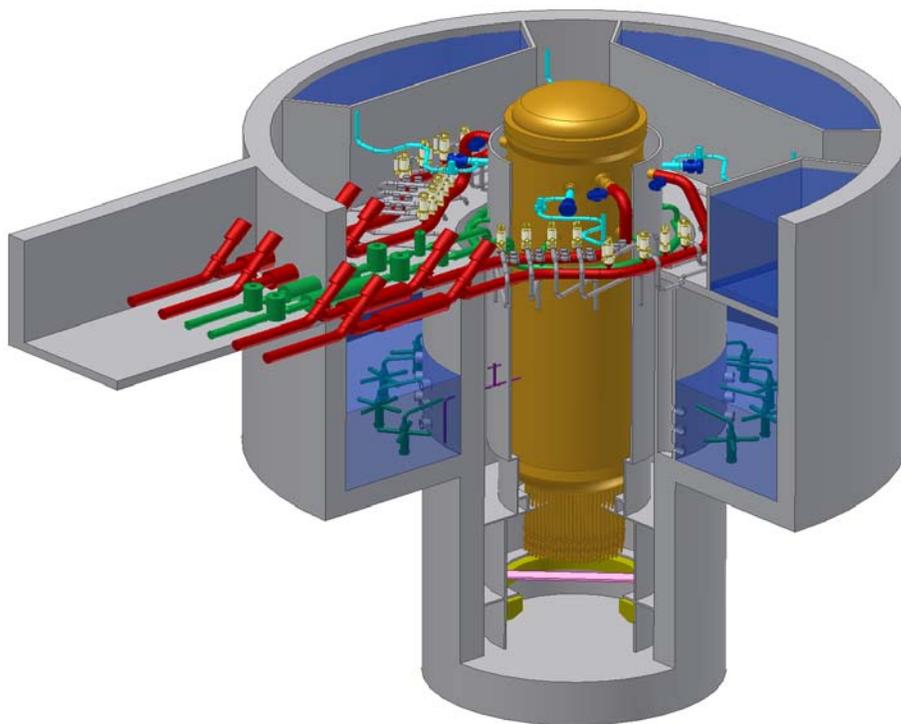


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Tier 2

Chapter 9

Auxiliary Systems

Appendix 9A

(Conditional Release – pending closure of
Design Verifications)



Contents

9A. Fire Hazards Analysis	9A.1-1
9A.1 Introduction	9A.1-1
9A.2 Analysis Criteria	9A.2-1
9A.2.1 Codes and Standards	9A.2-1
9A.2.2 Fire Area Separation and Fire Equipment Drawings	9A.2-1
9A.2.3 Terminology	9A.2-1
9A.2.4 Acceptance Criteria	9A.2-2
9A.2.5 Systems Required in the Case of Fire to Achieve Safe Shutdown	9A.2-5
9A.3 Analysis Approach	9A.3-1
9A.3.1 Review Data	9A.3-1
9A.3.2 Steam Tunnel Barrier Exception	9A.3-2
9A.3.3 Exceptions to Separation Criteria	9A.3-2
9A.3.4 Exceptions to Penetration Requirements	9A.3-2
9A.3.5 Wall Deviations	9A.3-2
9A.3.6 Door Deviations	9A.3-3
9A.3.7 Smoke Removal	9A.3-3
9A.4 Safe Shutdown Analysis by Fire Area	9A.4-1
9A.4.1 Reactor Building	9A.4-1
9A.4.2 Fuel Building	9A.4-2
9A.4.3 Control Building	9A.4-2
9A.4.4 Turbine Building	9A.4-3
9A.4.5 Radwaste Building	9A.4-4
9A.4.6 Electrical Building	9A.4-4
9A.4.7 Yard	9A.4-5
9A.4.8 Service Water Pump House	9A.4-6
9A.4.9 Service Building	9A.4-6
9A.5 Fire Protection Analyses by Room or Fire Zone	9A.5-1
9A.5.1 Reactor Building	9A.5-1
9A.5.2 Fuel Building	9A.5-1
9A.5.3 Control Building	9A.5-1
9A.5.4 Turbine Building	9A.5-1
9A.5.5 Radwaste Building	9A.5-2
9A.5.6 Electrical Building	9A.5-2
9A.5.7 Yard	9A.5-2
9A.5.8 Service Water Pump House	9A.5-2
9A.5.9 Service Building	9A.5-2
9A.6 Special Cases	9A.6-1

