Complete burnout of all equipment and cables within this Fire Area affects no safety-related or safe shutdown divisional equipment; all safety divisions and both redundant trains A and B are operable.		
ivianu	Property loss:		nterior doors				

	Fire Area:	F4250	Description: Reactor Component Cooling Water A				
	Building	Turbine	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
		DCD Fig:	Building code occupancy classification: <b>F-1</b>				
		9A.2-13			Electrical classification:	none	
		9A.2-14		Safety-rel	lated divisional equipment or cables:	none	
				Nonsafety-related redu	undant trains or equipment or cables:	A	
			Surround	led by fire barriers rated at	3 hours		
				Except	none		
	of the following			etection	Fire Suppress		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	4250	Electrical equipment	Area-wide ionization	Manual pulls	Hose racks	CO2 fire	
		Cable insulation		(outside stairwells	(in nearby stairwells)	extinguishers	
		Class IIIB lubricants		at each landing)			
	l	I.					
		< 700	Anticipated combustible lo	oad MJ/m2	Assuming automatic & manual FP	equipment does not	
		700	Unsprinklered combustible	*	function, impact of design basis fire		
		700	Chisprinicion Comoustroit	7 1044 111111, 1110/1112	Complete burnout of all equipment and cables within		
Assuming of	operation of ins	stalled fire extinguishing equ	uipment, impact of fire upor	1:	this Fire Area affects only redunc		
	lant operation:		r : .,p <b>u</b> por		and no safety-related or safe shut		
		None, no radiological ma	terials present		equipment; all safety division and redundant train B		
		Travel distance limits to			equipment are operable.	i i caundant ti am D	
Manu		Access via stairwells			equipment are operable.		
	Property loss:						
	5 F 22-3/ 2000.			1			

	Fire Area	F4260	Description: Reactor Component Cooling Water B					
	Building	Turbine	Applicable codes:	IBC; Reg Guide 1.189; I	NFPA 10, 14, 72, 101, 804			
		DCD Fig:		Building code occupancy classification: F-1				
		9A.2-13	Electrical classification: <b>none</b>					
		9A.2-14		Safety-related divisional equipment or cables: <b>none</b>				
				Nonsafety-related red	undant trains or equipment or cables:	В		
			Surround	led by fire barriers rated at				
				Except	none			
				•				
			_					
Consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	4260	Electrical equipment	Area-wide ionization	Manual pulls	Hose racks	CO2 fire		
		Cable insulation		(outside stairwells	(in nearby stairwells)	extinguishers		
		Class IIIB lubricants		at each landing)	,			
		< 700	Anticipated combustible lo	oad, MJ/m2	Assuming automatic & manual FP equipment does not			
		700	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire	e on safe shutdown:		
		•	-		Complete burnout of all equipme			
Assuming o	peration of in	stalled fire extinguishing ed	juipment, impact of fire upor	n:	this Fire Area affects only redune			
	lant operation				and no safety-related or safe shu			
Radiol	ogical release	None, no radiological ma	aterials present		equipment; all safety division and			
		Travel distance limits to			equipment are operable.			
Manu	-	Access via stairwells			The second secon			
	Property loss							
	1 2							

	Fire Area: F4307 Description: Turbine EHC						
	Building:	Turbine	Applicable codes:	IBC; Reg Guide 1.189; N	NFPA 10, 13, 14, 15, 72, 101, 804		
		DCD Fig:	<u> </u>		lding code occupancy classification:	F-1	
		9A.2-14			Electrical classification:	none	
			Safety-related divisional equipment or cables: <b>none</b>				
			Nonsafety-related redundant trains or equipment or cables: <b>none</b>				
			Surround	ed by fire barriers rated at:	3 hours		
				Except:	none		
Consisting	of the followin	g Rooms:	Fire De	etection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
12000	4307	<3,500 L Class IIIA hydraulic oil Cable insulation Class IIIB lubricants	Suppression flowswitch	Manual pulls (outside stairwells at each landing)	Dry-pilot deluge 12.2 L/min per m2	Hose racks (in nearby stairwells)	
P Radiol	Plant operation: logical release: Life safety:	Turbine trip; restoration None, no radiological ma Travel distance limits to Access via interior door		e load limit, MJ/m2 n:	Assuming automatic & manual FP function, impact of design basis fire Complete burnout of all equipmenthis Fire Area affects no safety-redivisional equipment; all safety design redundant trains A and B are op	e on safe shutdown: ent and cables within elated or safe shutdown ivisions and both	

	Fire Area	F4308	Description: Turbine Lube Oil				
	Building	Turbine	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 11, 13, 14, 15, 16, 72, 101, 804				
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-14	1		Electrical classification:	none	
		9A.2-15		Safety-re	elated divisional equipment or cables:	none	
				Nonsafety-related red	undant trains or equipment or cables:	none	
			Surrounded by fire barriers rated at: 3 hours				
				Except	t: none		
Consisting	of the following		Fire De	etection	Fire Suppress	sion	
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
12000	4308	< 50,000 L Class IIIB	Suppression flowswitch	Manual pulls	Dry-pilot foam-water deluge	Hose racks	
		lubricants		(outside stairwells	16.3 L/min per m2	(in nearby stairwells)	
		Cable insulation		at each landing)	-	,	
			_				
		> 700	Anticipated combustible lo	ad, MJ/m2	Assuming automatic & manual FP	equipment does not	
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire	e on safe shutdown:	
			_		Complete burnout of all equipme	ent and cables within	
Assuming of	peration of in	stalled fire extinguishing eq	uipment, impact of fire upon	1;	this Fire Area affects no safety-re	elated or safe shutdown	
P	lant operation	Turbine trip; restoration	required prior to restart		divisional equipment; all safety d	livisions and both	
Radiol	logical release	None, no radiological ma	nterials present		redundant trains A and B are op-	erable.	
	Life safety:	Travel distance limits to	EXITs meet NFPA 101		1		
Manu	al firefighting	Access via interior door					
	Property loss:	Moderate					

	Fire Area: F4350 Description: Instrument Air A							
	Building:	Turbine	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804					
		DCD Fig:	Building code occupancy classification: F-1					
		9A.2-14	Electrical classification: <b>none</b>					
	Safety-related divisional equipment or cables: none							
			Nonsafety-related redundant trains or equipment or cables: A					
			Surround	ed by fire barriers rated at:	3 hours			
				Except:				
				_				
Consisting	of the followin		Fire De	etection	Fire Suppress	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
12000	4350	Cable insulation	Area-wide ionization	Manual pulls	Hose racks	ABC fire		
		Class IIIB lubricants		(outside stairwells	(in nearby stairwells)	extinguishers		
				at each landing)				
		< 700	Anticipated combustible lo	ad MI/2	Assuming substitution for manual ED			
		700		· ·	Assuming automatic & manual FP	1 1		
		/00	Unsprinklered combustible	e ioad iimit, MJ/m2	function, impact of design basis fire			
A agrimin = a	maration of:	stallad fire autinomishing a	vinmont immost of fire	••	Complete burnout of all equipme			
		stalled fire extinguishing equality	uipinent, impact of fire upor	1. 	this Fire Area affects only redund			
	lant operation:		4		and no safety-related or safe shut			
Radiological release: None, no radiological ma					equipment; all safety division and redundant train B			
Life safety: Travel distance limits to Manual firefighting: Access via stairwells			LAIIS MEET NFFA 101		equipment are operable.			
ivianu								
	Property loss:	Minor						

	Fire Area:	F4360	Description:	Instrument Air B			
	Building:	Turbine	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-14	Electrical classification: none				
				Safety-rel	ated divisional equipment or cables:	none	
					indant trains or equipment or cables:		
			Surround	ed by fire barriers rated at:			
				Except:	none		
				•			
Consisting of	of the followin	g Rooms:	Fire De	etection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
			·	*		•	
12000	4360	Cable insulation	Area-wide ionization	Manual pulls	Hose racks	ABC fire	
		Class IIIB lubricants		(outside stairwells	(in nearby stairwells)	extinguishers	
				at each landing)	(== ===================================	• <b>-</b>	
				cc			
			•				
		< 700	Anticipated combustible lo		Assuming automatic & manual FP		
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire		
					Complete burnout of all equipme		
		talled fire extinguishing equ	uipment, impact of fire upor	1:	this Fire Area affects only redund	lant train B equipment	
	lant operation:				and no safety-related or safe shut	down divisional	
Radiol		None, no radiological ma					
	•	Travel distance limits to	EXITs meet NFPA 101		equipment are operable.		
Manua	al firefighting:	Access via stairwells			_		
	Property loss:	Minor					
				•			

	Fire Area:	F4550	Description: Chilled Water A					
	Building:	Turbine	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASHRAE 15					
		DCD Fig:	Building code occupancy classification: F-1					
		9A.2-16	Electrical classification: <b>none</b>					
		9A.2-17		Safety-rel	ated 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	of the followin	g Rooms:	Fire De	etection	Fire Suppress	sion		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
28000	4550	Electrical equipment Cable insulation Class IIIB lubricants	Area-wide ionization	Manual pulls (outside stairwells at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers		
P. Radiol	lant operation: ogical release: Life safety:	None None, no radiological ma Travel distance limits to Access via stairwells	Anticipated combustible lo Unsprinklered combustible uipment, impact of fire upor terials present EXITs meet NFPA 101	load limit, MJ/m2	Assuming automatic & manual FP of function, impact of design basis fire Complete burnout of all equipme this Fire Area affects only redund and no safety-related or safe shut equipment; all safety division and equipment are operable.	e on safe shutdown: nt and cables within dant train A equipment down divisional		

	Fire Area:	F4560	Description:	Chilled Water B		
	Building:	Turbine	Applicable codes:	IBC; Reg Guide 1.189; N	FPA 10, 14, 72, 101, 804; ASHRA	E 15
	DCD Fig:				lding code occupancy classification:	F-1
		9A.2-16			Electrical classification:	none
		9A.2-17		Safety-rel	ated divisional equipment or cables:	none
				Nonsafety-related redu	ndant trains or equipment or cables:	В
			Surround	ed by fire barriers rated at:	3 hours	
				Except:	none	
Consisting	of the followin	g Rooms:	Fire De	etection	Fire Suppress	sion
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup
28000	4560	Electrical equipment Cable insulation	Area-wide ionization	Manual pulls (outside stairwells	Hose racks (in nearby stairwells)	ABC fire extinguishers
		Class IIIB lubricants		at each landing)		
Assuming operation of installed fire extinguishing equipment, impact of fire Plant operation:  Radiological release: Life safety:  Travel distance limits to EXITs meet NFPA 1				load limit, MJ/m2	Assuming automatic & manual FP of function, impact of design basis fire Complete burnout of all equipme this Fire Area affects only redund and no safety-related or safe shut equipment; all safety division and equipment are operable.	e on safe shutdown: nt and cables within dant train B equipment down divisional
Manu		Access via stairwells				
	Property loss:	Moderate				

F4651	Description:	Water Surge Tanks A				
Turbine	Applicable codes:	IBC; Reg Guide 1.189; N	FPA 10, 14, 72, 101, 804			
DCD Fig:	Building code occupancy classification: F-1					
9A.2-17			Electrical classification:	none		
	Safety-related divisional equipment or cables: <b>none</b>					
	Nonsafety-related redundant trains or equipment or cables: <b>A</b>					
	Surround	ed by fire barriers rated at:	3 hours			
		Except:	none			
g Rooms:	Fire De	etection	Fire Suppress	sion		
Potential Combustibles	Primary	Backup	Primary	Backup		
	·	•		•		
Cable insulation Class IIIB lubricants	Area-wide ionization	Manual pulls (outside stairwells at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers		
Assuming automatic & manual FP equipment does function, impact of design basis fire on safe shutdor.  Assuming operation of installed fire extinguishing equipment, impact of fire upon: Plant operation: Radiological release: Life safety: Life safety: Manual firefighting: Property loss:  Anticipated combustible load, MJ/m2 Unsprinklered combustible load limit, MJ/m2  Complete burnout of all equipment and cables we this Fire Area affects only redundant train A equal no safety-related or safe shutdown divisional equipment; all safety division and redundant train						
	Turbine DCD Fig:  9A.2-17  g Rooms: Potential Combustibles  Cable insulation Class IIIB lubricants  < 700 700  stalled fire extinguishing equal None None, no radiological material Travel distance limits to Access via stairwells	Turbine DCD Fig:  9A.2-17  Surround  g Rooms: Potential Combustibles  Cable insulation Class IIIB lubricants  Area-wide ionization  Class IIIB combustible of the lubricants  Area-wide ionization Unsprinklered combustible of Unsprinklered combustible of the lubricants  talled fire extinguishing equipment, impact of fire upor None None, no radiological materials present Travel distance limits to EXITs meet NFPA 101 Access via stairwells	Turbine DCD Fig:  9A.2-17  Safety-rel Nonsafety-related redu Surrounded by fire barriers rated at: Except:  g Rooms: Potential Combustibles  Cable insulation Class IIIB lubricants  Area-wide ionization Class IIIB lubricants  Area-wide ionization  Manual pulls (outside stairwells at each landing)  Anticipated combustible load, MJ/m2 Unsprinklered combustible load limit, MJ/m2  talled fire extinguishing equipment, impact of fire upon:  None None, no radiological materials present Travel distance limits to EXITs meet NFPA 101 Access via stairwells	Applicable codes: BC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804  DCD Fig:  9A.2-17  Building code occupancy classification: Electrical classification: Safety-related divisional equipment or cables: Nonsafety-related redundant trains or equipment or cables: Surrounded by fire barriers rated at: Surrounded by fire barriers rated at: Except:  9Rooms: Potential Combustibles  Primary  Backup  Primary  Cable insulation Class IIIB lubricants  Area-wide ionization Class IIIB lubricants  Area-wide ionization Unsprinklered combustible load, MJ/m2 Unsprinklered combustible load limit, MJ/m2 Unsprinklered combustible load limit, MJ/m2  talled fire extinguishing equipment, impact of fire upon:  None None None None, no radiological materials present Travel distance limits to EXITs meet NFPA 101 Access via stairwells		

	Fire Area:	F4661	Description: Water Surge Tanks B						
	Building:	Turbine	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804						
		DCD Fig:	Building code occupancy classification: F-1						
		9A.2-17	Electrical classification: <b>none</b>						
				Safety-rel	ated divisional equipment or cables:	none			
			Nonsafety-related redundant trains or equipment or cables: <b>B</b>						
			Surround	ed by fire barriers rated at:	3 hours				
				Except:	none				
Consisting	of the followin	g Rooms:	Fire De	etection	Fire Suppress	sion			
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup			
				1		1			
33000	4661	Cable insulation	Area-wide ionization	Manual pulls	Hose racks	ABC fire			
		Class IIIB lubricants		(outside stairwells	(in nearby stairwells)	extinguishers			
				at each landing)					
				σ,					
					<b>†</b>				
		< 700	Anticipated combustible lo	ad MJ/m2	Assuming automatic & manual FP	equipment does not			
		700	Unsprinklered combustible		function, impact of design basis fire				
			] r	,	Complete burnout of all equipme				
Assuming o	peration of ins	stalled fire extinguishing eq	uipment, impact of fire upor	1:	this Fire Area affects only redund				
	lant operation:		1 / 1		and no safety-related or safe shut				
		None, no radiological ma	terials present		equipment; all safety division and				
		Travel distance limits to			equipment are operable.				
Manu	•	Access via stairwells							
	Property loss:								

**Table 9A.5-5** 

#### **Radwaste Building**

	Fire Area:	F6101		Description: Radwaste Ha	andling Equipment		
		Radwaste	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 90A, 101, 804				
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-20	1	S	Electrical classification:		
		9A.2-21		Safety-related di	visional equipment or cables:	none	
		9A.2-22	N	•	trains or equipment or cables:		
		9A.2-23		nded by fire barriers rated at			
					n-rated); exterior undergro	und walls (non-rated);	
Consisting	g of the following Rooms:		Fi	re Detection	Fire Su	ppression	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
-9350	6100, 6101, 6102, 6103, 6104,	Class IIIB lubricants	Suppression	Manual pulls	Wet-pipe sprinkler	Hose racks	
	6105, 6106, 6107, 6108, 6109,	Cable insulation	flowswitch	(outside stairwell	8.1 L/min per m2	(in nearby stairwells)	
	6150, 6151, 6160, 6161,	Transient combustibles		at each landing)	over 140 m2	ABC fire extinguishers	
	6171, 6172, 6180, 6181, 6182,	Class A combustibles		3,			
	6183, 6184, 6185,						
	6186, 6187, 6188, 6189						
-2350	6200, 6201, 6280, 6281, 6282,	1					
	6283, 6284, 6285, 6286						
4650	6381	1					
	Charcoal Filter	Charcoal	HVAC		Internal manual spray		
			temperature				
			indication				
		> 700	Anticipated combus	stible load MJ/m2	Assuming automatic & man	ual FP equipment does not	
		700		bustible load limit, MJ/m2	function, impact of design b	* *	
		. 00	1 Primilered com			quipment and cables within	
Assuming	g operation of installed fire exting	uishing equipment, impact	of fire upon:		this Fire Area affects no sa		
.0		None; restoration requir		radwaste	shutdown divisional equip		
		Contained within building			and both redundant trains		
		Travel distance limits to			and som redundant trains	Tranco are operable.	
	•	Access via stairwells and					
	Property loss:						
	r say						

	Fire Are	a: <b>F6170</b>	Description:	Electrical Equipmen	t			
	Buildin	g: Radwaste	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804					
		DCD Fig:	Building code occupancy classification: F-1					
		9A.2-20			Electrical classification	n: <b>none</b>		
		9A.2-21			ated divisional equipment or cables			
			Nonsafety-related redundant trains or equipment or cables: <b>none</b>					
			Surrounded by fire barriers rated at: 3 hours					
			Except: basemat (non-rated); elevator doors (1.5 hr rated);					
			_		exterior underground walls (no	n-rated)		
Consisting	of the follow	ing Rooms:	Fire Detec	tion	Fire Suppre	ssion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
-9350	6170	Electrical equipment Cable insulation	Area-wide ionization	Manual pulls (outside stairwells at each landing)	CO2 fire extinguishers	Hose racks (in nearby stairwells)		
		< 1400	Anticipated combustible load,		Assuming automatic & manual FF			
		1400	Unsprinklered combustible loa	id limit, MJ/m2	function, impact of design basis fi			
A couming o	naration of i	notellad fire autinouishing a	quipment, impact of fire upon:		Complete burnout of all equipm			
			red before handling radwaste	7	this Fire Area affects no safety-			
		e: None, no radiological m		-	divisional equipment; all safety			
Radioi		y: Travel distance limits to		1	redundant trains A and B are of	perable.		
Manu		g: Access via stairwells	, LIZZI I G INCCLINE I I I I I I I I I I I I I I I I I I	†				
ivialia		s: Moderate		†				
	Troperty 103	o. mouci att		1				

Table 9A.5-5
Radwaste Building (cont.)