9A.6.1 Piping Penetrations, Reactor Building 9A.6-1
9A.6.2 Fire Door Deviations..... 9A.6-1
9A.6.3 Pipe Break Analyses 9A.6-1
9A.6.4 Fire Separation for Divisional Electrical Systems 9A.6-1
9A.6.5 Underground Structures without Sprinkler Protection..... 9A.6-8
9A.6.6 Lack of Fire Fighter Exterior Access Openings, without Sprinkler Protection . 9A.6-9
9A.7 COL Information..... 9A.7-9

List of Tables

Table 9A.2-1 Fire Protection Codes and Standards
Table 9A.2-2 Safe Shutdown Systems Required in the Event of Fire
Table 9A.5-1, Reactor Building
Table 9A.5-2, Fuel Building
Table 9A.5-3, Control Building
Table 9A.5-4, Turbine Building
Table 9A.5-5, Radwaste Building
Table 9A.5-6, Electrical Building
Table 9A.5-7, Yard

List of Illustrations

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

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

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

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
10 CFR	Title 10, Code of Federal Regulations
A/D	Analog-to-Digital
AASHTO	American Association of Highway and Transportation Officials
AB	Auxiliary Boiler
ABS	Auxiliary Boiler System
ABWR	Advanced Boiling Water Reactor
ac / AC	Alternating Current
AC	Air Conditioning
ACF	Automatic Control Function
ACI	American Concrete Institute
ACS	Atmospheric Control System
AD	Administration Building
ADS	Automatic Depressurization System
AEC	Atomic Energy Commission
AFIP	Automated Fixed In-Core Probe
AGMA	American Gear Manufacturer's Association
AHS	Auxiliary Heat Sink
AHU	Air handling unit
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AL	Analytical Limit
ALARA	As Low As Reasonably Achievable
ALWR	Advanced Light Water Reactor
ANS	American Nuclear Society
ANSI	American National Standards Institute
AOO	Anticipated Operational Occurrence
AOV	Air Operated Valve
API	American Petroleum Institute
APRM	Average Power Range Monitor
APR	Automatic Power Regulator
APRS	Automatic Power Regulator System
ARI	Alternate Rod Insertion
ARMS	Area Radiation Monitoring System
ASA	American Standards Association
ASD	Adjustable Speed Drive
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
AST	Alternate Source Term
ASTM	American Society of Testing Methods
AT	Unit Auxiliary Transformer
ATLM	Automated Thermal Limit Monitor
ATWS	Anticipated Transients Without Scram
AV	Allowable Value
AWS	American Welding Society
AWWA	American Water Works Association
B&PV	Boiler and Pressure Vessel
BAF	Bottom of Active Fuel
BHP	Brake Horse Power
BOP	Balance of Plant
BPU	Bypass Unit
BPWS	Banked Position Withdrawal Sequence
BRE	Battery Room Exhaust
BRL	Background Radiation Level
BTP	NRC Branch Technical Position
BTU	British Thermal Unit
BWR	Boiling Water Reactor
BWROG	Boiling Water Reactor Owners Group
CAV	Cumulative absolute velocity
C&FS	Condensate and Feedwater System
C&I	Control and Instrumentation
C/C	Cooling and Cleanup
CB	Control Building
CBGAHVS	Control Building General Area
CBHVAC	Control Building HVAC
CBHVS	Control Building Heating, Ventilation and Air Conditioning System
CCI	Core-Concrete Interaction
CDF	Core Damage Frequency
CFR	Code of Federal Regulations
CIRC	Circulating Water System
CIS	Containment Inerting System
CIV	Combined Intermediate Valve
CLAVS	Clean Area Ventilation Subsystem of Reactor Building HVAC
CM	Cold Machine Shop
CMS	Containment Monitoring System
CMU	Control Room Multiplexing Unit

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
COL	Combined Operating License
COLR	Core Operating Limits Report
CONAVS	Controlled Area Ventilation Subsystem of Reactor Building HVAC
CPR	Critical Power Ratio
CPS	Condensate Purification System
CPU	Central Processing Unit
CR	Control Rod
CRD	Control Rod Drive
CRDA	Control Rod Drop Accident
CRDH	Control Rod Drive Housing
CRDHS	Control Rod Drive Hydraulic System
CRGT	Control Rod Guide Tube
CRHA	Control Room Habitability Area
CRHAHVS	Control Room Habitability Area HVAC Sub-system
CRT	Cathode Ray Tube
CS&TS	Condensate Storage and Transfer System
CSDM	Cold Shutdown Margin
CS / CST	Condensate Storage Tank
CT	Main Cooling Tower
CTVCF	Constant Voltage Constant Frequency
CUF	Cumulative usage factor
CWS	Chilled Water System
D-RAP	Design Reliability Assurance Program
DAC	Design Acceptance Criteria
DAW	Dry Active Waste
DBA	Design Basis Accident
dc / DC	Direct Current
DCS	Drywell Cooling System
DCIS	Distributed Control and Information System
DEPSS	Drywell Equipment and Pipe Support Structure
DF	Decontamination Factor
D/F	Diaphragm Floor
DG	Diesel-Generator
DHR	Decay Heat Removal
DM&C	Digital Measurement and Control
DOF	Degree of freedom
DOI	Dedicated Operators Interface
DOT	Department of Transportation

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
dPT	Differential Pressure Transmitter
DPS	Diverse Protection System
DPV	Depressurization Valve
DR&T	Design Review and Testing
DS	Independent Spent Fuel Storage Installation
DTM	Digital Trip Module
DW	Drywell
EB	Electrical Building
EBAS	Emergency Breathing Air System
EBHV	Electrical Building HVAC
ECCS	Emergency Core Cooling System
E-DCIS	Essential DCIS (Distributed Control and Information System)
EDO	Environmental Qualification Document
EFDS	Equipment and Floor Drainage System
EPFY	Effective full power years
EFU	Emergency Filter Unit
EHC	Electrohydraulic Control (Pressure Regulator)
ENS	Emergency Notification System
EOC	Emergency Operations Center
EOC	End of Cycle
EOF	Emergency Operations Facility
EOP	Emergency Operating Procedures
EPDS	Electric Power Distribution System
EPG	Emergency Procedure Guidelines
EPRI	Electric Power Research Institute
EQ	Environmental Qualification
ERICP	Emergency Rod Insertion Control Panel
ERIP	Emergency Rod Insertion Panel
ESF	Engineered Safety Feature
ETS	Emergency Trip System
FAC	Flow-Accelerated Corrosion
FAPCS	Fuel and Auxiliary Pools Cooling System
FATT	Fracture Appearance Transition Temperature
FB	Fuel Building
FBHV	Fuel Building HVAC
FCI	Fuel-Coolant Interaction
FCM	File Control Module
FCS	Flammability Control System

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
FCU	Fan Cooling Unit
FDDI	Fiber Distributed Data Interface
FFT	Fast Fourier Transform
FFWTR	Final Feedwater Temperature Reduction
FHA	Fire Hazards Analysis
FIV	Flow-Induced Vibration
FMCRD	Fine Motion Control Rod Drive
FMEA	Failure Modes and Effects Analysis
FPS	Fire Protection System
FO	Diesel Fuel Oil Storage Tank
FOAKE	First-of-a-Kind Engineering
FPE	Fire Pump Enclosure
FTDC	Fault-Tolerant Digital Controller
FTS	Fuel Transfer System
FW	Feedwater
FWCS	Feedwater Control System
FWS	Fire Water Storage Tank
GCS	Generator Cooling System
GDC	General Design Criteria
GDCS	Gravity-Driven Cooling System
GE	General Electric Company
GE-NE	GE Nuclear Energy
GEN	Main Generator System
GETAB	General Electric Thermal Analysis Basis
GL	Generic Letter
GM	Geiger-Mueller Counter
GM-B	Beta-Sensitive GM Detector
GSIC	Gamma-Sensitive Ion Chamber
GSOS	Generator Sealing Oil System
GWSR	Ganged Withdrawal Sequence Restriction
HAZ	Heat-Affected Zone
HCU	Hydraulic Control Unit
HCW	High Conductivity Waste
HDVS	Heater Drain and Vent System
HEI	Heat Exchange Institute
HELB	High Energy Line Break
HEP	Human error probability
HEPA	High Efficiency Particulate Air/Absolute