			11001110000	Dunuing (cont.)			
	Fire Area	a: <b>F6190</b>	Description:	Elevator			
	Building	g: Radwaste	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1				
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-20			Electrical classification		
		9A.2-21			related divisional equipment or cables		
		9A.2-22			dundant trains or equipment or cables	none	
		9A.2-23	Surround	led by fire barriers rated			
				Exce	ot: basemat (non-rated); elevator d	oors (1.5 hr rated)	
· · ·	C4 C 11 '	D	E. D.		F' G		
	of the followi	Potential Combustibles		etection	Fire Suppres		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
-9350	6190	Class IIIB lubricants	Area-wide ionization	Manual pulls	ABC fire extinguishers	Hose racks	
-7550	0150	Cable insulation	Area-wide ionization	(outside Elev	(outside Elev	(in nearby stairwell	
		Cable insulation		at each landing)	at each landing)	(in hearby stan wer	
				at cach landing)	at each failding)		
13650	6580	Class IIIB lubricants	1		CO2 fire extinguisher	_	
		Cable insulation			(outside room)		
		Electrical equipment			(**************************************		
			=				
		< 700	Anticipated combustible lo		Assuming automatic & manual FP		
		700	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fir		
		. 11 1 0			Complete burnout of all equipme		
			quipment, impact of fire upor	1: I	this Fire Area affects no safety-r		
	lant operation				divisional equipment; all safety of		
Radiological release: None, no radiological materials present  Life safety: Travel distance limits to EXITs meet NFPA 101					redundant trains A and B are op	erable.	
M							
Manu		g: Access via stairwells and	a noistway doors				
	Property loss	s: Negligible					

	Fire Area: F6191 Description: Stairwell A						
	Building:	Radwaste	Applicable codes:	IBC; Reg Guide 1.189; N	FPA 10, 14, 72, 101, 804		
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-20	Electrical classification: <b>none</b>				
		9A.2-21		Safety-rel	ated divisional equipment or cables:	none	
		9A.2-22		Nonsafety-related redu	indant trains or equipment or cables:	none	
		9A.2-23	Surround	led by fire barriers rated at:	3 hours		
				Except:	basemat (non-rated)		
Consisting	of the followin		Fire De	etection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
-9350	6191	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers	
-2350				(outside stairwell			
4650				at each landing)			
10650							
13650							
			_				
		negligible	Anticipated combustible lo	oad, MJ/m2	Assuming automatic & manual FP	equipment does not	
		700	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire	e on safe shutdown:	
					Complete burnout of all equipme	ent and cables within	
Assuming of	peration of ins	stalled fire extinguishing eq	uipment, impact of fire upor	1:	this Fire Area affects no safety-re	elated or safe shutdown	
P	lant operation:	None			divisional equipment; all safety d	ivisions and both	
Radiol		None, no radiological ma			redundant trains A and B are op		
	Life safety:	Travel distance limits to	EXITs meet NFPA 101		1		
Manu		Access via exterior and i					
	Property loss:						
	• •			1			

	Fire Area:	F6192	Description: Stairwell B				
	Building:	Radwaste	Applicable codes:	IBC; Reg Guide 1.189; N	FPA 10, 14, 72, 101, 804		
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-20	1		Electrical classification:	none	
		9A.2-21		Safety-rel	ated divisional equipment or cables:	none	
		9A.2-22		Nonsafety-related redu	indant trains or equipment or cables:	none	
		9A.2-23	Surround	ed by fire barriers rated at:	3 hours		
				Except:	basemat (non-rated)		
			_				
Consisting (	of the followin	ng Rooms:	Fire De	etection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
-9350	6192	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers	
-2350				(outside stairwell			
4650				at each landing)			
10650							
			_				
		negligible	Anticipated combustible lo	ad, MJ/m2	Assuming automatic & manual FP	equipment does not	
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire	e on safe shutdown:	
					Complete burnout of all equipme	ent and cables within	
			uipment, impact of fire upor	1:	this Fire Area affects no safety-ro	elated or safe shutdown	
	lant operation:				divisional equipment; all safety d	ivisions and both	
Radiol		None, no radiological ma			redundant trains A and B are op	erable.	
Life safety: Travel distance limits to EX							
Manu		Access via exterior and i	nterior doors				
	Property loss:	Negligible					

	Fire Area:	F6193	Description:	Description: Stairwell C					
	Building:	Radwaste	Applicable codes:	IBC; Reg Guide 1.189; N	FPA 10, 14, 72, 101, 804				
		DCD Fig:		Bui	lding code occupancy classification:	F-1			
		9A.2-20	Electrical classification: <b>none</b>						
		9A.2-21			ated divisional equipment or cables:				
		9A.2-22		Nonsafety-related redu	indant trains or equipment or cables:	none			
		9A.2-23	Surround	ed by fire barriers rated at:	3 hours				
				Except:	basemat (non-rated)				
Consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion			
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup			
-9350	6193	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers			
-2350				(outside stairwell					
4650				at each landing)					
10650									
		•	=						
		negligible	Anticipated combustible lo		Assuming automatic & manual FP				
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire				
					Complete burnout of all equipme				
			uipment, impact of fire upor	1:	this Fire Area affects no safety-re				
	lant operation:				divisional equipment; all safety d				
Radiol		None, no radiological ma			redundant trains A and B are op-	erable.			
Life safety: Travel distance limits to EXITs meet NFPA									
Manu		Access via exterior and i	nterior doors						
	Property loss:	Negligible							

	Fire Area:	F6194	Description:	Stairwell D			
	Building:	Radwaste	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-20	Electrical classification: <b>none</b>				
		9A.2-21			ated divisional equipment or cables:		
		9A.2-22		Nonsafety-related redu	ndant trains or equipment or cables:	none	
		9A.2-23	Surround	ed by fire barriers rated at:	3 hours		
				Except:	basemat (non-rated)		
Consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
-9350	6194	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers	
-2350				(outside stairwell			
4650				at each landing)			
10650							
			=				
		negligible	Anticipated combustible lo		Assuming automatic & manual FP		
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:		
					Complete burnout of all equipme		
			uipment, impact of fire upor	1:	this Fire Area affects no safety-re		
	lant operation:				divisional equipment; all safety d	ivisions and both	
Radiol		None, no radiological ma			redundant trains A and B are ope	erable.	
	•	Travel distance limits to					
Manu		Access via exterior and i	nterior doors				
	Property loss:	Negligible					

### Table 9A.5-5 Radwaste Building

			Rauwasie	Dunung			
	Fire Area:	F6270	Description: Radwaste Control Room Complex				
	Building:	Radwaste	Applicable codes:		89; NFPA 10, 14, 72, 101, 804		
		DCD Fig:	Building code occupancy classification: <b>B</b>				
		9A.2-21	Electrical classification: <b>none</b>				
		9A.2-22		•	lated divisional equipment or cables:		
				-	indant trains or equipment or cables:	none	
			Surrounded b	by fire barriers rated at			
					elevator doors (1.5 hr rated);		
					basemat for 6287 (non-rated)		
			interio	or fire barriers rated at			
				between	rooms 6270 and 6287		
Consisting	Consisting of the following Rooms:		Fire Detect	ion	Fire Suppres	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
-2350	6270	Electrical equipment	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks	
		Cable insulation		(outside stairwells		(in nearby stairwells)	
		Class A combustibles	<u>]</u>	at each landing)			
	6270	Cable insulation			Hose racks	ABC fire	
	below floor		_		(in nearby stairwells)	extinguishers	
	6287	Electrical equipment					
		Cable insulation					
4650	6382	Class A combustibles					
		< 1400	Anticipated combustible load,	MJ/m2	Assuming automatic & manual FP	equipment does not	
		1400	Unsprinklered combustible loa		function, impact of design basis fir		
			• •	,	Complete burnout of all equipme		
Assuming o	operation of ins	stalled fire extinguishing eq	uipment, impact of fire upon:		this Fire Area affects no safety-re		
P	lant operation:	None; restoration requir	ed before handling radwaste		divisional equipment; all safety d		
Radio		None, no radiological ma			redundant trains A and B are op		
	-	Travel distance limits to	EXITs meet NFPA 101				
Manu	ıal firefighting:	Access via stairwells					
	Property loss:	Moderate					
				<del>-</del>			

	Fire Area:	F6290	Description: Stairwell E							
	Building:	Radwaste	Applicable codes:	IBC; Reg Guide 1.189; N	FPA 10, 14, 72, 101, 804					
		DCD Fig:	<u> </u>	Building code occupancy classification: F-1						
		9A.2-21	Electrical classification: <b>none</b>							
		9A.2-22		Safety-rel	ated divisional equipment or cables:	none				
		9A.2-23		Nonsafety-related redu	indant trains or equipment or cables:	none				
			Surrounded by fire barriers rated at: 3 hours							
				Except:	basemat (non-rated)					
			-							
Consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion				
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup				
-2350	6290	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers				
4650				(outside stairwell						
				at each landing)						
			-							
		negligible	Anticipated combustible lo		Assuming automatic & manual FP					
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:					
					Complete burnout of all equipme					
			uipment, impact of fire upor	1:	this Fire Area affects no safety-re					
	lant operation:				divisional equipment; all safety d	ivisions and both				
Radiol		None, no radiological ma			redundant trains A and B are op	erable.				
		Travel distance limits to								
		Access via exterior and i	nterior doors							
	Property loss:	Negligible								

			Rauwaste Du	( 0 1100)				
	Fire Area:	F6301	Description:	<b>HVAC Equipment</b>				
	Building:	Radwaste	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804					
		DCD Fig:	Building code occupancy classification: F-1					
		9A.2-22			Electrical classification	none		
		9A.2-23		Safety-rel	lated divisional equipment or cables	none		
					undant trains or equipment or cables	none		
			Surrounded l					
				Except:	elevator doors (1.5 hr rated)			
Consisting of the following Rooms:			Fire Detect	tion	Fire Suppres	ssion		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	6380	Class IIIB lubricants	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishe		
		Cable insulation		(outside stairwells				
10650	6480	Filter media		at each landing)				
	6490	None						
			_					
		< 700	Anticipated combustible load,		Assuming automatic & manual FP			
		700	Unsprinklered combustible loa	nd limit, MJ/m2	function, impact of design basis fire on safe shutdown:			
					Complete burnout of all equipme	ent and cables within		
			uipment, impact of fire upon:	7	this Fire Area affects no safety-r	elated or safe shutdow		
	-		red before handling radwaste		divisional equipment; all safety of	livisions and both		
Radiol		None, no radiological ma			redundant trains A and B are of	erable.		
		Travel distance limits to	EXITs meet NFPA 101	_				
Manu		Access via stairwells						
	Property loss:	Minor		1				
	Troperty 10ss.	17111101		1				

#### **Table 9A.5-6**

#### **Electrical Building**

	Fire Area:		Description: Corridors Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804					
	Building:	Electrical	Applicable codes:			In 4		
		DCD Fig:	1	Ві	uilding code occupancy classification			
		9A.2-25	Electrical classification: none					
		9A.2-26	Safety-related divisional equipment or cables: none					
		9A.2-27			lundant trains or equipment or cables	none		
		9A.2-28	Surround	ed by fire barriers rated a		<i>4.</i> <b>7.</b> 1. 1. 1.		
		9A.2-29		Excep	t: basemat (non-rated); elevator d	oors (1.5 hr rated)		
		9A.2-30						
Consisting	of the followin	g Rooms:	Fire De	etection	Fire Suppres	ssion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	5292B	Insulation	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers		
	5100, 5101,	Cable insulation	1	(at EXITs)	(in nearby stairwells)			
	5102, 5189							
9080	5200							
13000	5300							
	5391							
18000	5400							
22000	5500							
27000	5600							
30000	5703							
		< 700 700	Anticipated combustible load, MJ/m2 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			
Radio	Plant operation: logical release: Life safety:	None None, no radiological ma Travel distance limits to Access via doors		1:	this Fire Area affects no safety-r divisional equipment; all safety or redundant trains A and B are op	related or safe shutdown divisions and both		

	Fire Area		Description:					
	Building	<b>Electrical</b>	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804					
		DCD Fig:	Building code occupancy classification: F-1 per IBC 307.9.11					
		9A.2-25			Electrical classification:			
		9A.2-26			elated divisional equipment or cables			
					lundant trains or equipment or cables:	: A		
			Surround	ed by fire barriers rated a				
				Excep	t: basemat (non-rated)			
Consisting	of the following		Fire De	etection	Fire Suppres	ssion		
		Potential Combustibles						
EL	Room#	and Hazards	Primary	Backup	Primary	Backup		
4650	5150	3420 L of battery acid	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks		
		Battery cell cases		(outside stairwell)		(in nearby stairwell		
	7171	Cable insulation						
	5151	11,040 L of battery acid						
		Battery cell cases Cable insulation						
	5152	13,680 L of battery acid						
	3132	Battery cell cases						
		Cable insulation						
		Cable insulation			†			
			1					
		< 1400	Anticipated combustible lo		Assuming automatic & manual FP			
		1400	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fir			
	4: 6:	. 11 1 6			Complete burnout of all equipme			
		estalled fire extinguishing equality	uipment, impact of fire upor	1:	this Fire Area affects only redun			
	Plant operation		torials present		power and related equipment an	•		
Kauloi		None, no radiological ma Travel distance limits to			equipment; all safety divisions an			
Manu		Access via doors	EALIS MEET NETA 101		site power and related equipmen	it are operable.		
iviallu	Property loss							
	Troperty 1088	. Iviouel ate						

	Fire Area	a: F5154	Description: Diesel Generator A				
	Building	g: Electrical			; NFPA 10, 13, 16, 24, 37, 72, 101, 80	4	
		DCD Fig:	_	В	building code occupancy classification:		
		9A.2-25	Electrical classification: <b>none</b>				
		9A.2-26		Safety-	related divisional equipment or cables:	none	
		9A.2-27		Nonsafety-related re	dundant trains or equipment or cables:	A	
			Surrounde	d by fire barriers rated	at: 3 hours		
				Exce	pt: basemat (non-rated)		
					_		
Consisting	of the follow	ing Rooms:	Fire Det	ection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	5154	Cable insulation	Cross-zoned UV/IR	Suppression	Preaction foam sprinkler	Hydrants	
		Class IIIB lubricants	and spot heat	flowswitch	10.2 L/min per m2	-	
		Class II fuel oil			over entire area		
			_		-		
		> 700	Anticipated combustible loa	d, MJ/m2	Assuming automatic & manual FP equipment does not		
		700	Unsprinklered combustible l	load limit, MJ/m2	function, impact of design basis fire	e on safe shutdown:	
					Complete burnout of all equipme	nt and cables within	
Assuming of	peration of in	nstalled fire extinguishing ec	uipment, impact of fire upon:		this Fire Area affects only redund	lant train A on-site	
P	lant operation	n: None			power and related equipment and	l no safety-related	
Radiol	logical release	e: None, no radiological ma	aterials present		equipment; all safety divisions an	•	
		y: Travel distance limits to	EXITs meet NFPA 101		site power and related equipment		
Manu	al firefighting	g: Access via doors				*	
	Property los	s: Significant					

	Fire Area:	F5255	Description:	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:	Building code occupancy classification: F-1				
		9A.2-26	Electrical classification: <b>none</b>				
		9A.2-27		Safety-re	elated divisional equipment or cables:	none	
				Nonsafety-related red	undant trains or equipment or cables:	A	
			Surround	ed by fire barriers rated a	t: 3 hours		
			Except: none				
Consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
8000	5255	Cable insulation	Cross-zoned UV/IR	Suppression	Preaction foam deluge	Hydrants	
		Class IIIB lubricants	and spot heat	flowswitch	16.3 L/min per m2		
		20,000L Class II fuel oil	-		1		
		·					
		> 700	Anticipated combustible lo	ad, MJ/m2	Assuming automatic & manual FP	equipment does not	
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:		
					Complete burnout of all equipme	nt and cables within	
			uipment, impact of fire upon	1:	this Fire Area affects only redund	dant train A on-site	
	Plant operation:				power and related equipment and	d no safety-related	
Radio		None, no radiological ma			equipment; all safety divisions an	d redundant train B on-	
		Travel distance limits to	EXITs meet NFPA 101		site power and related equipment	t are operable.	
Manual firefighting: Access via doors							
	Property loss:	Moderate					

	Fire Area	: F5156	Description: D-G Electrical Equipment A					
	Building	Electrical	Applicable codes:	IBC; Reg Guide 1.189;	NFPA 10, 24, 72, 101, 804			
		DCD Fig:	<u> </u>	Bu	ilding code occupancy classification:	F-1		
		9A.2-25	Electrical classification: <b>none</b>					
		9A.2-26	Safety-related divisional equipment or cables: <b>none</b>					
				Nonsafety-related red	undant trains or equipment or cables:	A		
			Surround	led by fire barriers rated at	3 hours			
				Except	basemat (non-rated)			
Consisting	Consisting of the following Rooms:		Fire De	etection	Fire Suppress	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	5156	Electrical equipment	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hydrants		
		Cable insulation		(at EXITs)				
			-					
		< 1400	Anticipated combustible lo		Assuming automatic & manual FP			
		1400	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire on safe shutdown:			
					Complete burnout of all equipme			
			uipment, impact of fire upor	n:	this Fire Area affects only redund			
	Plant operation				power and related equipment and	•		
Radio		None, no radiological ma			equipment; all safety divisions an	d redundant train B on-		
		Travel distance limits to	EXITs meet NFPA 101		site power and related equipment are operable.			
Mani		Access via doors						
	Property loss	Moderate						

	Fire Area	: F5160	Description:	Batteries B				
		: Electrical	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 101, 804					
		DCD Fig:	Building code occupancy classification: F-1 per IBC 307.9.11					
		9A.2-25			Electrical classification			
		9A.2-26		-	lated divisional equipment or cables			
					undant trains or equipment or cables	::[B		
			Surround	ed by fire barriers rated at				
				Except	basemat (non-rated)			
Consisting	of the following		Fire De	etection	Fire Suppre	ssion		
		Potential Combustibles						
EL	Room #	and Hazards	Primary	Backup	Primary	Backup		
4650	5160	3420 L of battery acid Battery cell cases Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (in nearby stairwell)		
	5161	11,040 L of battery acid Battery cell cases Cable insulation						
	5162	13,680 L of battery acid Battery cell cases Cable insulation						
		< 1400 1400	Anticipated combustible lo Unsprinklered combustible		Assuming automatic & manual FP function, impact of design basis fit	re on safe shutdown:		
P Radio	Plant operation logical release Life safety	None, no radiological ma Travel distance limits to laccess via doors	terials present	n:	Complete burnout of all equipm this Fire Area affects only redur power and related equipment ar equipment; all safety divisions a site power and related equipmen	ndant train B on-site nd no safety-related nd redundant train A on		

	Fire Are	ea: F5164	Description: 1	Description: Diesel Generator B				
	Buildin	g: Electrical	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 16, 24, 37, 72, 101, 804					
		DCD Fig:	Building code occupancy classification: F-1					
		9A.2-25	Electrical classification: <b>none</b>					
		9A.2-26		Safety-	related divisional equipment or cables:	none		
		9A.2-27			edundant trains or equipment or cables:	В		
			Surrounde	ed by fire barriers rated	at: 3 hours			
				Exce	pt: basemat (non-rated)			
Consisting	of the follow		Fire Det	tection	Fire Suppress	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	5164	Cable insulation	Cross-zoned UV/IR	Suppression	Preaction foam sprinkler	Hydrants		
		Class IIIB lubricants	and spot heat	flowswitch	10.2 L/min per m2			
		Class II fuel oil			over entire area			
			7					
		> 700	Anticipated combustible loa		Assuming automatic & manual FP	1 1		
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:			
					Complete burnout of all equipme			
			quipment, impact of fire upon	:	this Fire Area affects only redund			
	lant operation				power and related equipment and no safety-related			
Radio		e: None, no radiological m	1 1 /					
		y: Travel distance limits to	EXITs meet NFPA 101		site power and related equipment	t are operable.		
Manu		g: Access via doors						
	Property los	ss: Significant						

	Fire Area	: F5265	Description:	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:	Building code occupancy classification: F-1				
		9A.2-26			Electrical classification:	none	
		9A.2-27		Safety-r	elated divisional equipment or cables:	none	
					dundant trains or equipment or cables:	В	
			Surrounded by fire barriers rated at: 3 hours				
				Excep	ot: none		
	of the following		Fire De		Fire Suppress		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
8000	5265	Cable insulation	Cross-zoned UV/IR	Suppression	Preaction foam deluge	Hydrants	
		Class IIIB lubricants	and spot heat	flowswitch	16.3 L/min per m2		
		20,000L Class II fuel oil					
		> 700		- 1 MI/2	A		
		> 700	Anticipated combustible lo		Assuming automatic & manual FP		
		/00	Unsprinklered combustible	ioad iimit, MJ/m2	function, impact of design basis fire		
A agumina.	anaration of in	stalled fire systimanishing ag	inment import of fire unam		Complete burnout of all equipme		
	Plant operation	stalled fire extinguishing equ	inpinient, impact of the upon	l <b>.</b>	this Fire Area affects only redund		
		None, no radiological ma	torials prosent		power and related equipment and	•	
Kaulo	I ifa cafatu	Travel distance limits to					
Mani		Access via doors	EATTS INCCURE A 101		site power and related equipment	are operable.	
iviani	Property loss						
	1 Topetty loss	. IVIUUCI ALE					