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
HFE	Human Factors Engineering
HFF	Hollow Fiber Filter
HGCS	Hydrogen Gas Cooling System
HIC	High Integrity Container
HID	High Intensity Discharge
HIS	Hydraulic Institute Standards
HM	Hot Machine Shop & Storage
HP	High Pressure
HPNSS	High Pressure Nitrogen Supply System
HPT	High-pressure turbine
HRA	Human Reliability Assessment
HSI	Human-System Interface
HSSS	Hardware/Software System Specification
HVAC	Heating, Ventilation and Air Conditioning
HVS	High Velocity Separator
HWC	Hydrogen Water Chemistry
HWCS	Hydrogen Water Chemistry System
HWS	Hot Water System
HX	Heat Exchanger
I&C	Instrumentation and Control
I/O	Input/Output
IAS	Instrument Air System
IASCC	Irradiation Assisted Stress Corrosion Cracking
IBC	International Building Code
IC	Ion Chamber
IC	Isolation Condenser
ICD	Interface Control Diagram
ICS	Isolation Condenser System
IE	Inspection and Enforcement
IEB	Inspection and Enforcement Bulletin
IED	Instrument and Electrical Diagram
IEEE	Institute of Electrical and Electronic Engineers
IFTS	Inclined Fuel Transfer System
IGSCC	Intergranular Stress Corrosion Cracking
IIS	Iron Injection System
ILRT	Integrated Leak Rate Test
IOP	Integrated Operating Procedure
IMC	Induction Motor Controller

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
IMCC	Induction Motor Controller Cabinet
IRM	Intermediate Range Monitor
ISA	Instrument Society of America
ISI	In-Service Inspection
ISLT	In-Service Leak Test
ISM	Independent Support Motion
ISMA	Independent Support Motion Response Spectrum Analysis
ISO	International Standards Organization
ITA	Inspections, Tests or Analyses
ITAAC	Inspections, Tests, Analyses and Acceptance Criteria
ITA	Initial Test Program
LAPP	Loss of Alternate Preferred Power
LCO	Limiting Conditions for Operation
LCW	Low Conductivity Waste
LD	Logic Diagram
LDA	Lay down Area
LD&IS	Leak Detection and Isolation System
LERF	Large early release frequency
LFCV	Low Flow Control Valve
LHGR	Linear Heat Generation Rate
LLRT	Local Leak Rate Test
LMU	Local Multiplexer Unit
LO	Dirty/Clean Lube Oil Storage Tank
LOCA	Loss-of-Coolant-Accident
LOFW	Loss-of-feedwater
LOOP	Loss of Offsite Power
LOPP	Loss of Preferred Power
LP	Low Pressure
LPCI	Low Pressure Coolant Injection
LPCRD	Locking Piston Control Rod Drive
LPMS	Loose Parts Monitoring System
LPRM	Local Power Range Monitor
LPSP	Low Power Setpoint
LWMS	Liquid Waste Management System
MAAP	Modular Accident Analysis Program
MAPLHGR	Maximum Average Planar Linear Head Generation Rate
MAPRAT	Maximum Average Planar Ratio
MBB	Motor Built-In Brake

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
MCC	Motor Control Center
MCES	Main Condenser Evacuation System
MCPR	Minimum Critical Power Ratio
MCR	Main Control Room
MCRP	Main Control Room Panel
MELB	Moderate Energy Line Break
MLHGR	Maximum Linear Heat Generation Rate
MMI	Man-Machine Interface
MMIS	Man-Machine Interface Systems
MOV	Motor-Operated Valve
MPC	Maximum Permissible Concentration
MPL	Master Parts List
MS	Main Steam
MSIV	Main Steam Isolation Valve
MSL	Main Steamline
MSLB	Main Steamline Break
MSLBA	Main Steamline Break Accident
MSR	Moisture Separator Reheater
MSV	Mean Square Voltage
MT	Main Transformer
MTTR	Mean Time To Repair
MWS	Makeup Water System
NBR	Nuclear Boiler Rated
NBS	Nuclear Boiler System
NCIG	Nuclear Construction Issues Group
NDE	Nondestructive Examination
NE-DCIS	Non-Essential Distributed Control and Information System
NDRC	National Defense Research Committee
NDT	Nil Ductility Temperature
NFPA	National Fire Protection Association
NIST	National Institute of Standard Technology
NICWS	Nuclear Island Chilled Water Subsystem
NMS	Neutron Monitoring System
NOV	Nitrogen Operated Valve
NPHS	Normal Power Heat Sink
NPSH	Net Positive Suction Head
NRC	Nuclear Regulatory Commission
NRHX	Non-Regenerative Heat Exchanger

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
NS	Non-seismic (non-seismic Category I)
NSSS	Nuclear Steam Supply System
NT	Nitrogen Storage Tank
NTSP	Nominal Trip Setpoint
O&M	Operation and Maintenance
O-RAP	Operational Reliability Assurance Program
OBCV	Overboard Control Valve
OBE	Operating Basis Earthquake
OGS	Offgas System
OHLHS	Overhead Heavy Load Handling System
OIS	Oxygen Injection System
OLMCPR	Operating Limit Minimum Critical Power Ratio
OLU	Output Logic Unit
OOS	Out-of-service
ORNL	Oak Ridge National Laboratory
OSC	Operational Support Center
OSHA	Occupational Safety and Health Administration
OSI	Open Systems Interconnect
P&ID	Piping and Instrumentation Diagram
PA/PL	Page/Party-Line
PABX	Private Automatic Branch (Telephone) Exchange
PAM	Post Accident Monitoring
PAR	Passive Autocatalytic Recombiner
PAS	Plant Automation System
PASS	Post Accident Sampling Subsystem of Containment Monitoring System
PCC	Passive Containment Cooling
PCCS	Passive Containment Cooling System
PCT	Peak cladding temperature
PCV	Primary Containment Vessel
PFD	Process Flow Diagram
PGA	Peak Ground Acceleration
PGCS	Power Generation and Control Subsystem of Plant Automation System
PH	Pump House
PL	Parking Lot
PM	Preventive Maintenance
PMCS	Performance Monitoring and Control Subsystem of NE-DCIS
PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
PQCL	Product Quality Check List
PRA	Probabilistic Risk Assessment
PRMS	Process Radiation Monitoring System
PRNM	Power Range Neutron Monitoring
PS	Plant Stack
PSD	Power Spectra Density
PSS	Process Sampling System
PSWS	Plant Service Water System
PT	Pressure Transmitter
PWR	Pressurized Water Reactor
QA	Quality Assurance
RACS	Rod Action Control Subsystem
RAM	Reliability, Availability and Maintainability
RAPI	Rod Action and Position Information
RAT	Reserve Auxiliary Transformer
RB	Reactor Building
RBC	Rod Brake Controller
RBCC	Rod Brake Controller Cabinet
RBCWS	Reactor Building Chilled Water Subsystem
RBHV	Reactor Building HVAC
RBS	Rod Block Setpoint
RBV	Reactor Building Vibration
RC&IS	Rod Control and Information System
RCC	Remote Communication Cabinet
RCCV	Reinforced Concrete Containment Vessel
RCCWS	Reactor Component Cooling Water System
RCPB	Reactor Coolant Pressure Boundary
RCS	Reactor Coolant System
RDA	Rod Drop Accident
RDC	Resolver-to-Digital Converter
REPAVS	Refueling and Pool Area Ventilation Subsystem of Fuel Building HVAC
RFP	Reactor Feed Pump
RG	Regulatory Guide
RHR	Residual heat removal (function)
RHX	Regenerative Heat Exchanger
RMS	Root Mean Square
RMS	Radiation Monitoring Subsystem
RMU	Remote Multiplexer Unit