	Fire Area:	F5166	Description:	D-G Electrical Equipmen	nt B		
	Building:	Electrical	Applicable codes:	IBC; Reg Guide 1.189; N	NFPA 10, 24, 72, 101, 804		
		DCD Fig:		Bui	Building code occupancy classification: F-1		
		9A.2-25	Electrical classification: <b>none</b>				
		9A.2-26	Safety-related divisional equipment or cables: <b>none</b>				
					indant trains or equipment or cables:	В	
			Surround	ed by fire barriers rated at:	3 hours		
				Except:	basemat (non-rated)		
Consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	5166	Electrical equipment	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hydrants	
		Cable insulation		(at EXITs)			
			1				
		< 1400	Anticipated combustible lo		Assuming automatic & manual FP equipment does not		
		1400	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire on safe shutdown:		
					Complete burnout of all equipment and cables within		
			uipment, impact of fire upor	1:	this Fire Area affects only redundant train B on-site		
	lant operation:				power and related equipment and	· ·	
Radio		None, no radiological ma			equipment; all safety divisions and redundant train A on		
	-	Travel distance limits to	EXITs meet NFPA 101		site power and related equipment	t are operable.	
Manu		Access via doors					
	Property loss:	Moderate					

			Electrical B	unuing (Cont.)				
	Fire Area:	F5180		Description: Technical Support Center Complex				
	Building:	Electrical	Applicable codes:	IBC; Reg Guide 1.189;	NFPA 10, 13, 14, 72, 90A, 101, 804;	28 CFR 36		
		DCD Fig:	_	Building code occupancy classification: <b>B</b>				
		9A.2-25	Electrical classification: <b>none</b>					
		9A.2-26	Safety-related divisional equipment or cables: none					
		9A.2-27			dundant trains or equipment or cables:	none		
		9A.2-28	Surrounde	ed by fire barriers rated				
		9A.2-29	Except: basemat (non-rated)					
		9A.2-30						
		9A.2-31						
Consisting	of the following l	Rooms:	Fire De	tection	Fire Suppress	sion		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	5180	Computer equipment	Suppression flowswitch	Manual pulls	Wet-pipe sprinkler	Hose racks		
	5181A, 5181B,			(at EXITs)	4.1 L/min per m2	(in nearby stairwells)		
		Cable insulation			over most remote 140 m2			
		Class A combustibles						
	5183, 5184,	Transient combustibles						
	5185,							
	5186A, 5186B,							
	5186C, 5187							
	above ceiling	Insulation	Area-wide ionization		Class ABC fire extinguishers			
	5292A							
			<u>                                     </u>					
		< 700	Anticipated combustible los		Assuming automatic & manual FP			
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire			
A		11 . 1 6			Complete burnout of all equipme			
Assuming of		lled fire extinguishing equip	oment, impact of fire upon:		this Fire Area affects no safety-re			
Dad	Plant operation:		torials present		divisional equipment; all safety d			
Kad		None, no radiological ma Travel distance limits to			redundant trains A and B are operable.			
Ma	•	Access via doors	EATTS MEET NFFA 101					
IVIč	Property loss:							
	rioperty loss.	MINOI						

	Fire Area	n: F5188	Description: Fire Protection Equipment				
	Building	g: Electrical	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 15, 16, 72, 101, 804				
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-25	Electrical classification: <b>none</b>				
		9A.2-26		_	related divisional equipment or cable		
					edundant trains or equipment or cable	es: none	
			Surrounde	d by fire barriers rated			
			_	Exce	pt: basemat (non-rated)		
	onsisting of the following Rooms:		Fire Dete		Fire Suppr		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	7100					1.D.C. # 1.1	
4650	5188	Cable insulation Class IIIB lubricants	Area-wide ionization	Manual pulls (at EXITs)	Hose racks (in nearby stairwells)	ABC fire extinguishers	
		Class IIID lubi icants	<b>_</b>	(at EAI18)	(in hearby stan wens)		
		< 700	Anticipated combustible load	d MI/m2	Assuming automatic & manual F	P equipment does not	
		700	Unsprinklered combustible l		•		
		700	_Chisprinklered combustione i	oad mmt, wis/mz	function, impact of design basis fire on safe shutdown:  Complete burnout of all equipment and cables within		
Assuming c	operation of in	nstalled fire extinguishing ec	quipment, impact of fire upon:		this Fire Area affects no safety		
	lant operation		dipinent, impact of interest		•		
	-	None, no radiological ma	aterials present		divisional equipment; all safety divisions and both redundant trains A and B are operable.		
		7: Travel distance limits to			Todahani trans 11 and Dare	per unic.	
Manu	ıal firefighting	ZIAccess via door					
Manu	al firefighting Property loss						

				Dunuing (Cont.)				
	Fire Area	: F5190	Description:					
	Building	g: Electrical	Applicable codes:	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1				
		DCD Fig:	Building code occupancy classification: F-1					
		9A.2-25	Electrical classification: <b>none</b>					
		9A.2-26	Safety-related divisional equipment or cables: <b>none</b>					
		9A.2-27		Nonsafety-related red	dundant trains or equipment or cables	none		
		9A.2-28	Surrounded by fire barriers rated at: 3 hours					
		9A.2-29			ot: basemat (non-rated); elevator d	oors (1.5 hr rated)		
		9A.2-30		•	•	,		
		9A.2-31						
			_					
Consisting of the following Rooms:			Fire De	etection	Fire Suppres	ssion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	5190	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside Elev at each landing)	ABC fire extinguishers (outside Elev at each landing)	Hose racks (in nearby stairwell)		
30000	5701	Class IIIB lubricants Cable insulation Electrical equipment			CO2 fire extinguisher (outside room)	_		
P. Radiol	lant operation ogical release Life safety	None None, no radiological ma Travel distance limits to Access via stairwells and	EXITs meet NFPA 101	e load limit, MJ/m2	Assuming automatic & manual FP function, impact of design basis fit Complete burnout of all equipments Fire Area affects no safety-redivisional equipment; all safety or redundant trains A and B are open to the complete burnout of the complete bur	re on safe shutdown: ent and cables within related or safe shutdown divisions and both		

	Fire Area	F5101	Description:	Stairwell A			
		Electrical	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-25	Electrical classification: <b>none</b>				
		9A.2-26		Safety-re	elated divisional equipment or cable	s: none	
		9A.2-27	Nonsafety-related redundant trains or equipment or cables: <b>none</b>				
		9A.2-28	Surround	led by fire barriers rated a		•	
		9A.2-29		Excep	t: basemat (non-rated); elevator	doors (1.5 hr rated)	
		9A.2-30		-	`	,	
		9A.2-31					
			_				
Consisting of the following Rooms:		Fire De	etection	Fire Suppre	ession		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	5191	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers	
9800				(outside stairwell			
13000				at each landing)			
18000							
22000							
27000							
30000							
P Radiol	lant operation logical release Life safety	None, no radiological ma Travel distance limits to Access via exterior and i	nterials present EXITs meet NFPA 101	e load limit, MJ/m2	Assuming automatic & manual Fl function, impact of design basis f Complete burnout of all equipn this Fire Area affects no safety- divisional equipment; all safety redundant trains A and B are o	ire on safe shutdown: nent and cables within related or safe shutdown divisions and both	

		I Table 1		Building (Cont.)			
	Fire Area		Description: Elevator B				
	Building	Electrical	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1				
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-25		G. 0.	Electrical classification		
		9A.2-26			elated divisional equipment or cables		
		9A.2-27			dundant trains or equipment or cables	none	
		9A.2-28	Surround	led by fire barriers rated a			
		9A.2-29		Excep	ot: basemat (non-rated); elevator d	oors (1.5 hr rated)	
		9A.2-30					
		9A.2-31					
	- £41 £-11	D	Eine D.		Fine Common		
EL	of the followi Room #	Potential Combustibles	_	etection	Fire Suppres		
EL	KOOIII #	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	5192	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside Elev at each landing)	ABC fire extinguishers (outside Elev at each landing)	Hose racks (in nearby stairwell	
30000	5703	Class IIIB lubricants Cable insulation Electrical equipment			CO2 fire extinguisher (outside room)		
		< 700	Anticipated combustible lo	oad, MJ/m2	Assuming automatic & manual FP	equipment does not	
		700	Unsprinklered combustible		function, impact of design basis fin  Complete burnout of all equipm	re on safe shutdown:	
P Radiol	lant operation logical release Life safety al firefighting		EXITs meet NFPA 101	1:	this Fire Area affects no safety-r divisional equipment; all safety or redundant trains A and B are op	elated or safe shutdov divisions and both	

	Fire Area		Description: Stairwell B				
	Building	Electrical	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
		DCD Fig:	7	Bı	uilding code occupancy classification		
		9A.2-25	Electrical classification: none				
		9A.2-26	Safety-related divisional equipment or cables: <b>none</b>				
		9A.2-27			lundant trains or equipment or cables	none	
		9A.2-28	Surround	ed by fire barriers rated a			
		9A.2-29		Excep	t: basemat (non-rated)		
		9A.2-30					
		9A.2-31	]				
a	21 211 :				Ti. 0		
	onsisting of the following Rooms:		Fire De		Fire Suppres		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	5193	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers	
9800	3193	None	Al ea-wide follization	(outside stairwell	Hose racks	Abe in e extinguishers	
13000	1			`			
18000	1			at each landing)			
22000	1						
27000	1						
30000	1						
30000							
P Radio	Plant operation logical release Life safety	None, no radiological ma Travel distance limits to Access via exterior and i	nterials present EXITs meet NFPA 101	load limit, MJ/m2	Assuming automatic & manual FP function, impact of design basis fit Complete burnout of all equipm this Fire Area affects no safety-r divisional equipment; all safety or redundant trains A and B are of	re on safe shutdown: ent and cables within related or safe shutdown divisions and both	

	Fire Area:	F5194	Description:	Stairwell C				
	Building:	Electrical	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804					
		DCD Fig:		Building code occupancy classification: F-1				
		9A.2-25	Electrical classification: none					
		9A.2-26		Safety-rel	ated divisional equipment or cables:	none		
				Nonsafety-related redu	indant trains or equipment or cables:	none		
			Surround	ed by fire barriers rated at:	3 hours			
				Except:	basemat (non-rated)			
Consisting of	of the followin	g Rooms:	Fire De	etection	Fire Suppres	sion		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
-2000	5194	None	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers		
1300				(outside stairwell				
4650				at each landing)				
			-					
		negligible	Anticipated combustible lo		Assuming automatic & manual FP			
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:			
					Complete burnout of all equipme			
			uipment, impact of fire upon	1:	this Fire Area affects no safety-re			
	lant operation:				divisional equipment; all safety d	ivisions and both		
Radiol		None, no radiological ma						
		Travel distance limits to						
		Access via exterior and i	nterior doors					
	Property loss:	Negligible						

	Fire Area	: F5250	Description: L	ower Cable Spreadin	g A		
	Building	Electrical	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804				
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-26			Electrical classification:		
		9A.2-27		•	related divisional equipment or cables:		
					dundant trains or equipment or cables:	A	
			Surrounded	d by fire barriers rated			
				Exce	ot: none		
					_		
	onsisting of the following Rooms:		Fire Dete		Fire Suppres		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
9800	5250	Cable insulation	Suppression flowswitch	Manual pulls	Wet-pipe sprinkler	Hose racks	
7000	0200		зарргоздол по по по	(at EXITs)	12.2 L/min per m2 over most remote 235 m2	(in nearby stairwells)	
P Radio	Plant operation logical release Life safety	None None, no radiological m Travel distance limits to Access via doors			Assuming automatic & manual FP function, impact of design basis fire.  Complete burnout of all equipments this Fire Area affects only reduncted off-site power and related equipment; all safety divitrain B on-site and off-site power are operable.	e on safe shutdown: ent and cables within dant train A on-site and ment and no safety- isions and redundant	

	Fire Area:	F5260	Description:	<b>Lower Cable Spreading</b>	; B		
	Building:	Electrical	Applicable codes:	IBC; Reg Guide 1.189;	NFPA 10, 13, 14, 72, 101, 804		
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-26			Electrical classification:		
		9A.2-27		•	elated divisional equipment or cables:		
					undant trains or equipment or cables:	В	
			Surrounded by fire barriers rated at: 3 hours				
			Except: none				
	Consisting of the following Rooms:		Fire De	etection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	5163	Cable insulation	Suppression flowswitch	Manual pulls	Wet-pipe sprinkler	Hose racks	
9800	5260			(at EXITs)	12.2 L/min per m2 over most remote 235 m2	(in nearby stairwells)	
		> 1400	Anticipated combustible lo	ad MI/m2	Assuming automatic & manual FP	equipment does not	
		1400	Unsprinklered combustible		function, impact of design basis fire on safe shutdown:		
		1100		,	Complete burnout of all equipme		
Assuming	operation of ins	stalled fire extinguishing ed	quipment, impact of fire upor	1:	this Fire Area affects only redune		
	Plant operation:				off-site power and related equipm		
		None, no radiological m					
		Travel distance limits to			train A on-site and off-site power		
Manu	ual firefighting:	Access via doors			are operable.		
	Property loss:				1		
1				•			

	Fire Area:	F5301	Description: Battery C				
	Building:	: Electrical	Applicable codes:	IBC; Reg Guide 1.189; N			
		DCD Fig:	<u> </u>	Bui	lding code occupancy classification:	F-1 per IBC 307.9.11	
		9A.2-27	Electrical classification: <b>none</b>				
		9A.2-28		Safety-rel	ated divisional equipment or cables:	none	
					indant trains or equipment or cables:	С	
			Surround	led by fire barriers rated at:	3 hours		
				Except:	none		
Consisting	of the followin		Fire De	etection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
13000	5301	5520 L of battery acid	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks	
		Battery cell cases		(outside stairwell)	1	(in nearby stairwell)	
		Cable insulation		·		·	
		< 1400	Anticipated combustible lo		Assuming automatic & manual FP equipment does not		
		1400	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire on safe shutdown:		
					Complete burnout of all equipme		
Assuming of	oneration of inc	stalled fire extinguishing eq	uipment impact of fire upor	a:	this Fire Area affects no safety-re	elated or safe shutdown	
Plant operation: None			unpinione, imparet of the upor	₹			
P	Plant operation:	: None			divisional equipment; all safety di	ivisions and both	
P	Plant operation: logical release:	None None, no radiological ma	aterials present				
P Radiol	Plant operation: logical release: Life safety:	None None, no radiological ma Travel distance limits to	aterials present		divisional equipment; all safety di		
P Radiol	Plant operation: logical release: Life safety: ual firefighting:	None None, no radiological ma Travel distance limits to Access via doors	aterials present		divisional equipment; all safety di		
P Radiol	Plant operation: logical release: Life safety:	None None, no radiological ma Travel distance limits to Access via doors	aterials present		divisional equipment; all safety di		

	Fire Area:	. F5302	Description: Electrical Equipment C			
	Building:	: Electrical		IBC; Reg Guide 1.189; N	FPA 10, 14, 72, 101, 804	
		DCD Fig:	_	Bui	lding code occupancy classification:	F-1
		9A.2-27			Electrical classification:	none
		9A.2-28		Safety-rel	ated divisional equipment or cables:	none
					ndant trains or equipment or cables:	<u>C</u>
			Surrounded by fire barriers rated at: 3 hours			
			<u>j</u>	Except:	none	
Consisting	of the followin			etection	Fire Suppress	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
13000	5302	Electrical equipment	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks
		Cable insulation		(outside stairwell)		(in nearby stairwell)
		< 1400	Anticipated combustible lo		Assuming automatic & manual FP e	1 1
		1400	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:	
					Complete burnout of all equipme	
Assuming c		ctalled fire extinguishing ag	uipment, impact of fire upon	n·	this Fire Area affects no safety-re	elated or safe shutdown
			uipinent, inipact of fire upor		•	
P	Plant operation:	: None		1	divisional equipment; all safety di	
P	Plant operation: logical release:	None None, no radiological ma	aterials present		•	ivisions and both
P Radiol	Plant operation: logical release: Life safety:	None None, no radiological ma Travel distance limits to	aterials present		divisional equipment; all safety di	ivisions and both
P Radiol	Plant operation: logical release: Life safety: ual firefighting:	None None, no radiological ma Travel distance limits to Access via doors	aterials present		divisional equipment; all safety di	ivisions and both
P Radiol	Plant operation: logical release: Life safety:	None None, no radiological ma Travel distance limits to Access via doors	aterials present		divisional equipment; all safety di	ivisions and both

	Fire Area:	F5303	Description:	<b>Electronic Equipment</b>			
	Building:	Electrical	Applicable codes:	IBC; Reg Guide 1.189; N	NFPA 10, 14, 72, 101, 804		
		DCD Fig:		Bui	llding code occupancy classification:	F-1	
		9A.2-27	Electrical classification: <b>none</b>				
		9A.2-28		Safety-related divisional equipment or cables: none			
					andant trains or equipment or cables:		
			Surround	ed by fire barriers rated at	3 hours		
				Except	none		
			<b>=</b> .	•			
Consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion	
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
13000	5303	Cable insulation	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks	
	below floor			(outside stairwell)	8	(in nearby stairwell)	
13400	5303	Electrical equipment		,			
		Cable insulation					
	•		•			<u> </u>	
		< 1400	Anticipated combustible lo	ad, MJ/m2	Assuming automatic & manual FP	equipment does not	
		1400	Unsprinklered combustible		function, impact of design basis fire		
			<b>-</b>	,	Complete burnout of all equipme		
Assuming of	operation of ins	stalled fire extinguishing ec	uipment, impact of fire upor	1:	this Fire Area affects no safety-re		
	lant operation:				divisional equipment; all safety d		
		None, no radiological ma	aterials present		redundant trains A and B are op		
		Travel distance limits to			l and op	<del>-</del>	
Manu		Access via doors					
	Property loss:						
	1 3				-		

	Fire Area:	F5350	Description:	Lower Electrical Equip	ment A	
	Building:	Electrical			NFPA 10, 14, 72, 101, 804	
		DCD Fig:	Building code occupancy classification: F-1			
		9A.2-27	Electrical classification: none			
		9A.2-28			elated divisional equipment or cables:	
					undant trains or equipment or cables:	A
			Surround	ed by fire barriers rated at		
				Except	none	
a					72. 0	
	of the followin		Fire De	i e e e e e e e e e e e e e e e e e e e	Fire Suppres	
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup
13000	5350	Electrical equipment	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks
		Cable insulation		(outside stairwell)		(in nearby stairwell)
		l				<u> </u>
		< 1400	Anticipated combustible lo	ad MI/m2	Assuming automatic & manual FP	equipment does not
		1400	Unsprinklered combustible		function, impact of design basis fire	
		1100	onsprinktered comoustion	1044 111111, 1415/1112	Complete burnout of all equipme	
Assuming o	operation of ins	stalled fire extinguishing eq	uipment, impact of fire upor	1:	this Fire Area affects only redun	
	lant operation:				off-site power and related equipm	
	-	None, no radiological ma	iterials present		related equipment; all safety divi	•
		Travel distance limits to			train B on-site and off-site power	
Manu	al firefighting:	Access via doors			are operable.	1 1
	Property loss:	Significant			•	

	Fire Area:	F5360	Description:	Lower Electrical Equipa	nent B			
	Building:	Electrical	Applicable codes:	IBC; Reg Guide 1.189; I	NFPA 10, 14, 72, 101, 804			
		DCD Fig:	_	Building code occupancy classification: F-1				
		9A.2-27	Electrical classification: <b>none</b>					
		9A.2-28			lated divisional equipment or cables:			
				Nonsafety-related red	undant trains or equipment or cables:	В		
			Surround	led by fire barriers rated at	: 3 hours			
				Except	: none			
Consisting	of the followin		Fire Do	etection	Fire Suppres	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
13000	5360	Electrical equipment	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks		
		Cable insulation		(outside stairwell)		(in nearby stairwell)		
			<b>-</b>					
		< 1400	Anticipated combustible lo	*	Assuming automatic & manual FP	1 1		
		1400	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire			
					Complete burnout of all equipme			
			quipment, impact of fire upor	n:	this Fire Area affects only redun	dant train B on-site and		
	Plant operation:				off-site power and related equipm	nent and no safety-		
Radio	-	None, no radiological ma			related equipment; all safety divi	sions and redundant		
		Travel distance limits to	EXITs meet NFPA 101		train A on-site and off-site power	and related equipment		
Manı		Access via doors			are operable.			
	Property loss:	Significant						

	Fire Area:	F5450	Description:	<b>Upper Cable Spreading</b>	A		
	Building:	Electrical	Applicable codes:	IBC; Reg Guide 1.189; N	NFPA 10, 13, 14, 72, 101, 804		
		DCD Fig:	_	Bui	lding code occupancy classification:	F-1	
		9A.2-28			Electrical classification:		
		9A.2-29		Safety-re	lated divisional equipment or cables:	none	
				A			
			Surrounded by fire barriers rated at: 3 hours				
				Except	none		
Consisting	of the followin	g Rooms:	Fire De	tection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	5153	Cable insulation	Suppression flowswitch	Manual pulls	Wet-pipe sprinkler	Hose racks	
18000	5450			(at EXITs)	12.2 L/min per m2 over most remote 235 m2	(in nearby stairwells)	
		> 1400	Anticipated combustible loa	ad, MJ/m2	Assuming automatic & manual FP	equipment does not	
		1400	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:		
					Complete burnout of all equipme	nt and cables within	
Accuming	operation of ins	stalled fire extinguishing eq	uipment, impact of fire upon	1:	this Fire Area affects only redund	dant train A on-site and	
					off-site power and related equipment and no safety-		
F	Plant operation:				off-site power and related equipn	nent and no safety-	
F	Plant operation: ological release:	None, no radiological ma			related equipment; all safety divis	sions and redundant	
F Radio	Plant operation: ological release: Life safety:	None, no radiological ma Travel distance limits to				sions and redundant	
F Radio	Plant operation: blogical release: Life safety: ual firefighting:	None, no radiological ma Travel distance limits to Access via doors			related equipment; all safety divis	sions and redundant	
F Radio	Plant operation: ological release: Life safety:	None, no radiological ma Travel distance limits to Access via doors			related equipment; all safety divi- train B on-site and off-site power	sions and redundant	

	Fire Area:	F5460	Description:	<b>Upper Cable Spreading</b>	В	
	Building:	Electrical	Applicable codes:	IBC; Reg Guide 1.189; N	NFPA 10, 13, 14, 72, 101, 804	
		DCD Fig:	<u> </u>	Bui	lding code occupancy classification:	F-1
		9A.2-28			Electrical classification:	
		9A.2-29		Safety-re	lated divisional equipment or cables:	none
				andant trains or equipment or cables:	В	
			Surround	ed by fire barriers rated at	3 hours	
				Except	none	
Consisting	of the followin	g Rooms:	Fire De	etection	Fire Suppress	sion
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
18000	5460	Cable insulation	Suppression flowswitch	Manual pulls	Wet-pipe sprinkler	Hose racks
				(at EXITs)	12.2 L/min per m2 over most	(in nearby stairwells)
-			-		remote 235 m2	
	L					
		> 1400	Anticipated combustible loa	ad MI/m2	Assuming automatic & manual FP	equipment does not
		1400	Unsprinklered combustible		function, impact of design basis fire	
		1100	_ emspremented considuation	1044 111111, 1110/1112	Complete burnout of all equipme	
A comming		stalled fire extinguishing ea	quipment, impact of fire upon	1.	this Fire Area affects only redund	
ASSUITING C	operation of ins					anne er ann 20 on siee ana
					•	ent and no safety-
P	Plant operation:	None			off-site power and related equipn	
P	Plant operation: logical release:	None None, no radiological ma	aterials present		off-site power and related equipment; all safety divis	sions and redundant
P Radiol	Plant operation: logical release: Life safety:	None, no radiological ma Travel distance limits to	aterials present		off-site power and related equipment; all safety divi- train A on-site and off-site power	sions and redundant
P Radiol	Plant operation: logical release: Life safety: aal firefighting:	None None, no radiological ma Travel distance limits to Access via doors	aterials present		off-site power and related equipment; all safety divis	sions and redundant
P Radiol	Plant operation: logical release: Life safety:	None None, no radiological ma Travel distance limits to Access via doors	aterials present		off-site power and related equipment; all safety divi- train A on-site and off-site power	sions and redundant

	Fire Area:			Upper Electrical Equipm			
	Building:	Electrical DCD Fig:	Applicable codes:		NFPA 10, 14, 72, 101, 804 Iding code occupancy classification:	F_1	
		9A.2-29	Electrical classification: none				
		9A.2-30	Safety-related divisional equipment or cables: none				
				Nonsafety-related redu	indant trains or equipment or cables:		
			Surround	ed by fire barriers rated at:			
				Except:	none		
Consisting	of the followin	a Rooms.	Fire De	etection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
	Tto offi n		1111141	Dwinap	111111111	Buthup	
22000	5550	Electrical equipment	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks	
		Cable insulation		(outside stairwell)	C	(in nearby stairwell)	
		. 1 400	1 x	-1 MI/2	A1ED		
		< 1400 1400	Anticipated combustible lo Unsprinklered combustible		Assuming automatic & manual FP equipment does not		
		1400	Tonsprinklered comoustione	load IIIIIt, WIJ/III2	function, impact of design basis fire on safe shutdown:  Complete burnout of all equipment and cables within		
Assuming o	peration of ins	stalled fire extinguishing equ	uipment, impact of fire upor	1:	this Fire Area affects only redund		
	lant operation:				off-site power and related equipm		
		None, no radiological ma	terials present		related equipment; all safety divi	•	
		Travel distance limits to	EXITs meet NFPA 101		train B on-site and off-site power		
Manu		Access via doors			are operable.		
	Property loss:	Significant					

	Fire Area	: F5560	Description: Upper Electrical Equipment B				
	Building	g: Electrical	Applicable codes:	IBC; Reg Guide 1.189; I	NFPA 10, 14, 72, 101, 804		
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-29	Electrical classification: <b>none</b>				
		9A.2-30			lated divisional equipment or cables:		
					undant trains or equipment or cables:	В	
			Surround	ded by fire barriers rated at	: 3 hours		
				Except	: none		
Consisting	of the following	· ·		etection	Fire Suppres	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
22000	5560	Electrical equipment	Area-wide ionization	Manual pulls	CO2 fire extinguishers	Hose racks	
		Cable insulation		(outside stairwell)		(in nearby stairwell)	
			_				
		< 1400	Anticipated combustible lo		Assuming automatic & manual FP		
		1400	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire on safe shutdown:		
					Complete burnout of all equipme		
			quipment, impact of fire upor	n:	this Fire Area affects only redun		
	lant operation				off-site power and related equipa	· ·	
Radio	-	None, no radiological m			related equipment; all safety divi		
		Travel distance limits to	EXITs meet NFPA 101		train A on-site and off-site power	r and related equipment	
Manu		Access via doors			are operable.		
	Property loss	Significant Significant					

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

	Fire Area: F5650 Building: Electrical	Description:	HVAC Equipment A IBC: Reg Guide 1.189:	NFPA 10, 14, 15, 72, 90A, 101, 804	4
	DCD Fig:  9A.2-25  9A.2-26  9A.2-27  9A.2-28		Bı Safety-re	uilding code occupancy classification Electrical classification elated divisional equipment or cable dundant trains or equipment or cable	n: F-1 n: none none
	9A.2-29 9A.2-30 9A.2-31		Ехсер	ot: none	
Consisting EL	of the following Rooms:  Room # Potential Combustible		etection Backup	Fire Suppre Primary	ession Backup
4650 27000	5290A, Class IIIB lubricant 5291A Cable insulation 5650, 5651, Filter media 5652, 5653 Insulation Charcoal Filter in 5653	Area-wide ionization  HVAC temperature indication	Manual pulls (outside stairwell at each landing)	Hose racks (at stairwells)  Internal manual spray	ABC fire extinguisher  Hose racks (at stairwells)
Radio		al materials present its to EXITs meet NFPA 101	e load limit, MJ/m2	Assuming automatic & manual FF function, impact of design basis fi Complete burnout of all equipm this Fire Area results in loss of equipment; all safety divisions are unaffected by fire and are o	nent and cables within only redundant train A and redundant train B

	Fire Area:	F5660	Description:	HVAC Equipment B			
		Electrical			NFPA 10, 14, 15, 72, 90A, 101, 80	4	
	C	DCD Fig:	Building code occupancy classification: F-1				
		9A.2-25			Electrical classification	n: <b>none</b>	
		9A.2-26	Safety-related divisional equipment or cables: <b>none</b>				
		9A.2-27		Nonsafety-related red	lundant trains or equipment or cable	s: <b>B</b>	
		9A.2-28	Surround	led by fire barriers rated a	t: 3 hours	•	
		9A.2-29		Excep	t: none		
		9A.2-30					
		9A.2-31					
ongisting	of the followin	a Dooma:	Fire De	otaatian	Eiro Cunne	oggian	
EL	Room #	Potential Combustibles	Primary	Backup	Fire Suppre Primary	Backup	
LL	Koon #	r otentiai Combustibles	Tilliary	Баскир	1 Illiary	Баскир	
4650	5290B,	Class IIIB lubricants	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishe	
1000	5291B	Cable insulation	11100 11100	(outside stairwell	(at stairwells)	Tib o in o choniguione	
27000		Filter media		at each landing)	(uv seum viens)		
		Insulation		<b></b> )			
	Charcoal	Charcoal	HVAC temperature		Internal manual spray	Hose racks	
	Filter		indication			(at stairwells)	
						, ,	
	l	< 700 700	Anticipated combustible lo Unsprinklered combustible	e load limit, MJ/m2	Assuming automatic & manual Fl function, impact of design basis f	ire on safe shutdown:	
			uipment, impact of fire upor	1: 	this Fire Area results in loss of	•	
	lant operation:		stanials prosant		equipment; all safety divisions		
Kadioi		None, no radiological ma Travel distance limits to			are unaffected by fire and are o	perable.	
Mon	•	Access via inteior doors	EALLS MEET NELY 101				
ivianu	Property loss:						

#### **Table 9A.5-7**

#### Yard

	Fire Area:	F4201	Description:	Lube Oil Storage		
	Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189;	NFPA 13, 15, 16, 24, 30, 804	
		DCD Fig:	_	Bu	ilding code occupancy classification:	U per IBC 312.1
		9A.2-33	Electrical classification: <b>none</b>			
					elated divisional equipment or cables:	
					undant trains or equipment or cables:	none
			Surround	ed by fire barriers rated at	none	
				Except	none	
Consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	Lube Oil	191,000L Class IIIB	Suppression	Lube Oil system	Dry-pilot foam deluge	Hydrants
	Storage	lubricating oil	flowswitch	instrumentation	12.2 L/min per m2	
			-			
		> 700	Anticipated combustible lo		Assuming automatic & manual FP	
		N/A	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire	e on safe shutdown:
					Complete burnout of all equipme	
			uipment, impact of fire upor	1:	this Fire Area affects no safety-re	
		None; restoration requir			divisional equipment; all safety d	ivisions and both
Radio		None, no radiological ma	iterials present		redundant trains A and B are ope	erable.
	Life safety:					
Manu		Access from open north	side			
	Property loss:	Moderate				

	Fire Area:	F4202	Description:	Hydrogen Storage	<u> </u>	
	Building	Yard	Applicable codes:	IBC; Reg Guide 1.18	89; NFPA 10, 24, 50A, 72, 497, 804	
		DCD Fig:	_	Bui	lding code occupancy classification:	U per IBC 312.1
		9A.2-33	1		Electrical classification:	Class I Div 2 Group B
				Safety-rel	lated divisional equipment or cables:	none
					indant trains or equipment or cables:	none
			Surrounded b	by fire barriers rated at	none	
				Except	none	
Consisting of the following Rooms:			Fire Detect	i	Fire Suppress	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	Hydrogen	860 m3 hydrogen	H2 system	Manual pull	Hydrant	ABC fire
	Storage		instrumentation	(outside hazard)		extinguishers
	Storage		instrumentation	(outside hazard)		extinguishers
	Storage					
	Storage	> 700	Anticipated combustible load,	MJ/m2	Assuming automatic & manual FP	equipment does not
	Storage	> 700 N/A		MJ/m2	function, impact of design basis fire	equipment does not e on safe shutdown:
		N/A	Anticipated combustible load, Unsprinklered combustible loa	MJ/m2	function, impact of design basis fire Complete burnout of all equipme	equipment does not e on safe shutdown: ent and cables within
	operation of in	N/A stalled fire extinguishing eq	Anticipated combustible load, Unsprinklered combustible loa uipment, impact of fire upon:	MJ/m2	function, impact of design basis fire Complete burnout of all equipme this Fire Area affects no safety-re	equipment does not e on safe shutdown: ent and cables within elated or safe shutdown
P	operation of instant operation:	N/A stalled fire extinguishing eq Turbine power reduction	Anticipated combustible load, Unsprinklered combustible loa uipment, impact of fire upon: n (due to loss of H2 makeup)	MJ/m2	function, impact of design basis fire Complete burnout of all equipme this Fire Area affects no safety-re divisional equipment; all safety d	equipment does not e on safe shutdown: ent and cables within elated or safe shutdown livisions and both
P	operation of instant operation:	N/A stalled fire extinguishing eq Turbine power reduction None, no radiological ma	Anticipated combustible load, Unsprinklered combustible loa uipment, impact of fire upon: n (due to loss of H2 makeup)	MJ/m2	function, impact of design basis fire Complete burnout of all equipme this Fire Area affects no safety-re	equipment does not e on safe shutdown: ent and cables within elated or safe shutdown livisions and both
P Radio	operation of instant operations logical release.  Life safety:	N/A stalled fire extinguishing eq Turbine power reduction None, no radiological ma	Anticipated combustible load, Unsprinklered combustible loa uipment, impact of fire upon: n (due to loss of H2 makeup)	MJ/m2	function, impact of design basis fire Complete burnout of all equipme this Fire Area affects no safety-re divisional equipment; all safety d	equipment does not e on safe shutdown: ent and cables within elated or safe shutdown livisions and both
P Radio	operation of instant operation: logical release: Life safety: all firefighting:	N/A  stalled fire extinguishing eq Turbine power reduction None, no radiological ma N/A Access all around	Anticipated combustible load, Unsprinklered combustible loa uipment, impact of fire upon: n (due to loss of H2 makeup)	MJ/m2	function, impact of design basis fire Complete burnout of all equipme this Fire Area affects no safety-re divisional equipment; all safety d	equipment does not e on safe shutdown: ent and cables within elated or safe shutdown livisions and both
P Radio	operation of instant operations logical release.  Life safety:	N/A  stalled fire extinguishing eq Turbine power reduction None, no radiological ma N/A Access all around	Anticipated combustible load, Unsprinklered combustible loa uipment, impact of fire upon: n (due to loss of H2 makeup)	MJ/m2	function, impact of design basis fire Complete burnout of all equipme this Fire Area affects no safety-re divisional equipment; all safety d	equipment does not e on safe shutdown: ent and cables within elated or safe shutdown livisions and both

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

	Fire Area:	F4251	Description:	A Feedpump ASD Tra	nsformer		
	Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189	; NFPA 10, 24, 804		
		DCD Fig:	Building code occupancy classification: U				
		9A.2-13			Electrical classification:	none	
				Safety-	related divisional equipment or cables:	none	
					dundant trains or equipment or cables:	none	
			Surround	led by fire barriers rated	at: 3 hours		
				Exce	pt: basemat (non-rated); north side	(open); top (open)	
consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion	
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
				-			
4650	ASD A	< 4000 L Class IIIA	Transformer	None	Hydrants	CO2 fire	
	Transformer	insulating mineral oil	instrumentation		·	extinguishers	
		(~15 MVA)				J	
			•				
		< 700	Anticipated combustible lo		Assuming automatic & manual FP		
		N/A	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire		
					Complete burnout of all equipme		
Assuming			uipment, impact of fire upon		this Fire Area affects no safety-re	elated or safe shutdown	
			at 100% w/ 3 FW pumps)		divisional equipment; all safety divisions and both		
Radi		None, no radiological m	aterials present		redundant trains A and B are ope	erable.	
	Life Safety:						
Mai		Access via open north si	ide				
	Property loss:	Moderate					

	Fire Area: F4252 Description: C Feedpump ASD Transformer						
	Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189;	NFPA 10, 24, 804		
		DCD Fig:		В	uilding code occupancy classification:		
		9A.2-13			Electrical classification:		
	Safety-related divisional equipment or cables: <b>none</b>						
					dundant trains or equipment or cables:	none	
			Surround	led by fire barriers rated			
				Exce	pt: basemat (non-rated); north side	(open); top (open)	
consisting of the following Rooms:		Fire De	etection	Fire Suppress	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	ASD C	< 4000 L Class IIIA	Transformer	None	Hydrants	CO2 fire	
	Transformer	insulating mineral oil	instrumentation			extinguishers	
		(~15 MVA)					
			1				
		< 700	Anticipated combustible lo		Assuming automatic & manual FP		
		N/A	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire		
		11 1 0			Complete burnout of all equipme		
Assuming			uipment, impact of fire upon		this Fire Area affects no safety-related or safe shutdown		
D 1			at 100% w/ 3 FW pumps)		divisional equipment; all safety divisions and both		
Radi		None, no radiological m	aterials present		redundant trains A and B are ope	erable.	
,,,	Life Safety:						
Mai		Access via open north s	ide				
	Property loss:	Moderate					

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

	Fire Area:	F4261	Description:	B Feedpump ASD Tra	nsformer			
	Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189	; NFPA 10, 24, 804			
		DCD Fig:	Building code occupancy classification: U					
		9A.2-13	Electrical classification: <b>none</b>					
				Safety-	related divisional equipment or cables:	none		
					edundant trains or equipment or cables:	none		
			Surround	led by fire barriers rated	at: 3 hours			
				Exce	ept: basemat (non-rated); north side	(open); top (open)		
consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	ASD B	< 4000 L Class IIIA	Transformer	None	Hydrants	CO2 fire		
	Transformer	insulating mineral oil	instrumentation			extinguishers		
		(~15 MVA)						
			1					
		< 700	Anticipated combustible lo		Assuming automatic & manual FP			
		N/A	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire			
		11 1 0			Complete burnout of all equipme			
Assuming			uipment, impact of fire upon		this Fire Area affects no safety-re			
D 1			at 100% w/ 3 FW pumps)		divisional equipment; all safety divisions and both			
Kad	-	None, no radiological m	aterials present		redundant trains A and B are ope	erable.		
N. 4.	Life Safety:		· J .					
Ma		Access via open north s	iae					
	Property loss:	Moderate						

	Fire Area:	F4262	Description: D Feedpump ASD Transformer					
	Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189;				
		DCD Fig:	_	Bu	nilding code occupancy classification:	U		
		9A.2-13			Electrical classification:			
					elated divisional equipment or cables:			
					undant trains or equipment or cables:	none		
			Surrounded by fire barriers rated at: 3 hours					
			Except: basemat (non-rated); north side (open); top (open)					
consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	ASD D	< 4000 L Class IIIA	Transformer	None	Hydrants	CO2 fire		
	Transformer	insulating mineral oil	instrumentation			extinguishers		
		(~15 MVA)						
			<b>1</b>					
		< 700	Anticipated combustible lo		Assuming automatic & manual FP equipment does not			
		N/A	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire			
		11 1 0			Complete burnout of all equipme			
			uipment, impact of fire upor		this Fire Area affects no safety-re			
			at 100% w/3 FW pumps)		divisional equipment; all safety d			
Radi		None, no radiological m	naterials present		redundant trains A and B are op	erable.		
3.4	Life Safety:		•1.					
Mar		Access via open north s	iae					
	Property loss:	Moderate						