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
RO	Reverse Osmosis
ROM	Read-only Memory
RPS	Reactor Protection System
RPV	Reactor Pressure Vessel
RRPS	Reference Rod Pull Sequence
RSM	Rod Server Module
RSPC	Rod Server Processing Channel
RSS	Remote Shutdown System
RSSM	Reed Switch Sensor Module
RSW	Reactor Shield Wall
RTIF	Reactor Trip and Isolation Function(s)
RT _{NDT}	Reference Temperature of Nil-Ductility Transition
RTP	Reactor Thermal Power
RW	Radwaste Building
RWBCR	Radwaste Building Control Room
RWBGA	Radwaste Building General Area
RWBHVAC	Radwaste Building HVAC
RWCU/SDC	Reactor Water Cleanup/Shutdown Cooling
RWE	Rod Withdrawal Error
RWM	Rod Worth Minimizer
SA	Severe Accident
SAR	Safety Analysis Report
SB	Service Building
S/C	Digital Gamma-Sensitive GM Detector
SC	Suppression Chamber
S/D	Scintillation Detector
S/DRSRO	Single/Dual Rod Sequence Restriction Override
S/N	Signal-to-Noise
S/P	Suppression Pool
SAS	Service Air System
SB&PC	Steam Bypass and Pressure Control System
SBO	Station Blackout
SBWR	Simplified Boiling Water Reactor
SCEW	System Component Evaluation Work
SCRRI	Selected Control Rod Run-in
SDC	Shutdown Cooling
SDM	Shutdown Margin
SDS	System Design Specification

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
SEOA	Sealed Emergency Operating Area
SER	Safety Evaluation Report
SF	Service Water Building
SFP	Spent fuel pool
SIL	Service Information Letter
SIT	Structural Integrity Test
SIU	Signal Interface Unit
SJAE	Steam Jet Air Ejector
SLC	Standby Liquid Control
SLCS	Standby Liquid Control System
SLMCPR	Safety Limit Minimum Critical Power Ratio
SMU	SSLC Multiplexing Unit
SOV	Solenoid Operated Valve
SP	Setpoint
SPC	Suppression Pool Cooling
SPDS	Safety Parameter Display System
SPTMS	Suppression Pool Temperature Monitoring Subsystem of Containment Monitoring System
SR	Surveillance Requirement
SRM	Source Range Monitor
SRNM	Startup Range Neutron Monitor
SRO	Senior Reactor Operator
SRP	Standard Review Plan
SRS	Software Requirements Specification
SRSRO	Single Rod Sequence Restriction Override
SRSS	Sum of the squares
SRV	Safety Relief Valve
SRVDL	Safety relief valve discharge line
SSAR	Standard Safety Analysis Report
SSC(s)	Structure, System and Component(s)
SSE	Safe Shutdown Earthquake
SSLC	Safety System Logic and Control
SSPC	Steel Structures Painting Council
ST	Spare Transformer
STP	Sewage Treatment Plant
STRAP	Scram Time Recording and Analysis Panel
STRP	Scram Time Recording Panel
SV	Safety Valve
SWH	Static water head