	Fire Area:	F4271	Description:	Phase A Main Transform	ner	
	Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189; N	FPA 15, 24, 804	
		DCD Fig:	Building code occupancy classification: U			
		9A.2-13			Electrical classification:	none
		9A.2-14		Safety-rel	ated divisional equipment or cables:	none
				Nonsafety-related redu	ndant trains or equipment or cables:	none
			Surround	led by fire barriers rated at:	3 hours	
				Except:	basemat (non-rated); north side	(open); top (open)
			_			
Consisting of the following Rooms:		Fire De	tection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	Main	>18,900L Class IIIA	Dry-pilot heat	Transformer	Dry-pilot deluge	Hydrants
	Transformer A	insulating mineral oil	around transformer	instrumentation	10.2 L/min per m2	
		(~625 MVA)			on all surfaces	
			_			
		> 700	Anticipated combustible loa		Assuming automatic & manual FP	
		N/A	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire	e on safe shutdown:
					Complete burnout of all equipme	nt and cables within
Assuming of		ed fire extinguishing equipn		•	this Fire Area affects no safety-re	elated or safe shutdown
			uired to replace MT w/ ST		divisional equipment; all safety d	ivisions and both
Ra		None, no radiological ma	terials present redundant trains A and B ar		redundant trains A and B are op	erable.
	Life safety:					
N	Manual firefighting: Access via open north sig		le			
	Property loss:	Significant				

	Fire Area:	Fire Area: F4272 Description: Phase B Main Transformer					
	Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189; N	FPA 15, 24, 804		
		DCD Fig:	Building code occupancy classification: U				
		9A.2-13			Electrical classification:		
		9A.2-14		•	ated divisional equipment or cables:		
					ndant trains or equipment or cables:	none	
			Surround	led by fire barriers rated at:			
				Except:	basemat (non-rated); north side	(open); top (open)	
			_				
Consisting of the following Rooms:			Fire De	tection	Fire Suppress	sion	
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	Main	>18,900L Class IIIA	Dry-pilot heat	Transformer	Dry-pilot deluge	Hydrants	
	Transformer B	insulating mineral oil	around transformer	instrumentation	10.2 L/min per m2		
		(~625 MVA)			on all surfaces		
			1				
		> 700	Anticipated combustible loa		Assuming automatic & manual FP		
		N/A	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire		
					Complete burnout of all equipme		
Assuming of		ed fire extinguishing equipn		1	this Fire Area affects no safety-re		
			uired to replace MT w/ ST		divisional equipment; all safety d		
Ra		None, no radiological ma	terials present		redundant trains A and B are op-	erable.	
_	Life safety:		_				
N		Access via open north sic	le				
	Property loss:	Significant					

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

	Fire Area:	F4273	Description:	Phase C Main Transform	ner	
	Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189; N	VFPA 15, 24, 804	
		DCD Fig:		Bui	lding code occupancy classification:	U
		9A.2-13			Electrical classification:	none
		9A.2-14			ated divisional equipment or cables:	
					indant trains or equipment or cables:	none
			Surround	ed by fire barriers rated at:		
			J	Except:	basemat (non-rated); north side	(open); top (open)
			_			
Consisting of the following Rooms:		Fire De		Fire Suppress		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup
4650	Main	>18,900L Class IIIA	Dry-pilot heat	Transformer	Dry-pilot deluge	Hydrants
	Transformer C	insulating mineral oil	around transformer	instrumentation	10.2 L/min per m2	
		(~625 MVA)			on all surfaces	
			1			
		> 700	Anticipated combustible loa		Assuming automatic & manual FP e	
		N/A	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire	
l					Complete burnout of all equipme	
Assuming of		ed fire extinguishing equipn			this Fire Area affects no safety-re	
_			uired to replace MT w/ ST		divisional equipment; all safety di	
Radiological release: None, no radiological ma			iterials present		redundant trains A and B are ope	erable.
K			P = 0.0 = 0			
	Life safety:	N/A				
	Life safety: Manual firefighting:	N/A Access via open north sid				
	Life safety:	N/A Access via open north sid				

	Fire Area:	F4274	Description:	Spare Main Transform	)er	
	Building:			IBC; Reg Guide 1.189;		
	Bunumg.	DCD Fig:	i ippii woio oo woo.		uilding code occupancy classification:	U
		9A.2-13			Electrical classification:	
		9A.2-14		Safety-r	elated divisional equipment or cables:	
					dundant trains or equipment or cables:	
			Surround		at: 3 hours only on east side	
				-	ot: none	
Consisting of the following Rooms:		ooms:	Fire De	etection	Fire Suppress	sion
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup
4650	Spare Main	none (transformer	None	None	Hydrants	ABC fire
	Transformer	maintained dry)			·	extinguishers
		(~625 MVA)				
			•			
		negligible	Anticipated combustible lo		Assuming automatic & manual FP	
		N/A	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire	e on safe shutdown:
					Complete burnout of all equipme	nt and cables within
Assuming of		d fire extinguishing equipm	nent, impact of fire upon:	1	this Fire Area affects no safety-re	elated or safe shutdown
	Plant operation:				divisional equipment; all safety d	ivisions and both
Ra		None, no radiological ma	terials present		redundant trains A and B are ope	erable.
	Life safety:					
N		Access via all sides Excep	ot east			
	Property loss:	Moderate				

	Fire Area:	F5157	Description: Reserve Auxiliary Transformer A					
	Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189; N	NFPA 15, 24, 804			
		DCD Fig:	Building code occupancy classification: U					
		9A.2-25			Electrical classification:			
		9A.2-26			ated divisional equipment or cables:			
		9A.2-27			indant trains or equipment or cables:	A		
			Surround	led by fire barriers rated at:				
				Except:	basemat (non-rated); north side	(open); top (open)		
Consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	Reserve	>18,900L Class IIIA	Dry-pilot heat	Transformer	Dry-pilot deluge	Hydrants		
	Auxiliary	insulating mineral oil	around transformer	instrumentation	10.2 L/min per m2			
	Transformer A	(~105 MVA)			on all surfaces			
			•					
		> 700	Anticipated combustible lo		Assuming automatic & manual FP			
		N/A	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire			
					Complete burnout of all equipme			
Assuming of		ed fire extinguishing equipn	nent, impact of fire upon:	•	this Fire Area affects only redund	lant train A off-site		
	Plant operation:				power and related equipment and	l no safety-related		
Ra		None, no radiological ma	terials present		equipment; all safety divisions, tr	ain A on-site power and		
	Life safety:				related equipment, and redundar	it train B equipment are		
N		Access via open north sic	le		operable.			
	Property loss:	Significant						

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

	Fire Area:	F5158	Description:	<b>Unit Auxiliary Transfor</b>	mer A		
	Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189; N	NFPA 15, 24, 804		
		DCD Fig:		Bu	lding code occupancy classification:	U	
		9A.2-25			Electrical classification:	none	
		9A.2-26		Safety-re	lated divisional equipment or cables:	none	
		9A.2-27			indant trains or equipment or cables:	A	
			Surround	ed by fire barriers rated at			
			Except: basemat (non-rated); north side (open); top (open)				
Consisting of the following Rooms:		Fire De		Fire Suppress	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	Unit Auxiliary	>18,900L Class IIIA	Dry-pilot heat	Transformer	Dry-pilot deluge	Hydrants	
	Transformer A	insulating mineral oil	around transformer	instrumentation	10.2 L/min per m2		
		(~105 MVA)			on all surfaces		
			-				
		> 700	Anticipated combustible lo		Assuming automatic & manual FP equipment does not		
		N/A	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire		
					Complete burnout of all equipme		
Assuming of		ed fire extinguishing equipn	nent, impact of fire upon:	I	this Fire Area affects only redund		
_	Plant operation:				power and related equipment and	•	
Ra		None, no radiological ma	nterials present		equipment; all safety divisions, tr	_	
	Life safety:				related equipment, and redundar	it train B equipment are	
N		Access via open north sig	de		operable.		
	Property loss:	Significant					

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

	Fire Area:	F5159	Description: Fuel Oil Storage A					
	Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189; N	FPA 11, 16, 24, 30, 72, 804			
	DCD Fig:				ding code occupancy classification:			
		9A.2-33			Electrical classification:			
				Safety-rela	ated divisional equipment or cables:	none		
			Nonsafety-related redundant trains or equipment or cables: A					
			Surround	led by fire barriers rated at:	none			
			Except: none					
Consisting of the following Rooms:			Fire De	etection	Fire Suppress	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	Fuel Oil	~756,000L Class II	Spot heat inside tank	UV/IR fire detection	Automatic foam surface cross-	Hydrants		
	Tank A	fuel oil		inside tank	zoned deluge			
					6.5 L/min per m2			
			-					
		> 700	Anticipated combustible lo		Assuming automatic & manual FP			
		N/A	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire on safe shutdown:			
					Complete burnout of all equipme			
			uipment, impact of fire upor	1:	this Fire Area affects only redund			
	lant operation:				power and related equipment and			
Radiol	-	None, no radiological ma	iterials present		equipment; all safety divisions an			
	Life safety:				site power and related equipment	are operable.		
Manu		Access all around						
	Property loss:	Moderate						

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

	Fire Area: F5167 Description: Reserve Auxiliary Transformer B						
	Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189; N	FPA 15, 24, 72, 804		
		DCD Fig:	Building code occupancy classification: U				
		9A.2-25			Electrical classification:	none	
		9A.2-26		Safety-rel	ated divisional equipment or cables:	none	
		9A.2-27			ndant trains or equipment or cables:	В	
			Surround	ed by fire barriers rated at:	3 hours		
			Except: basemat (non-rated); north side (open); top (open)				
Consisting of the following Rooms:			etection	Fire Suppress			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	Reserve	>18,900L Class IIIA	Dry-pilot heat	Transformer	Dry-pilot deluge	Hydrants	
	Auxiliary	insulating mineral oil	around transformer	instrumentation	10.2 L/min per m2		
	Transformer B	(~105 MVA)			on all surfaces		
			•				
		> 700	Anticipated combustible lo		Assuming automatic & manual FP		
		N/A	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire		
					Complete burnout of all equipme		
Assuming of		ed fire extinguishing equipn	nent, impact of fire upon:		this Fire Area affects only redund		
	Plant operation:				power and related equipment and	•	
Ra		None, no radiological ma	terials present		equipment; all safety divisions, tr	ain B on-site power and	
	Life safety:				related equipment, and redundar	ıt train A equipment are	
N		Access via open north sic	le		operable.		
	Property loss:	Significant					

	Fire Area:	F5168	Description:	<b>Unit Auxiliary Transfor</b>	mer B			
	Building:	Yard	Applicable codes:	Applicable codes: IBC; Reg Guide 1.189; NFPA 15, 24, 72, 804				
		DCD Fig:	_	Bui	lding code occupancy classification:			
		9A.2-25			Electrical classification:	none		
		9A.2-26			lated divisional equipment or cables:			
		9A.2-27		•	indant trains or equipment or cables:	В		
			Surround	ed by fire barriers rated at	3 hours			
			Except: basemat (non-rated); north side (open); top (open)					
Consisting of the following Rooms:			etection	Fire Suppress				
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	Unit Auxiliary	>18,900L Class IIIA	Dry-pilot heat	Transformer	Dry-pilot deluge	Hydrants		
	Transformer B	insulating mineral oil	around transformer	instrumentation	10.2 L/min per m2			
		(~105 MVA)			on all surfaces			
			_					
		> 700	Anticipated combustible lo		Assuming automatic & manual FP equipment does not			
		N/A	Unsprinklered combustible load limit, MJ/m2		function, impact of design basis fire on safe shutdown:			
					Complete burnout of all equipme	nt and cables within		
Assuming c		ed fire extinguishing equipn	nent, impact of fire upon:	•	this Fire Area affects only redund	dant train B off-site		
	Plant operation:				power and related equipment and	d no safety-related		
Ra		None, no radiological ma	terials present		equipment; all safety divisions, tr	ain B on-site power and		
	Life safety:				related equipment, and redundar	it train A equipment are		
M		Access via open north sic	le		operable.			
	Property loss:	Significant						

	Fire Area: F5169 Description: Fuel Oil Storage B							
	Building:	Yard	Applicable codes:	IBC; Reg Guide 1.189; N	FPA 11, 16, 24, 30, 72, 804			
		DCD Fig:		Buil	ding code occupancy classification:	U		
		9A.2-33			Electrical classification:			
					ated divisional equipment or cables:			
					ndant trains or equipment or cables:	В		
			Surrounded by fire barriers rated at: none					
			Except: none					
Consisting of the following Rooms:				etection	Fire Suppress	i		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	Fuel Oil	~756,000L Class II	Spot heat inside tank	UV/IR fire detection	Automatic foam surface cross-	Hydrants		
	Tank B	fuel oil		inside tank	zoned deluge			
					6.5 L/min per m2			
			1					
		> 700	Anticipated combustible lo		Assuming automatic & manual FP equipment does not			
		N/A	Unsprinklered combustible	e load limit, MJ/m2	function, impact of design basis fire			
		. 11 1 0			Complete burnout of all equipme			
			uipment, impact of fire upor	1: I	this Fire Area affects only redund			
	lant operation:				power and related equipment and	•		
Kadıol		None, no radiological ma	iterials present		equipment; all safety divisions an			
Life safety: N/A					site power and related equipment	t are operable.		
Manual firefighting: Access all around								
	Property loss:	Moderate						

	Fire Area:	F7100	Description:	Pump House				
	Building:	Pump House	Applicable codes:	IBC; Reg Guide 1.189	; NFPA 10, 14, 72, 90A, 101, 804			
		DCD Fig:	Building code occupancy classification: F-1					
		9A.2-33			Electrical classification:			
					ted divisional equipment or cables:			
					dant trains or equipment or cables:			
			Surrounded by fire barriers rated at: to be determined during detailed design					
				Except	to be determined during detaile	d design		
	1 0 11 : 7		E' D		F: G			
	he following R		Fire De		Fire Suppres			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
	4 1	CL HID11:	A .1	M 1 11 ( )	** '	ADC C		
to be	to be	Class IIIB lubricants	Area wide ionization	Manual pulls (at	Hose racks	ABC fire		
determined	determined	Cable Insulation		EXITs)		extinguishers		
during	during							
detailed	detailed							
design	design							
					•			
		< 700	Anticipated combustible	load, MJ/m2	Assuming automatic & manual FP equipment does not			
		700	Unsprinklered combustil	ole load limit, MJ/m2	function, impact of design basis fire on safe shutdown:			
			_		Complete burnout of all equipn	nent and cables within		
		led fire extinguishing equi	pment, impact of fire upo	n:	this Fire Area affects no safety-	related or safe		
		Turbine trip			shutdown divisional equipment	, but could affect		
Radiol		None, no radiological m			redundant train A and B nonsa	fety-related		
		to be determined during			and both on-site and			
Manu		to be determined during	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		are unaffected by fire			
	Property loss:	to be determined during	g detailed design		and are operable.			

	Fire Area:	F7150a	Description:	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:		Ві	uilding code occupancy classification:					
		9A.2-33			Electrical classification:					
		Site Specific		Safety-related divisional equipment or cables: none						
				Nonsafety-related redundant trains or equipment or cables: <b>none</b>						
			Surround	ed by fire barriers rated a						
				Excep	exterior walls (non-rated), roof (n	on-rated)				
~					T					
	of the following			Detection	Fire Suppress					
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup				
4.5=0										
4650	7150	< 2500 L Class II fuel	Suppression	Manual pull	Wet-pipe sprinkler	Hydrant				
		Class IIIB lubricants	flowswitch		12.2 L/min per m2					
		Cable insulation			over entire area					
	<u> </u>									
		> 700	Anticipated combustible	load MI/m2	Assuming automatic & manual FP e	equinment does not				
		700	Unsprinklered combustil		function, impact of design basis fire					
			e noprimirer u u unio unio	71 <b>0 10 00 1</b> 111110, 17 <b>10</b> 7 111 <b>-</b>	Complete burnout of all equipment					
Assuming of	operation of ins	talled fire extinguishing eq	uipment, impact of fire up	oon:	this Fire Area results in loss of on					
	Plant operation:		1 / 1		driven fire pump; remaining three	-				
		None, no radiological ma	terials present		motor-driven and one diesel-driven Seismic Category I)					
		Travel distance limits to								
Manu		Access via exterior door			safe shutdown equipment and bot					
	Property loss:				power sources are unaffected by t					
1		-			The second control of					

	Fire Area	F7150b	Description:	Nonseismic Motor-dri	ven Fire Pump			
	Building	Yard	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 20, 24, 30, 37, 72, 101, 804					
		DCD Fig:	Building code occupancy classification: F-1 per IBC 307.9.5					
		9A.2-33			Electrical classification			
		Site Specific			elated divisional equipment or cables			
					lundant trains or equipment or cables	none		
			Surrounde	d by fire barriers rated a				
				Excep	t: exterior walls (non-rated), roof (	non-rated)		
	of the following			etection	Fire Suppress			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
4650	7150	< 2500 L Class II fuel	Suppression	Manual pull	Wet-pipe sprinkler	Hydrant		
		Class IIIB lubricants	flowswitch		12.2 L/min per m2			
		Cable insulation			over entire area			
		> 700	Anticipated combustible	lood MI/m2	Assuming automatic & manual FP	aguinment dess not		
		700	Unsprinklered combustil		function, impact of design basis fir			
		700	Onsprinkiered combustit	ofe foau fiffit, Mij/fif2	Complete burnout of all equipme			
Assuming c	oneration of in	stalled fire extinguishing eq	uinment impact of fire ur	on.	this Fire Area results in loss of o			
	lant operation		arpinent, impact of the ap	0011.				
		None, no radiological ma	terials present		motor driven fire pump; remaining three (one			
Radioi	-	Travel distance limits to			nonseismic motor-driven and two diesel-driven) fire			
Manu		Access via exterior door	EATIS MEET INFI A 101		pumps are unaffected by fire and are operable. All sa shutdown equipment and both A and B on-site power			
iviana	Property loss				sources are unaffected by fire an	_		
	1 1 Sperty 1033				isources are unaffected by fire an	u are oberable.		