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
SWMS	Solid Waste Management System
SY	Switch Yard
TAF	Top of Active Fuel
TASS	Turbine Auxiliary Steam System
TB	Turbine Building
TBCE	Turbine Building Compartment Exhaust
TEAS	Turbine Building Air Supply
TBE	Turbine Building Exhaust
TBLOE	Turbine Building Lube Oil Area Exhaust
TBS	Turbine Bypass System
TBHV	Turbine Building HVAC
TBV	Turbine Bypass Valve
TC	Training Center
TCCWS	Turbine Component Cooling Water System
TCS	Turbine Control System
TCV	Turbine Control Valve
TDH	Total Developed Head
TEMA	Tubular Exchanger Manufacturers' Association
TFSP	Turbine first stage pressure
TG	Turbine Generator
TGSS	Turbine Gland Seal System
THA	Time-history accelerograph
TLOS	Turbine Lubricating Oil System
TLU	Trip Logic Unit
TMI	Three Mile Island
TMSS	Turbine Main Steam System
TRM	Technical Requirements Manual
TS	Technical Specification(s)
TSC	Technical Support Center
TSI	Turbine Supervisory Instrument
TSV	Turbine Stop Valve
UBC	Uniform Building Code
UDS	NOT DEFINED
UHS	Ultimate heat sink
UL	Underwriter's Laboratories Inc.
UPS	Uninterruptible Power Supply
USE	Upper Shelf Energy
USM	Uniform Support Motion

Global Abbreviations And Acronyms List

<u>Term</u>	<u>Definition</u>
USMA	Uniform support motion response spectrum analysis
USNRC	United States Nuclear Regulatory Commission
USS	United States Standard
UV	Ultraviolet
V&V	Verification and Validation
Vac / VAC	Volts Alternating Current
Vdc / VDC	Volts Direct Current
VDU	Video Display Unit
VW	Vent Wall
VWO	Valves Wide Open
WD	Wash Down Bays
WH	Warehouse
WS	Water Storage
WT	Water Treatment
WW	Wetwell
XMFR	Transformer
ZPA	Zero period acceleration

9A. FIRE HAZARDS ANALYSIS

9A.1 INTRODUCTION

This appendix supplements Subsection 9.5.1.3 (Safety Evaluation).

This analysis identifies distinct fire areas for the Reactor Building, Fuel Building, Control Building, Turbine Building, Radwaste Building, Electrical Building, Yard, Service Water Pump House, and Service Building through the use of plan and elevation views of the buildings as required. Fire areas containing safe shutdown equipment are identified. Materials capable of supporting combustion in each of the designated fire areas are identified and quantified in this appendix. In addition, the fire protection features available for each room or fire zone are provided in Section 9A.5. The design acceptance criteria for the Service Water Pump House and Service Building are defined in this appendix because these structures are site specific. The COL applicant shall establish fire hazard design acceptance criteria for the Service Water Pump Building and Service Building.

The primary requirement of a nuclear facility is to be designed and constructed to operate 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 can be safely shut down and maintained in a safe shutdown condition, while not posing a hazard to the public or operating personnel, and that recovery from the fire can be accomplished safely.

The analysis addresses the hazard of fires relative to maintaining the safe shutdown capability of the plant.

The ESBWR design incorporates the following fire protection advantages over some of the existing and advanced design nuclear power plants:

- Inerted containment during power operation, to prevent ignition or combustion.
- Extensive use of 3-hour fire-resistive barriers, even where 2-hour or 1-hour fire-resistive barriers are the minimum requirement.
- Seismically qualified standpipes and hose stations that are dedicated for fire fighting use within safety-related areas.
- Fixed foam suppression system for each significant oil storage hazard.
- Cross-zoned pre-action sprinkler system for each diesel generator rooms, to avoid affecting diesel generator operation.

9A.2 ANALYSIS CRITERIA

9A.2.1 Codes and Standards

The Table 9A.2-1 applicable codes and standards are incorporated in the design of the ESBWR Reference Plant, including the fire detection and suppression systems designs, to the maximum extent practicable. These codes and standards differ slightly from those listed in NRC Branch Technical Position CMEB 9.5-1 in order to reflect the applicable code titles specified in the 2004 National Fire Code by the NFPA.

9A.2.2 Fire Area Separation and Fire Equipment Drawings

Drawings showing the fire area separation and fire protection for the Reactor Building, Fuel Building, Control Building, Turbine Building, Radwaste Building, and Electrical Building are included as Figures 9A.2-1 through 9A.2-32. The COL applicant shall include drawings showing the fire area separation and fire protection features for the Yard Service Water Pump Building and Service Building. .