	Fire Area:	F7180	Description: Guard House				
	Building:	<b>Guard House</b>	Applicable codes:	IBC; Reg Guide 1.189;	NFPA 10, 24, 72, 90A, 101, 804		
		DCD Fig:	_	Build	ing code occupancy classification:	В	
		9A.2-33	Electrical classification: <b>none</b>				
					ted divisional equipment or cables: <b>none</b>		
					dant trains or equipment or cables:		
			Surrounded		to be determined during detaile		
			Except: to be determined during detailed design				
Consisting of the following Rooms:		Fire De		Fire Suppres			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
to be	to be	Class A combustibles	Area-wide ionization	Manual pulls at	ABC fire extinguishers	Hydrant	
determined	determined	Cable insulation		EXITs			
during	during						
detailed	detailed						
design	design						
		< 700	1 4	lood MI/m2	Assuming substitution for manual FI		
		700	Anticipated combustible		Assuming automatic & manual FP equipment does not function, impact of design basis fire on safe shutdown:		
		/00	Unsprinklered combustil	ole load IIIIII, MJ/IIIZ			
A saumina ana	ration of instal	led fire extinguishing equi	nment impact of fire una	n·	Complete burnout of all equipm		
	lant operation:		pinent, impact of the upo	II. 	this Fire Area affects no safety- shutdown divisional equipment		
		None, no radiological m	natarials prosent		and both redundant trains A ar		
Radio		to be determined during			and both redundant trains A ar	iu в are operable.	
Manu							
ivianu	Manual firefighting: to be determined durin Property loss: to be determined durin						
	Troperty 1088.	to be determined during	g uctaneu uesign				

	Fire Area:	F7200	Description: Hot Machine Shop & Storage				
	Building:	<b>Hot Machine Shop</b>	Applicable codes:	IBC; Reg Guide 1.	189; NFPA 10, 14, 72, 90A, 101,	804	
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-33	Electrical classification: <b>none</b>				
					ed divisional equipment or cables:		
					lant trains or equipment or cables:		
			Surrounded by f		to be determined during detaile	· ·	
				Except:	to be determined during detaile	d design	
Consisting of the following Rooms:		Fire Detection		Fire Suppress			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
to be determined during detailed design	to be determined during detailed design	Class A combustibles Cable insulation Transient combustibles Class IIIB lubricants	Area wide linear heat	Manual pulls (at EXITs)	Hose racks	ABC fire extinguishers Class D fire extinguishers	
			ing g detailed design in every 15 m of exterior wall	d limit, MJ/m2	Assuming automatic & manual FF function, impact of design basis fi Complete burnout of all equipments Fire Area affects no safety-shutdown divisional equipment; and both redundant trains A an	re on safe shutdown: nent and cables within related or safe s all safety divisions	

	Fire Area:	F7300	Description: Service Water / Water Treatment Building				
	Building:	Service Water	Applicable codes:	IBC; Reg Guide 1.	189; NFPA 10, 14, 72, 90A, 101,	804	
		DCD Fig:	Building code occupancy classification: to be determined during detailed design				
		9A.2-33	Electrical classification: <b>none</b>				
					ed divisional equipment or cables:		
			Nonsafety-related redundant trains or equipment or cables: none				
			Surrounded by t		to be determined during detaile		
				Except:	to be determined during detaile	d design	
Consisting of the following Rooms:			Fire Detection	•	Fire Suppress		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
to be determined during detailed design	to be determined during detailed design	Class IIIB lubricants Cable insulation Electrical equipment	Area wide spot heat	Manual pulls (at EXITs)	Hose racks	ABC fire extinguishers	
		akeup water chemistry laterials present g detailed design in every 15 m of exterior wall		Assuming automatic & manual FF function, impact of design basis fi Complete burnout of all equipm this Fire Area affects no safety-shutdown divisional equipment, redundant train A and B nonsa equipment; all safety divisions a off-site power supplies A and B and are operable.	re on safe shutdown: nent and cables within related or safe but could affect fety-related and both on-site and		

	Fire Area:	F7400	Description: Cold Machine Shop				
	Building:	Cold Machine Shop	Applicable codes:	IBC; Reg Guide 1.	189; NFPA 10, 14, 72, 90A, 101,	804	
		DCD Fig:	Building code occupancy classification: F-1				
		9A.2-33	Electrical classification: <b>none</b>				
				Safety-relate	ed divisional equipment or cables:	none	
					lant trains or equipment or cables:		
			Surrounded by f		to be determined during detaile		
				Except:	to be determined during detaile	d design	
Consisting of the following Rooms:		Fire Detection		Fire Suppress			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
to be	to be	Class IIIB lubricants	Area wide linear heat	Manual pulls (at	Hose racks	ABC fire	
determined	determined	Cable insulation		EXITs)		extinguishers	
during	during						
detailed	detailed						
design	design						
		. =00	1	MI/ O	A		
		< 700	Anticipated combustible load,		Assuming automatic & manual FF		
		700	Unsprinklered combustible loa	d limit, MJ/m2	function, impact of design basis fi		
A comming one	matian afinatal	lad fire autinomichina aqui	mmont immost of fire upon:		Complete burnout of all equipm		
	lant operation:		pment, impact of fire upon:	1	this Fire Area affects no safety-		
				-	shutdown divisional equipment; all safety divisions		
Kadioi		None, no radiological m			and both redundant trains A an	d B are operable.	
M		to be determined during		-			
Manu			in every 15 m of exterior wall				
	rioperty loss:	to be determined during	g detaned design	J			

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

	Fire Area:	F7500	Description:	Warehouse				
	Building:	Warehouse	Applicable codes:	IBC; Reg Guide 1.189	9; NFPA 10, 13, 72, 90A, 101, 804			
		DCD Fig:	- -	Build	ding code occupancy classification:			
		9A.2-33	Electrical classification: <b>none</b>					
					ted divisional equipment or cables:			
					dant trains or equipment or cables:			
			Surrounded		to be determined during detaile			
			J	Except	to be determined during detaile	d design		
Consisting of t	he following R	.ooms:	Fire De	etection	Fire Suppress	sion		
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup		
						-		
to be determined during detailed design	to be determined during detailed design	Class A combustibles Cable insulation Class IIIB lubricants	Suppression flowswitch	Manual pulls at EXITs	Dry-pipe sprinkler 8.2 L/min per m2 over most remote 302 m2 (rack protection to be determined during detailed design)	ABC fire extinguishers		
P Radiol	lant operation: ogical release: Life safety: al firefighting:	> 700 700  ed fire extinguishing equi None None, no radiological m to be determined during to be determined during	naterials present g detailed design g detailed design	ble load limit, MJ/m2	Assuming automatic & manual FF function, impact of design basis fi Complete burnout of all equipments Fire Area affects no safety-shutdown divisional equipments and both redundant trains A and	re on safe shutdown: nent and cables within related or safe g all safety divisions		

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

	Fire Area:	F7600	Description:	Training Center				
	Building:	Training Center			9; NFPA 10, 13, 72, 75, 90A, 101, 8	804		
		DCD Fig:	Building code occupancy classification: <b>B</b>					
		9A.2-33	Electrical classification: none					
					ited divisional equipment or cables:			
					ndant trains or equipment or cables:			
			Surrounded by fire barriers rated at: to be determined during detailed design					
				Except	to be determined during detailed	d design		
Consisting of t	he following R	Paams:	Fire De	rtaction	Eira Cumpraga	vion		
EL	Room #	Potential Combustibles	Primary	Backup	Fire Suppress Primary	Backup		
EL	Room #	Totelitial Combustibles	Tilliary	Баскир	1 Tilliai y	Васкир		
to be	to be	Class A combustibles	Suppression	Manual pulls at	Preaction sprinkler	CO2 fire		
determined	determined	Cable insulation	flowswitch	EXITs	4.1 L/min per m2	extinguishers		
during	during	Computer equipment			over most remote 182 m2	ABC fire		
detailed	detailed					extinguishers		
design	design							
					•			
		> 700	Anticipated combustible	load, MJ/m2	Assuming automatic & manual FF	equipment does not		
		700	Unsprinklered combustil	ble load limit, MJ/m2	function, impact of design basis fire on safe shutdown:			
					Complete burnout of all equipm			
		led fire extinguishing equi	pment, impact of fire upo	n:	this Fire Area affects no safety-			
	lant operation:				shutdown divisional equipment;	-		
Radiol		None, no radiological m			and both redundant trains A an	d B are operable.		
3.4	•	to be determined during	2					
Manu		to be determined during						
	Property loss:	to be determined during	g detailed design					

	Fire Area:	F7700	Description:	Service Building		Description: Service Building			
	Building:	Service	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 72, 90A, 101, 804; 28 CFR 36						
		DCD Fig:	Building code occupancy classification: <b>B</b>						
		9A.2-33	Electrical classification: <b>none</b>						
					ed divisional equipment or cables:				
					dant trains or equipment or cables:				
			Surrounded by f		to be determined during detaile				
				Except:	to be determined during detaile	d design			
			n		T: 0				
Consisting of the following Rooms:		Fire Detection		Fire Suppress					
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup			
_									
to be	to be	Class A combustibles	Suppression flowswitch	Manual pulls at	Wet-pipe sprinkler	ABC fire			
determined	determined	Cable insulation		EXITs	4.1 L/min per m2	extinguishers			
during	during				over most remote 140 m2				
detailed	detailed								
design	design								
		> 700	Anticipated combustible load,	MJ/m2	Assuming automatic & manual FF	P equipment does not			
		700	Unsprinklered combustible loa		function, impact of design basis fire on safe shutdown:				
			1 F	<b>,</b>	Complete burnout of all equipm				
Assuming oper	ration of install	led fire extinguishing equi	pment, impact of fire upon:		this Fire Area affects no safety-				
			ss into RB/FB/CB/TB/RW		shutdown divisional equipment:				
		None, no radiological m			and both redundant trains A and B are operable.				
		to be determined during				•			
Manu		to be determined during							
	Property loss:	to be determined during	g detailed design						
				-					

Fire Area: <b>F7800</b>			Description: Auxiliary Boiler Building						
i	Building:	Auxiliary Boiler		Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 24, 72, 101, 804					
		DCD Fig:			to be determined during detaile	d design			
i		9A.2-33	Elec	etrical classification:	to be determined during detaile	d design			
i				Safety-relat	ed divisional equipment or cables:	none			
			Non	safety-related redund	lant trains or equipment or cables:	none			
			Surrounded by t	fire barriers rated at:	to be determined during detaile	d design			
				Except:	to be determined during detaile	d design			
Consisting of t			Fire Detection	on	Fire Suppres	sion			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup			
					_				
to be	to be	Class IIIB lubricants	Area wide spot heat	Manual pulls (at	ABC fire extinguishers	Hydrants			
determined	determined	Cable insulation		EXITs)					
during	during	Electrical equipment							
detailed	detailed								
design	design								
			1						
i		< 700	Anticipated combustible load,		Assuming automatic & manual FP equipment does not				
i		700	Unsprinklered combustible loa	d limit, MJ/m2	function, impact of design basis fire on safe shutdown:				
1			0.0		Complete burnout of all equipm				
			pment, impact of fire upon:	1	this Fire Area affects no safety-related or safe				
		None; restoration requi			shutdown divisional equipment;	•			
Radiological release: None, no radiological ma				and both on-site and off-site pov					
Life safety: to be determined during				are unaffected by fire and are o	perable.				
Manu			in every 15 m of exterior wall	ļ					
i	Property loss:	to be determined during	g detailed design	]					
1						<b>!</b>			

Table 9A.5-Yard (Cont.)

	Fire Area:	F7900	Description:	<b>Administration Buildi</b>	ing			
Building: Administration			Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 72, 90A, 101, 804; 28 CFR 36					
		DCD Fig:	Building code occupancy classification: <b>B</b>					
		9A.2-33			Electrical classification:	none		
				Safety-rela	ted divisional equipment or cables:	none		
					dant trains or equipment or cables:			
			Surrounded	l by fire barriers rated at	to be determined during detaile	d design		
				Except	to be determined during detaile	d design		
Consisting of t	the following R		Fire De	etection	Fire Suppres	sion		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup		
to be determined during detailed design	to be determined during detailed design	Class A combustibles Cable insulation	Suppression flowswitch	Manual pulls at EXITs	Wet-pipe sprinkler 4.1 L/min per m2 over most remote 140 m2	ABC fire extinguishers		
P Radiol	lant operation: logical release: Life safety: al firefighting:	led fire extinguishing equi	naterials present g detailed design g detailed design	ble load limit, MJ/m2	Assuming automatic & manual Fl function, impact of design basis f Complete burnout of all equipn this Fire Area affects no safety- shutdown divisional equipment and both redundant trains A an	nent and cables within related or safe; all safety divisions		

Table 9A.5-7 Yard Fire Zone F8110 (Deleted) Table 9A.5-7 Yard Fire Zone F8120 (Deleted) Table 9A.5-7 Yard Fire Zone F8130 (Deleted)

	Fire Area:	F8250	Description:	Electric Firepump A			
	Building:	Fire Pump Enclosure	Applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 20, 24, 72, 101, 804			
		DCD Fig:		Ви	nilding code occupancy classification:		
		9A.2-33			Electrical classification:	none	
					elated divisional equipment or cables:		
					lundant trains or equipment or cables:		
			Surrounded		t: 3 hours (fire wall common with F		
			]	Excep	t: exterior walls (non-rated), roof (n	on-rated)	
	of the following		Fire Dete		Fire Suppressi		
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup	
4650	8250	Class IIIB lubricants	Area-wide ionization	Manual pull	CO2 fire extinguisher	Hydrant	
		Cable insulation					
			-				
		< 700	Anticipated combustible lo		Assuming automatic & manual FP equipment does not		
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:		
					Complete burnout of all equipment and cables within		
			uipment, impact of fire upor	1;	this Fire Area results in loss of only the motor-driven		
	lant operation:				fire pump; remaining two diesel-	driven fire pumps	
Radiological release: None, no radiological materials present					(Seismic Category I and nonseism	nic), nonseismic	
Life safety: Travel distance limits to EXITs meet NFPA 101				electric motor-driven fire pump,	and all safe shutdown		
Manual firefighting: Access via door				equipment are unaffected by fire	and are operable.		
Property loss: Minor				Both A and B on-site power source	ces are unaffected by		
					fire and are operable.		

	Fire Area	F8260	Description:	Description: Diesel Fire Pump B						
	Building	Fire Pump Enclosure	Applicable codes:	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 20, 24, 30, 37, 72, 101, 804						
		DCD Fig:	-	Bui	ilding code occupancy classification:					
		9A.2-33			Electrical classification:					
					lated divisional equipment or cables:					
					andant trains or equipment or cables:					
			Surrounded	= -	3 hours (fire wall common with F	•				
			1	Except	exterior walls (non-rated), roof (n	ion-rated)				
Consisting	of the following	ng Rooms:	Fire Det	ection	Fire Suppressi	ion				
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup				
4650	8260	< 2500 L Class II fuel	Suppression flowswitch	Manual pull	Wet-pipe sprinkler	Hydrant				
		Class IIIB lubricants			12.2 L/min per m2					
		Cable insulation			over entire area					
					<u> </u>					
		> 700	Anticipated combustible lo	ad, MJ/m2	Assuming automatic & manual FP	equipment does not				
		700	Unsprinklered combustible		function, impact of design basis fire on safe shutdown:					
			• •		Complete burnout of all equipment					
			uipment, impact of fire upon	1:	this Fire Area results in loss of only Seismic Category I					
P	lant operation	None			diesel-driven fire pump; remaining	ng three (two motor-				
Radio		None, no radiological ma			driven and one nonseismic diesel-	driven) fire pumps				
Life safety: Travel distance limits to						are unaffected by fire				
Manual firefighting: Access via door					and are operable. Both A and B	on-site power sources				
	Property loss	Minor			are unaffected by fire and are ope	erable.				

	Fire Area:	F9101	Description: Uncontrolled Access							
	Building:	Tunnel	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804							
		DCD Fig:	Building code occupancy classification: F-1							
		9A.2-3	Electrical classification: <b>none</b>							
		9A.2-25		Safety-re	elated divisional equipment or cables:	none				
				Nonsafety-related red	undant trains or equipment or cables:	none				
			Surround	ed by fire barriers rated at	: 3 hours					
				Except	t: basemat (non-rated)					
Consisting	of the followin		Fire De	tection	Fire Suppress	sion				
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup				
-2000	9101	Cable insulation	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers				
		Class IIIB lubricants		(at EXITs)						
		Class A combustibles								
		Transient combustibles								
		< 700	Anticipated combustible lo	ad, MJ/m2	Assuming automatic & manual FP	equipment does not				
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:					
					Complete burnout of all equipme	nt and cables within				
Assuming of	operation of ins	talled fire extinguishing equ	uipment, impact of fire upon	1:	this Fire Area affects no safe shu	tdown equipment or				
		None; will impede access			circuits; all safety-related equipn	nent and both				
Radiological release: None, no radiological ma			terials present		redundant trains A and B are op-	erable.				
	Life safety:	Travel distance limits to	EXITs meet NFPA 101		1					
Manu	ual firefighting:	Access via stairwells								
	Property loss:	Minor								

	Fire Area:	F9150	Description: Cable Tunnel A							
	Building:	Tunnel	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804							
		DCD Fig:	Building code occupancy classification: F-1							
		9A.2-3	Electrical classification: <b>none</b>							
		9A.2-4		Safety-rel	ated divisional equipment or cables:	none				
		9A.2-25		Nonsafety-related redu	ndant trains or equipment or cables:	A				
			Surround	ded by fire barriers rated at:	3 hours					
			_	Except:	none					
Consisting	of the followin	g Rooms:	Fire D	etection	Fire Suppres	sion				
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup				
1300	9150	Cable insulation	Area-wide ionization	Suppression flowswitch	Wet-pipe sprinkler 12.2 L/min per m2 over most remote 235 m2	Hose racks (in nearby stairwells) ABC fire extinguishers				
Assuming operation of installed fire extinguishing equipment, impact of fire upon: Plant operation: Radiological release: Life safety: Manual firefighting: Property loss:  Moderate  Anticipated combustible load, MJ/m2 Unsprinklered combustible load limit, MJ/m2  Assuming automatic & manual FP equipment does function, impact of design basis fire on safe shutdo  Complete burnout of all equipment and cables of this Fire Area results in loss of only redundant to on-site power source and related equipment; all divisions and train B on-site power source and requipment are unaffected by fire and are operation.  Moderate  Assuming automatic & manual FP equipment does function, impact of design basis fire on safe shutdo  Complete burnout of all equipment and cables of this Fire Area results in loss of only redundant to on-site power source and related equipment; all divisions and train B on-site power source and requipment are unaffected by fire and are operation.  Moderate										

	Fire Area:	F9160	Description: Cable Tunnel B						
	Building:	Tunnel	Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804						
		DCD Fig:	Building code occupancy classification: F-1						
		9A.2-3			Electrical classification:	none			
		9A.2-4			ated divisional equipment or cables:				
		9A.2-25			ndant trains or equipment or cables:	В			
			Surround	led by fire barriers rated at:					
				Except:	none				
	of the followin			etection	Fire Suppress	sion			
EL	Room #	Potential Combustibles	Primary	Backup	Primary	Backup			
1300	9160	Cable insulation	Area-wide ionization	Suppression flowswitch	Wet-pipe sprinkler 12.2 L/min per m2 over most remote 235 m2	Hose racks (in nearby stairwells) ABC fire extinguishers			
		> 1400	Anticipated combustible lo		Assuming automatic & manual FP function, impact of design basis fire				
			•		Complete burnout of all equipme				
			uipment, impact of fire upor	n:	this Fire Area results in loss of or	=			
Plant operation: None					site power source and related equ				
Radiol		None, no radiological ma			divisions and train A on-site pow				
,,		Travel distance limits to	EXITs meet NFPA 101		equipment are unaffected by fire	and are operable.			
Manu		Access via stairwells							
	Property loss:	Moderate							

	Fire Area	F9201	Description:	Controlled Access					
		ding: Tunnel Applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804							
	S	DCD Fig:	Building code occupancy classification: F-1						
		9A.2-4			Electrical classification:				
		9A.2-13		Safety-re	elated divisional equipment or cables:	none			
				Nonsafety-related red	lundant trains or equipment or cables:	none			
			Surround	ed by fire barriers rated a	t: 3 hours				
				Excep	t: basemat (non-rated); elevator do	oors (1.5 hr rated)			
			-						
Consisting	of the following	ng Rooms:	Fire De	etection	Fire Suppres	sion			
EL	Room#	Potential Combustibles	Primary	Backup	Primary	Backup			
4650	9201	Cable insulation	Area-wide ionization	Manual pulls	Hose racks	ABC fire extinguishers			
		Class IIIB lubricants		(at EXITs)					
		Class A combustibles							
		Transient combustibles							
			•						
		< 700	Anticipated combustible lo		Assuming automatic & manual FP				
		700	Unsprinklered combustible	load limit, MJ/m2	function, impact of design basis fire on safe shutdown:				
					Complete burnout of all equipme				
_	-	stalled fire extinguishing equ		1:	this Fire Area affects no safe shu				
Plant operation: None; will impede access i					circuits; all safety-related equipn				
Radiological release: None, no radiological mate					redundant trains A and B are op	erable.			
Life safety: Travel distance limits to			EXITs meet NFPA 101						
Manı		Access via stairwells							
	Property loss	: Minor							

#### 9A.6 SPECIAL CASES

# 9A.6.1 Piping Penetrations, Reactor Building

Piping penetrations through the drywell wall have unique design considerations. The stress and containment requirements along with the temperature inputs to the concrete walls leave little design latitude. Some of these high-energy piping penetrations may not contain a 3-hr fire-resistive barrier as provided throughout the other ESBWR buildings. All penetrations in 3-hour fire barriers are provided with an approved penetration seal design in accordance with the guidelines of Regulatory Guide 1.189.

## **9A.6.2** Fire Door Deviations

The design of the nuclear facility must meet many criteria, including fire resistance. Fire doors are an example of compromise with other overriding design criteria that must also be met. Some doors, such as the airlock doors in the Reactor Building, form part of a pressure boundary and are of special construction. These doors generally have a backup fire door.

# 9A.6.3 Pipe Break Analyses

Per the criteria in Section 3.6, the high-pressure firewater systems require analysis for moderate energy lines.

# 9A.6.4 Fire Separation for Divisional Electrical Systems

There are cases where cables of more than one division are in relatively close proximity and require special justification. These areas are listed below and justification for each is provided.

#### 9A.6.4.1 RPS Scram Circuits

Wiring to each of the four groups of scram solenoids is run in separate rigid, grounded steel conduits to prevent the possibility of exposing the scram solenoid circuits to a "hot" short (i.e., two energized switch legs of different group circuits shorted together that could inhibit the scram command to more than one group of control rods). No other wiring is contained within the conduits. Overheated conductors that are shorted to the conduits cannot cause an unsafe failure because the solenoids are de-energized by shorts to ground and thus create a safe condition. Separate grounded steel conduits are also provided for both the "A" and "B" solenoid circuits of the same scram group.

The air operated Scram Solenoid valves are part of the HCU assemblies (two solenoids per valve). They are Safety-Related and receive their divisional power (Division I or II) from Reactor Protection System (RPS) via the Scram Solenoid Fuse Panels. Separate fuse panels are provided for each scram group. Fuses associated with "A" and "B" solenoids of a single scram group are installed in separate panels or with appropriate separation within the same panel. Fire that causes a hot short on the cables feeding power to the scram solenoids can cause the associated fuses in the scram solenoid fuse panel to blow. The fault is limited to the loss of power to the associated solenoids and causes a half-scram or scram condition (a fail-safe condition).

The air header dump valves act as a diverse backup to the scram logic and are Safety-Related. Separate divisions of 240 VDC power energize the two air header dump valves. Power supply wiring to each solenoid is individually circuit-protected and run in separate steel conduit.

#### 9A.6.4.2 MSIV Closure Circuits

Sensors used for the main steam isolation valve (MSIV) closure (via the leak detection system) are located in the Turbine Building and in the main steam line (MSL) tunnels. These sensors are classified as Class 1E devices and use fire-retardant cabling to connect to the Main Control Room.

The Safety-Related devices and associated cabling are normally protected from flying objects and are physically separated. Because of the design and construction of the Turbine Building (not a Seismic Category I or a Class 1E Safety-Related area) it is possible for these sensors and their leads to be damaged during seismic or fire events in the Turbine Building. However, a fire in the Turbine Building is sensed by the Leak Detection and Isolation System (LD&IS) temperature monitors and causes MSIV closure before the fire burns out the equipment. No fire propagates along the fire-retardant cabling to the control room and cause damage to the power sources.

The MSIV sensors and type are:

- MSIV Condenser Vacuum Pressure transmitter located in the Turbine Building;
- MSL Turbine Inlet Pressure transmitter located in the Turbine Building;
- Main Steam Line Tunnel Area Ambient Temperature temperature element located in the MSL Tunnel; and
- Main Steam Line Tunnel Area Ambient Temperature temperature element located in the Turbine Building.

Backup trips for MSIV isolation, either direct or indirectly through the RPS, are caused by the turbine trip. Tripping of the MSIVs as a result of a fire in the Turbine Building is acceptable.

For the pressure transmitters and temperature elements, the signals are low-level analog current signals that are transmitted over a shielded twisted pair of conductors per transmitter. The cables are routed in separate grounded conduits on a divisional basis. Shorting together, shorting to ground, or opening a conductor in a current loop cable only affects the instrument associated with the cable. No damage occurs or propagate as a result of these possible failures.

In summary, failure of the MSIV sensors in the Turbine Building and their cables in any fashion is considered acceptable because a fire results in automatic closure of the MSIVs.

#### 9A.6.4.3 Main Steamline Tunnel Area Temperature and Radiation Monitoring

These divisional detectors are physically located in the MSL tunnel area.

By design, this area has no exposed combustibles. The conduits and the detectors have some physical protection from the steam lines and hangers in the area making it improbable that a fire from below could damage the redundant sensors or cables.

Each radiation monitor has a downscale trip such that a low reading from the detectors provides a trip. This trip is in addition to the normal upscale trip so that a failure in either direction results in a trip.

Leak detection temperature detectors of the MSL LD&IS measure ambient temperature around the MSL and provides a MSIV isolation signal at fire-induced temperatures below the threshold of damage to the radiation monitoring cable. A common failure of the radiation monitor divisional cables only affects the radiation monitors and not the remainder of the divisional equipment.

# 9A.6.4.4 Main Steamline ADS Relief Valves

The main steamline ADS relief valves each have three solenoid valve pilots in close proximity at the valve operator. Each solenoid is powered from a different division with all four divisions utilized for the ten valves. If either solenoid is energized, the associated relief valve opens.

The divisional signal cables are run in separate conduits from their location on the valve to the appropriate divisional penetration and via divisional raceways to their multiplex interfaces.

These valves are located in a low fire loading area and are inaccessible during plant operation such that transient fire loading is not introduced. The containment is also inerted during operation.

The conduit is arranged so that the divisional cables exit the relief valve area in diverse directions

The solenoid valve coils are located inside metallic enclosures on each valve so that a fire inside the coil compartment of one pilot does not influence the coil or cable of the redundant pilot.

The ADS valves are arranged in two groups of four valves each with adequate spatial separation to ensure that disturbances (i.e., fire, pipe rupture phenomena, falling objects) affecting one group do not affect the other group. For line breaks requiring ADS for depressurization, the design ensures that at least four of the eight valves are available. During operation, a sustained fire is not possible in the inerted containment (drywell) area.

Electrically, the ADS logic system load drivers isolate the divisional signals from other components in their respective division, so that damage to the cable at the valves is limited to that particular cable. Electrical arcing damage to a cable or solenoid coil cannot result in inadvertent opening of the main valve because shorts, opens, or grounds at the solenoid cannot cause the solenoid to be energized. Short circuits at this location cannot jeopardize 1E power supplies because circuit resistance is sufficient to permit appropriate circuit protection coordination.

With this degree of redundancy, attention to design, electrical isolation, and containment inerting, plant safety is not compromised by having the divisional cables in close proximity at the ADS valves.

# 9A.6.4.5 Main Steamline Isolation Valve Control and Limit Switch Interfaces

There are eight MSIVs for isolating the MSLs, two in each MSL. The outboard MSIV on each MSL is located outside the primary containment in the main steam tunnel to the Turbine Building. The inboard MSIV on each MSL is located inside the inerted drywell.

The MSLs are arranged so that none of the valves are located vertically above any other MSIV.

The MSIVs are designed to "fail safe" in that loss of power to both solenoids causes closure isolation. For both the inboard and outboard valves, Division II power actuates Solenoid 2 and Division I power actuates Solenoid 3. Solenoid 1 is the test solenoid and is powered by Division I (outboard) and Division 2 (inboard).

The appropriate division of power is connected to limit switches that open when the MSIV closes to initiate a reactor scram trip signal to the divisional scram logic, and to stop MSIV closure during MSIV exerciser tests.

The MSIVs and the 90% open (10% closure test) contacts and the 92% open (scram) contacts are classified as Safety-Related components and comply with the separation and isolation requirements of IEEE 603. The 10% open limit switch contact of each MSIV provides position indication to the plant computer and to indicator lights.

The inboard MSIVs are contained within the inerted environment. Failure of the MSIV or its control and interlocking circuits that could be caused by a postulated fire outside the containment cannot prevent closure of at least one of the MSIVs in each line.

The closure of one MSIV does not result in a reactor scram. Because the outboard valve scram signals are redundant to the inboard valves on each line, a fire outside the containment does not affect the redundant capability to cause scram.

#### 9A.6.4.6 Under the Reactor Vessel

This area contains the following electrical cables: Rod Control and Information System (RC&IS) cabling, Fine Motor Control Rod Drive (FMCRD) separation switch cables, neutron monitor system cabling, and other cables, as required. During reactor operation, the area cannot sustain fire because it is in an inerted atmosphere. All cables from the lower drywell are routed to the upper drywell via interconnecting risers. Both rigid and flexible conduit is used within the risers.

#### **RC&IS Cables**

The RC&IS cables are routed under the vessel through pull boxes inside the pedestal, then through cable boxes and raceways to electrical containment penetrations. RC&IS hardwired cables are routed from these containment penetrations to the RC&IS Reactor Building panels located in clean areas of the Reactor Building.

All RC&IS cables (i.e., synchro cables, FMCRD brake and motor cables, reed switch rod position status cables) are contained in flexible metallic conduit under the vessel, arranged in the pull boxes mounted just above the CRD restraint structure. All of these RC&IS cables are classified as Nonsafety-Related.

#### **FMCRD Separation Switch Cables**

The FMCRD cables for the Class 1E separation switches of each FMCRD are classified as Safety-Related and separated into two groups (A and B) for routing out of the under vessel area to two separate divisions of the Safety-Related multiplexing system. The cables are routed under the vessel through pull boxes inside the pedestal; then through cable boxes and raceways to electrical containment penetrations. The separation switch cables are then routed from the containment penetrations to Safety-Related multiplexing system panels in the Reactor Building.

The installation of these Class 1E cables is arranged so that A and B cables travel in opposite directions from under the vessel and pass through penetrations on the opposite side of the Reactor Building.

The cables receive low-voltage (48 volts) power from the Safety-Related multiplex system power supplies. This provides natural circuit protection in event of shorts or grounds on the system. Such events do not jeopardize the integrity or independence of the higher voltage divisional power busses upstream of the power supplies.

## **Local Power Range Monitor (LPRM) Cables**

The LPRM cables are individually contained in flexible metallic conduit under the vessel. These cables are divided into four divisions of cabling, corresponding to the four divisions of the neutron monitoring system.

The cabling is also supported on the control rod drive housing flanges. The cabling is routed along particular rows of housing flanges. The Division I and III cables are routed under vessel to the 0° to 180° half of the core, whereas Division II and IV cables are routed under vessel to the 180° to 360° half of the core. The cabling is then routed through the pedestal and drywell in enclosed solid bottom cable tray in a manner that brings the Division I LPRM cables into the 0° to 90° quadrant of the lower drywell; Division II into the 180° to 270° quadrant; Division III into 90° to 180° quadrant; and Division IV into the 270° and 360° quadrant. Once in the upper drywell, the cables continue in separated divisional cable raceways and penetrations.

# Startup Range Neutron Monitor (SRNM) Cables

The cables for the SRNM detectors are individually contained in flexible metallic conduit. These cables are routed along with and pass through the same divisional penetrations as the LPRM cables.

#### **Other Cables**

All other cables under the pedestal are classed as non-divisional. These cables are routed in rigid or flexible metallic conduit through non-divisional conduit openings in the pedestal wall to non-divisional cable raceways in the containment.

# Fire Damage Analysis

The containment is inerted during operation therefore a fire is not possible. Additionally the following tend to reduce the risk from a fire.

A fire within a conduit is contained in the individual conduit without damage to the surrounding conduit.

The non-divisional cabling in the conduit is low voltage, fault-protected cable and not likely to be involved in an electrically generated fire internal to the conduit.

The space under the reactor vessel is devoid of combustible material except for the cable insulation inside the various conduits.

Administrative procedures to control combustible materials are provided. These procedures prohibit combustibles from being stored in areas with divisional cable or within electrical equipment areas.

Maintenance during reactor shutdown can involve welding in the area under the vessel. Administrative procedures require special fire protection during welding or other maintenance operations and housekeeping procedures are provided.

Therefore the design features in the area under the vessel are adequate for protecting the redundant trains from damage by fire.

# 9A.6.4.7 Local Instrumentation and Control Equipment

Divisional Safety-Related panels are generally designed and located to serve a single division. Multidivisional panels and racks are located in divisional compartments with physical separation between divisions.

The incoming cables for each division are in separate conduit and where possible the conduit is embedded in concrete.

Some areas contain more than one division of instrumentation needed to isolate redundant sets of isolation valves, HVAC, or for some other purpose requiring redundancy.

#### 9A.6.4.8 Leak Detection Instrumentation

Temperatures, pressures, radiation levels, and process flows are measured to detect leakage of reactor coolant into or within the containment.

Sensors of redundant divisions are used in the plant areas to detect leakage from the reactor coolant pressure boundary and to generate signals ultimately used to provide isolation closure signals to the containment isolation valves. Sensors are part of each individual system being monitored, whereas the Leak Detection and Isolation System (LD&IS) comprises the interface between these sensors and the Safety System Logic and Control (SSLC) system to identify leakage and initiate containment isolation. Containment isolation is a Safety-Related function but is not necessary for post-fire safe shutdown.

The divisional sensors are located in separate detector assemblies and the signal lead cables are brought out in separate rigid (or flexible) metal conduit. The sensors are distributed within a room or along parallel piping to provide redundancy. Shorting and/or grounding of these cables due to postulated fire does not jeopardize the emergency power busses because the low-voltage power supplies that feed the transmitters are current-limited. Loss or spurious actuation of these signals due to a fire does not affect safe shutdown.

## 9A.6.4.9 Standby Liquid Control

The Standby Liquid Control System (SLC) is comprised of two independent loops. Each loop is located entirely in one fire area, and as such a fire in one division does not damage equipment in the other division. The SLC equipment is all divisionally separated except for the squib injection valves which each have two coils powered by separate Safety-Related DC power divisions. If a fire were to occur and damage both divisional power supplies to the squib injection valves, the effects would be limited spurious operation or failure of the squib injection valves and no other divisional equipment would be affected. Spurious operation or failure of SLC system does not affect safe shutdown.

The control cabling is routed in separate conduit or trays for each division, separated from each other, to meet IEEE 384. Conduit is embedded in concrete where feasible.

Postulated fire damage that causes a hot short to the electrical cables in the SLC area could inadvertently result in injection of boron. Fire could also open the cabling to a squib valve thus preventing opening of the valve on command from the Main Control Room.

# 9A.6.4.10 Reactor Building Operating Deck Radiation Monitors

Radiation monitoring within this area is provided by two independent systems, the area radiation monitoring system and the process radiation monitoring system.

The area radiation monitoring (ARM) system is Nonsafety-Related and monitors radiation in the fuel storage and handling areas. It has no system actuation function but is used for monitoring of background radiation and radiation resulting from postulated accidental fuel drops. The sensors are mounted on the walls within the fire zone area. These detectors are designed to annunciate local and control room alarms for both high and low radiation conditions. The low condition is an indication of a defective sensor or an inoperative radiation monitor. Loss of these detectors from a fire does not affect plant safety.

The process radiation monitoring (PRM) channels in this area are Safety-Related and are used to monitor radiation in the air exhaust in the HVAC ducts. However, these sensors are not located directly in the fire area, but are on the main HVAC exhaust duct. Therefore, the sensors would not be exposed directly to an area fire, only to the exhausted smoke.

The PRM channels are designed such that any two-out-of-four signals, based on very high or very low radiation conditions within the HVAC duct, isolate the HVAC ducts in the refueling floor and the Reactor Building safety envelope area and initiate closure of the containment vent and purge ducts. The very low radiation trip assures the safety action is initiated on sensor failure.

The four divisions of PRM sensors are located within close proximity to each other to provide true two-out-of-four actuation logic. The arrangement is justified by the exhaust duct location (i.e., separate from the fire zone), and by the automatic actuation of the system's safety function should two or more sensors fail

#### 9A.6.4.11 Containment Isolation Valves

The primary function of each isolation valve is to close to isolate containment when isolation is required. In general, outboard isolation valves are assigned to Division I and inboard isolation valves to Division II. In some cases this results in Division I outboard isolation valves being located in Division II areas. This is acceptable from a functional standpoint because a fire in an area outside of containment and involving the penetration is assumed to disable the system whether or not the outboard isolation valve is disabled. If the valve is open at the time of the fire it could fail in the open position but the inboard valve is not involved in the fire and closes on demand. It is a requirement that cables for outboard valves located in fire areas of a division different than the division of the valve not be routed through fire areas containing any circuitry associated with the inboard valve of the isolation pair.

# 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 Buildings

Safety-Related devices within the Turbine 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 Safety-Related RPS output devices listed in the table receive a signal from the RPS to initiate an anticipatory trip of the Feedwater Pumps. 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 aircooled 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 would be initiated quickly upon discovery of a fire. In the unlikely event that a fire in the Main Control Room were to require evacuation, use of either the Division I or II Remote Shutdown System (RSS) panels (located remotely from Main Control Room, in the Reactor Building) enable the operators to bring the reactor to a safe shutdown.

#### 9A.6.5.2 No Automatic Fire Suppression in Office Areas of Main Control Room Complex

Section C.8.1.2.c of BTP SPLB 9.5-1 recommends that automatic suppression capability should be provided in the Control Room Complex as described in Regulatory Guide 1.189. Section 6.1.2 of Regulatory Guide 1.189 states in part:

"Peripheral rooms in the control room complex should have automatic water suppression..."

The office spaces contained in the Main Control Room Complex do not have automatic fire suppression systems installed.

Justification: The Main Control Room Complex is considered to be a low risk fire area, due to the lack of high- or medium-voltage equipment or cabling. Interior finishing materials within the Main Control Room Complex are noncombustible or have a flame spread and smoke developed rating of 25 or less. The amount of transient combustibles within this fire area is limited. Papers within the Main Control Room Complex are stored in file cabinets, bookcases, or other storage locations except when in use. Ionization or photoelectric smoke detectors are installed throughout the Main Control Room Complex to provide early warning of fire during the incipient stage. The Main Control Room Complex is continuously manned so that any fire is quickly detected and manual fire suppression activities would be initiated quickly upon discovery of a fire. Should manual fire fighting in the Main Control Room Complex be necessary using either portable fire extinguishers or hand held fire hoses, accumulation or drainage of firewater is affect the ability to safely shutdown the reactor. If the firewater is assumed to transport immediately to the basement of the Control Building, the resulting accumulation of water does not affect Safety-Related equipment located in the basement. In either case, the fire fighting activities does not prevent the reactor from being safely shutdown.

Finally, in the unlikely event that a fire in the Main Control Room were to require evacuation, use of either the Division I or II Remote Shutdown System (RSS) panel (located remotely from Main Control Room, in the Reactor Building) enable the operators to bring the reactor to a safe shutdown.

# 9A.6.5.3 No Automatic Fire Suppression Below Raised Floor in Main Control Room Complex

Section C.8.1.2.c of BTP SPLB 9.5-1 recommends cable raceways under raised floors should be reviewed to determine if adequate fire detection and suppression are provided for potential fires in these areas. Section 6.1.2.1 of Regulatory Guide 1.189 states in part:

"...Fully enclosed electrical raceways located in under-floor and ceiling spaces, if over 0.09 m<sup>2</sup> (1 sq ft) in cross-sectional area, should have automatic fire suppression inside."

The Main Control Room Complex has a 0.6 meter (2 foot) deep raised floor over a subfloor volume which is used for routing of cables between the electrical cabinets, control panels, computer equipment, and the divisional electrical rooms. Divisional separation of the subfloor

cabling is maintained per the requirements of IEEE 384. The subfloor volume includes full fire detection but does not include any automatic fire suppression system.

Justification: The Main Control Room Complex and subfloor volume is considered to be a low risk fire area, due to the lack of high- or medium-voltage equipment or cabling. characteristics of the subfloor cables are such that the probability of a fire ignition is very low and any fire that were to occur would be self-extinguishing or very slow to spread. No transient combustibles stored in the subfloor volume during normal activities to increase the severity of a possible fire. Ionization smoke detectors are installed throughout the subfloor volume to provide early warning of fire during the incipient stage. The raised floor consists of noncombustible sectional panels can be individually removed to provide fire-fighting access to a subfloor fire. Because the Control Room is continuously manned, manual fire suppression activities would be initiated quickly upon discovery of a fire in the subfloor volume. Since fire resistant cables are required, the amount of water needed to extinguish a fire within the subfloor volume is relatively small. Any water that is introduced into the subfloor volume can be removed by floor drains in the subfloor volume or through the use of temporary portable sump pumps. Accumulation of water in the subfloor volume is limited in depth to less than the raised floor height and does not adversely affect water sensitive Safety-Related equipment, which is installed above the raised floor. Effectiveness of a permanently installed fire suppression system within the subfloor volume may be somewhat limited due to the relatively small height between raised floor and top of cabling, as well as physical barriers within the subfloor volume to meet IEEE 384 separation criteria. Not including automatic fire suppression within the subfloor volume has the indirect benefit of avoiding the potential for missiles (from gaseous suppression cylinders) or flooding/wetting (from water piping) during maintenance or testing activities to affect Safety-Related equipment within the Main Control Room Complex.

Finally, in the unlikely event that a fire in the Main Control Room were to require evacuation, use of either the Division I or II Remote Shutdown System (RSS) panel (located remotely from Main Control Room, in the Reactor Building) enable the operators to bring the reactor to a safe shutdown

## 9A.6.5.4 Diesel Day Tank Capacity within Building

Section C.8.1.8.b of BTP SPLB 9.5-1 recommends that diesel day tanks comply with Regulatory Guide 1.189. Section 6.1.8 of Regulatory Guide 1.189 states in part:

"Day tanks with total capacity up to 4164 L (1100 gallons) may be located in the diesel generator area under the following conditions:

a. The day tank is located in a separate enclosure with fire resistance rating of at least 3 hours"

Based on the large size of the nonsafety-related diesel generators, the capacity of each of the diesel day tanks exceeds 4164 L (1100 gallons) to allow enough fuel for at least 8 hours of diesel operation at the maximum load demand and exceeds BTP recommended limits.

**Justification**: The ESBWR design includes two independent and physically separated Nonsafety-Related diesel generators, either of which is capable of providing the full electrical load for the redundant Nonsafety-Related electrical buses. Neither diesel generator is necessary to achieve and maintain safe shutdown conditions for the 72-hour period following an accident

or fire event. Each day tank is located in the Electrical Building in a dedicated 3-hour fire rated compartment of masonry or concrete construction. There is no Safety-Related equipment located in the same building as the day tank rooms. The day tank rooms are located in individual fire areas adjacent to the Diesel Generator (DG) rooms and are positioned such that the 3-hour fire rated walls, ceiling, and floor of the day tank room are not common to the other redundant DG.

Each day tank room is protected by a foam water deluge system that can deliver foam to the room for a minimum of 30 minutes without operator intervention. The day tank is seismically designed and supported. Potential ignition sources inside the day tank rooms with enough energy to ignite diesel fuel are limited. Furthermore, the supply of fresh air to support combustion is limited. In the event of a fire, the automatic foam water deluge system is designed to extinguish a fire in this room in 10 minutes. In the unlikely event the day tank were to fail, the entire contents of the day tank plus foam water can be contained in the sunken volume of the day tank room. Additional foam capacity beyond 10 minutes provides added assurance that a postulated fire is extinguished. In the unlikely event the fire cannot be extinguished, the day tank room can be isolated by closing doors and dampers to allow the fire to burn out on its own without spreading to other fire areas.

In the event that the fuel oil transfer line from the day tank to the DG were to fail outside of the day tank room, the curbed area within the DG room can accommodate the contents of the day tank plus foam water applied by the preaction foam water automatic sprinkler system. This automatic sprinkler system is designed to extinguish a fire within the DG room within 10 minutes. In the unlikely event the fire is still not extinguished, the DG room can be closed off isolated by closing doors and dampers to allow the fire to burn out on its own without spreading to other fire areas. Alternatively, if the fire brigade is required to fight the fire manually, the curbed area within the DG room can accommodate additional water/foam application from two hand-held foam hose lines before reaching the lowest door opening. The lowest door opening to these rooms are the exterior equipment doors which could be opened if fire fighting activities necessitate so that any overflow would spill outside the building and not spread to other parts of the electrical building. Therefore, any overflow from the sump area of the room does not affect any other equipment, nor does it affect safe shutdown equipment or equipment needed for support of safe shutdown equipment.

# 9A.6.5.5 Allowing Continued Diesel-Generator Operation During a Fire

Section 8.1.8.c of BTP SPLB 9.5-1 recommends that effects of suppression systems on operating generators should be addressed in the fire hazard analysis. Section 6.1.8 of Regulatory Guide 1.189 states in part:

"Automatic fire suppression should be installed to suppress or control any diesel generator or lubricating oil fires. Such systems should be designed for operation when the diesel is running without affecting the diesel."

The automatic sprinkler systems in the diesel generator rooms are installed to extinguish any fire in those rooms and do not place restrictions on the positioning and direction of the application of the fire suppressant.

**Justification**: The automatic sprinkler systems used in the diesel generator rooms are designed to prevent inadvertent actuation by utilizing preaction automatic sprinkler type. The sprinkler piping and closed head sprinklers are pneumatically supervised for leakage, and any inadvertent actuation of the deluge valve during testing or maintenance does not result in water release due to the closed sprinkler heads.

Two actuation signals are required to automatically actuate the deluge valve, the first of which annunciates an alarm to alert the operators to any potential problems. Automatic actuation of the sprinkler system to release water requires three independent events: 1) detection of a specific range of infrared wavelengths, consistent with burning oil, by at least one infrared detector; 2) detection of a significant heat release by at least one heat detector; and, 3) opening of at least one fusible link sprinkler head. Furthermore, each redundant diesel generator has its own dedicated fire detectors and preaction deluge valve for the control of the fire sprinklers in that room, and loss of power to the deluge valve does not cause actuation.

The ESBWR design includes two independent and physically separated Nonsafety-Related diesel generators, either of which is capable of providing the full electrical load for the redundant Nonsafety-Related electrical buses. Neither diesel generator is necessary to achieve and maintain safe shutdown conditions for the 72-hour period following an accident or fire event. The ESBWR design also includes four independent and physically separated Safety-Related divisions, any two of which are capable of bringing the plant to a safe shutdown in the event of a fire. For design purposes, it is assumed that a fire anywhere in a fire area results in the immediate loss of function of all equipment associated with that division. Even with this conservative assumption, the remaining independent Safety-Related divisions are available for full utilization by the operators.

# 9A.6.5.6 No Automatic Fire Suppression in Safety-Related Computer Rooms

Section 8.1.4 of SPLB BTP 9.5-1 recommends protecting computer rooms with fire protection systems as described in Regulatory Guide 1.189. Section 6.1.4 of Regulatory Guide 1.189 states in part:

"Computer rooms for computers performing functions important to safety that are not part of the control room complex should be separated from other areas of the plant by barriers having a minimum fire resistance rating of 3 hours and should be protected by automatic detection and fixed automatic suppression."

Computer rooms containing Safety-Related equipment do not have fire suppression installed inside them.

**Justification**: Computer rooms are considered to be low risk fire areas, due to the lack of highor medium-voltage equipment or cabling. Interior finishing materials within computer rooms are noncombustible. The amount of transient combustibles within computer rooms is limited. Papers within computer rooms are stored in file cabinets, bookcases, or other storage locations except when in use.

Ionization smoke detectors are installed throughout computer rooms to provide early warning of fire during the incipient stage. The Main Control Room Complex is continuously manned so that any fire is quickly detected and manual fire suppression activities would be initiated quickly upon discovery of a fire in a computer room. Should manual fire fighting in a computer room be

necessary using either portable fire extinguishers or hand held fire hoses, accumulation or drainage of firewater does not affect the ability to safely shutdown the reactor. If the firewater is assumed to transport immediately to the basement of the building, the resulting accumulation of water does not affect Safety-Related equipment located in the basement. In either case, the fire fighting activities does not prevent the reactor from being safely shutdown.

Except in the Main Control Room Complex, all Safety-Related computers 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 computer equipment from multiple divisions. In the unlikely event that a fire in the Main Control Room were to require evacuation, use of either the Division I or II Remote Shutdown System (RSS) panel (located remotely from Main Control Room, in the Reactor Building) enable the operators to bring the reactor to a safe shutdown.

# 9A.6.6 Comparison to International Building Code

The ESBWR fire protection design follows the IBC requirements with the following exceptions. Nonetheless, these "alternative methods" of fire protection for unsprinklered Reactor, Control, and Fuel Buildings as well as unsprinklered portions of the Turbine and Electrical Buildings would require approval from the building code authority during the building permit process as allowed by Section 104.11 of the IBC.

# 9A.6.6.1 Underground Structures without Sprinkler Protection

Section 405.3 of the International Building Code (IBC) requires automatic sprinkler protection throughout all underground levels where the lowest level is more than 9.144 m (30.0 ft) below grade. The lowest levels of the Reactor and Fuel Buildings are more than 16 m (52.5 ft) below grade, and the lowest level of the Control Building is more than 12 m (39.4 ft) below grade. In compliance with NFPA 804 and Regulatory Guide 1.189, no sprinkler protection is provided for these levels. This is acceptable for the following reasons:

- Noncombustible Type I-A concrete construction in these buildings;
- Use of Class A finishes and avoidance of combustible materials where possible;
- Extensive use of 3-hr fire-rated walls and floors which subdivide the buildings; this exceeds the IBC minimum requirement for fire-rated separation of similar occupancies;
- 3-hr fire-rated stairwell enclosures, which exceed both the NFPA 101 and IBC minimum requirements for enclosure of exits and the NFPA 14 minimum requirement for protection of standpipes;
- As shown in Tables 9A.5-1, 9A.5-2, and 9A.5-3, low fire loadings (<1400 MJ/m<sup>2</sup> [123,280 Btu/ft<sup>2</sup>]) within the underground electrical rooms in the Reactor, Fuel, and Control Buildings;
- As shown in Tables 9A.5-1, 9A.5-2, and 9A.5-3, low fire loadings (<700 MJ/m² [61,640 Btu/ft²]) within the unsprinklered underground non-electrical rooms in the Reactor, Fuel, and Control Buildings;

- Complete Class A supervised fire detection throughout the Reactor, Fuel, and Control Buildings, which exceeds the IBC minimum requirement for similar occupancies; these initiate a fire alarm signal to the constantly manned Control Room;
- Complete coverage from Class III standpipe and hose systems, throughout the Reactor, Control, and Fuel Buildings, which exceeds the IBC minimum requirement for similar occupancies; and
- Trained industrial fire brigade on-site at all times, which exceeds the IBC minimum requirement for similar occupancies.

# 9A.6.6.2 Buildings Containing Large Fire Areas, without Sprinkler Protection

Section 903.2.3.1 of the IBC requires automatic sprinkler protection throughout buildings that contain a single Group F-1 occupancy fire area that exceeds 1115 m<sup>2</sup>. The unsprinklered Reactor Building contains fire area F1600 which exceeds 1115 m<sup>2</sup> (12002 ft<sup>2</sup>); the unsprinklered Fuel Building contains fire area F2100 which exceeds 1115 m<sup>2</sup> (12002 ft<sup>2</sup>); and the partially sprinklered Turbine Building contains fire area F4100 which exceeds 1115 m<sup>2</sup> (12002 ft<sup>2</sup>).

Additionally, section 903.2.3.3 of the IBC requires automatic sprinkler protection throughout buildings where the combined floor area of all Group F-1 occupancy fire areas exceeds 2230 m<sup>2</sup> (24004 ft<sup>2</sup>). The unsprinklered Reactor Building, unsprinklered Fuel Building, and partially sprinklered Turbine Building each contain multiple F-1 fire areas that cumulatively exceed 2230 m<sup>2</sup> (12002 ft<sup>2</sup>).

In compliance with NFPA 804 and Regulatory Guide 1.189, no sprinkler protection is provided for these buildings. This is acceptable for the following reasons:

- Noncombustible Type I-A concrete construction in these buildings;
- Use of Class A finishes and avoidance of combustible materials where possible;
- Extensive use of 3-hr fire-rated walls and floors which subdivide the buildings; this exceeds the IBC minimum requirement for fire-rated separation of similar occupancies;
- 3-hr fire-rated stairwell enclosures, which exceed both the NFPA 101 and IBC minimum requirements for enclosure of exits and the NFPA 14 minimum requirement for protection of standpipes;
- As shown in Tables 9A.5-1 and 9A.5-2, low fire loadings (<700 MJ/m<sup>2</sup> [61,640 Btu/ft<sup>2</sup>]) within the fire areas F1600 and F2100 in the Reactor and Fuel Buildings;
- As shown in Table 9A.5-4, low fire loadings (<700 MJ/m<sup>2</sup> [61,640 Btu/ft<sup>2</sup>]) within the unsprinklered portion of the Turbine Building fire area F4100;
- As shown in Table 9A.5-4, automatic fire suppression throughout Turbine Building rooms that contain significant fire hazards (>700 MJ/m² [61,640 Btu/ft²]); these consist of sprinkler, deluge, or carbon dioxide flooding systems that each initiate a fire alarm signal to the constantly manned Control Room;
- Complete Class A supervised fire detection throughout the Reactor, Fuel, and Turbine Buildings, which exceeds the IBC minimum requirement for similar occupancies; these initiate a fire alarm signal to the constantly manned Control Room;

- Complete coverage from Class III standpipe and hose systems, throughout the Reactor, Control, and Turbine Buildings, which exceeds the IBC minimum requirement for similar occupancies;
- Trained industrial fire brigade on-site at all times, which exceeds the IBC minimum requirement for similar occupancies;
- Sprinklers installed under the very tall ceilings in fire areas F1600, F2100, and F4100 would be ineffective against a floor level fire; the extreme height would likely prevent sufficient heat from reaching sprinkler heads to actuate them; and
- Subdividing fire areas F1600, F2100, and F4100 into fire areas less than 1115 m<sup>2</sup> (12002 ft<sup>2</sup>) size is not feasible due to the large machinery and access requirements in these areas;

# 9A.6.6.3 Building Containing Fire Areas more than Three Stories Above Grade, without Sprinkler Protection

Section 903.2.3.2 of the IBC requires automatic sprinkler protection throughout buildings that contain a single Group F-1 occupancy fire area that is located more than three stories above grade. Elevation 34000 of the unsprinklered Reactor Building is located more than three stories above grade. Elevations 22000 and 27000 of the partially sprinklered Electrical Building are both located more than three stories above grade.

In compliance with NFPA 804 and Regulatory Guide 1.189, no sprinkler protection is provided for these levels. This is acceptable for the following reasons:

- Noncombustible Type I-A concrete construction in these buildings;
- Use of Class A finishes and avoidance of combustible materials where possible;
- Extensive use of 3-hr fire-rated walls and floors which subdivide the buildings; this exceeds the IBC minimum requirement for fire-rated separation of similar occupancies;
- 3-hr fire-rated stairwell enclosures, which exceed both the NFPA 101 and IBC minimum requirements for enclosure of exits and the NFPA 14 minimum requirement for protection of standpipes;
- As shown in Tables 9A.5-1 and 9A.5-6, low fire loadings (<1400 MJ/m<sup>2</sup> [123,280 Btu/ft<sup>2</sup>]) within the unsprinklered electrical rooms in the Reactor and Electrical Buildings;
- As shown in Tables 9A.5-1 and 9A.5-6, low fire loadings (<700 MJ/m<sup>2</sup> [61,640 Btu/ft<sup>2</sup>]) within the unsprinklered non-electrical rooms in the Reactor and Electrical Buildings;
- As shown in Table 9A.5-6, automatic fire suppression throughout Electrical Building non-electrical rooms that contain significant fire hazards (>700 MJ/m² [61,640 Btu/ft²]); these consist of sprinkler or deluge systems that each initiate a fire alarm signal to the constantly manned Control Room;
- Complete Class A supervised fire detection throughout the Reactor and Electrical Buildings, which exceeds the IBC minimum requirement for similar occupancies; these initiate a fire alarm signal to the constantly manned Control Room;

- Complete coverage from Class III standpipe and hose systems, throughout the Reactor, and Electrical Buildings, which exceeds the IBC minimum requirement for similar occupancies;
- Trained industrial fire brigade on-site at all times, which exceeds the IBC minimum requirement for similar occupancies; and
- Sprinklers installed under the very tall ceiling in Elevation 34000 of the Reactor Building would be ineffective against a floor level fire; the extreme height would likely prevent sufficient heat from reaching sprinkler heads to actuate them.

# 9A.6.6.4 Lack of Fire Fighter Exterior Access Openings, without Sprinkler Protection

Section 903.2.10 of the IBC requires automatic sprinkler protection throughout buildings that do not have 1.9 m² (20.5 ft²) minimum size openings (doors or windows) within each 15 m (49.2 ft) of exterior wall. These openings are intended for fire fighter access into the building during a fire. The exterior walls of the Reactor, Fuel, and Control Buildings do not contain such openings. In compliance with NFPA 804 and Regulatory Guide 1.189, no sprinkler protection is provided for these buildings. This is acceptable for the following reasons:

- Noncombustible Type I-A concrete construction in these buildings;
- Use of Class A finishes and avoidance of combustible materials where possible;
- Extensive use of 3-hr fire-rated walls and floors which subdivide the buildings; this exceeds the IBC minimum requirement for fire-rated separation of similar occupancies;
- 3-hr fire-rated stairwell enclosures, which exceed both the NFPA 101 and IBC minimum requirements for enclosure of exits and the NFPA 14 minimum requirement for protection of standpipes;
- As shown in Tables 9A.5-1, 9A.5-2, and 9A.5-3, low fire loadings (<1400 MJ/m<sup>2</sup> [123,280 Btu/ft<sup>2</sup>]) within the underground electrical rooms in the Reactor, Fuel, and Control Buildings;
- As shown in Tables 9A.5-1, 9A.5-2, and 9A.5-3, low fire loadings (<700 MJ/m<sup>2</sup> m<sup>2</sup> [61,640 Btu/ft<sup>2</sup>]) within the unsprinklered underground non-electrical rooms in the Reactor, Fuel, and Control Buildings;
- Complete Class A supervised fire detection throughout the Reactor, Fuel, and Control Buildings, which exceeds the IBC minimum requirement for similar occupancies; these initiate a fire alarm signal to the constantly manned Control Room;
- Complete coverage from Class III standpipe and hose systems, throughout the Reactor, Control, and Fuel Buildings, which exceeds the IBC minimum requirement for similar occupancies;
- Trained industrial fire brigade on-site at all times, which exceeds the IBC minimum requirement for similar occupancies; and
- Adding enough exterior openings to comply with Subsection 9.3.2.10 would impose an unacceptable security risk.

Table 9A.6-1
Turbine and Electrical Building Safety-Related Monitoring Devices

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
Condenser Vacuum	Input	Transmitter (Analog signal between upper and lower limits)	ТВ	4392	I, II, III, IV	Indication to RPS of Loss of Condenser Vacuum; Refer to Subsection 15.2.2.8	Indication to RPS of Loss of Condenser Vacuum; Refer to Subsection 15.2.2.8
Main Steam Line Pressure	Input	Transmitter (Analog signal between upper and lower limits)	ТВ	4390	I, II, III, IV	Indication to RPS of Closure of All Main Steamline Isolation Valves; Refer to Subsection 15.2.2.7	Indication to RPS of Closure of All Main Steamline Isolation Valves; Refer to Subsection 15.2.2.7
Turbine Bypass Valve Position	Input	Position Switch	ТВ	4391 and 4392	I, II, III, IV	Indication to RPS of Turbine Bypass Valves Opening; Refer to Subsection 15.3.3.1	Loss of RPS Ability to Monitor Turbine Bypass Valve Position
Turbine Stop Valve Position	Input	Position Switch	ТВ	4380	I, II, III, IV	Indication to RPS of Turbine Stop Valves Closing; Refer to Subsections 15.3.6.1	Loss of RPS Ability to Monitor Turbine Stop Valve Position
Turbine Control Valve Position	Input	Transmitter (Analog signal between upper and lower limits)	ТВ	4506 and 4507	I, II, III, IV	Indication to RPS of Turbine Control Valves Closing; Refer to Subsection 15.3.4.1	Indication to RPS of Turbine Control Valves Closing; Refer to Subsection 15.3.4.1

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)	ТВ	4390 and 4393	I, II, III, IV	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
Safety- Related Feedwater Pump Breaker Trip	Output	Breaker Trip Coils	ТВ	4102	I, II	Loss of RPS Ability to Trip Feedwater Pumps	Trip of all Feedwater Pump Breakers Resulting in Loss of Feedwater Flow; Refer to Subsection 15.2.5.3
Safety Related Feedwater Pump Breaker DC Control Power	N/A	Breaker Trip Coils	ТВ	4102	I, II	Loss of RPS Ability to Trip Feedwater Pumps	Loss of RPS Ability to Trip Feedwater Pumps
Feedwater Line Diff. Pressure (Indication of Feedwater Pump Runout)	Input	Transmitter (Analog signal between upper and lower limits)	ТВ	4293	I, II, III, IV	Indication to RPS of Feedwater Pump Runout; Refer to Subsection 15.2.4.2	Indication to RPS of Feedwater Pump Runout; Refer to Subsection 15.2.4.2

## **9A.7 COL INFORMATION**

# 9A.7-1-A Yard Fire Zone Drawings

The COL applicant shall include fire zone drawings for those portions of the Yard except for that associated with Turbine and Electrical Building equipment (Subsection 9A.4.7).

# 9A.7-2-A FHA for Site Specific Areas

A more detailed evaluation of the Service Water/Water Treatment Building, Service Building and the Yard Area will be added during the Combined Construction and Operating License (COL) application for a specific site (Subsection 9A.4.7).