9A.2.3 Terminology

Fire Area - portion of a building or plant that is separated from other areas by rated fire barriers.

Fire Barrier - components of construction (i.e., walls floors and ceilings) that are used to prevent the spread of fire. Rated fire barriers are those fire barriers (i.e., 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 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).

Fire Zones - subdivisions of fire areas containing fire suppression systems designed to combat particular types of fires.

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;
- 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 E-84; or
- 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, "Method of Test of Surface Burning Characteristics of Building Materials."

Nuclear 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, "Standard for the Installation of Sprinkler Systems:"

- Wet-pipe System
- Dry-pipe System
- Pre-action System
- Deluge System
- Combined Dry-Pipe and Preaction System
- 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, "Standpipe and Hose Systems." The Class III wet pipe system has been modified to provide connections for permanently installed 1.5-inch hose reels, 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 wet pipe 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.

- (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. Stairwells that do not communicate between areas of different safety-related divisions, and corridors may have walls and doors with a 2-hour 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 shall mean doors, frames, and hardware.
- (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, utilizing gypsum board, 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, has been 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 cable or equipment of more than one division is required to be located in a single fire area. Where multiple divisions of cable or equipment are located in the same fire area, the acceptability of the configuration is documented 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 estimated at the maximum design fill to contain between 41.3 and 56.3 kg of insulation per square meter (8.5 and 11.5 lbm/ft²) of tray.

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 CO₂ 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 Safe Shutdown Earthquake (SSE). The standpipes are contained within the building, 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 a leakage from a crack in the standpipes or from 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. See Subsection 9.5.1.2.9 for a description of the smoke removal capabilities of the HVAC systems.

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

In case of 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.

In case of fire, 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;
- Indication and control.

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 reference 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.

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	“Licensing of Production/Utilization Facilities”
UL	Underwriters’ Laboratories Approved Equipment Lists
FM	Factory Mutual Approved Materials and Equipment Lists
ANI	“Basic Fire Protection for Nuclear Power Plants”
ASTM D992-56	“Classification of Flammability Standards”
NFPA 10	“Portable Fire Extinguishers”
NFPA 11	“Foam Extinguishing Systems”
NFPA 12	“Carbon Dioxide Extinguishing Systems”
NFPA 13	“Sprinkler Systems”
NFPA 14	“Standpipe and Hose Systems”
NFPA 15	“Water Spray Fixed Systems”
NFPA 16	“Foam-Water Sprinkler and Spray Systems”
NFPA 20	“Centrifugal Fire Pumps”
NFPA 22	“Water Tanks for Private Fire Protection”
NFPA 24	“Private Fire Service Mains and Appurtenances”
NFPA 30	“Flammable and Combustible Liquids Code”
NFPA 37	“Stationary Combustion Engines and Gas Turbines”
NFPA 50A	“Gaseous Hydrogen Systems at Consumer Sites”
NFPA 70	“National Electrical Code”

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

NFPA 72	“National Fire Alarm Code”
NFPA 80	“Fire Doors and Windows”
NFPA 80A	“Exterior Fire Exposures”
NFPA 90A	“Installation of Air Conditioning and Ventilating Systems”
NFPA 92A	“Smoke Control Systems”
NFPA 101	“Life Safety Code”
NFPA 1963	“Fire Hose Connections”
NFPA 1961	“Fire Hose”
NFPA 251	“Fire Tests of Building Construction and Materials”
NFPA 255	“Test of Surface Burning Characteristics of Building Materials”
ASTM E-84	“Test Method for Surface Burning Characteristics of Building Materials”
NFPA 252	“Fire Tests of Door Assemblies”
NFPA 497	“Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas”
NFPA 780	“Installation of Lightning Protection Systems”
NFPA 804	“Fire Protection for Advanced Light Water Reactor Electric Generating Plants”
NFPA 1964	“Spray Nozzles”
IEEE 383	“Standard for Type of Class 1E Electrical Cables”
IEEE 384	“IEEE Trial-Use Standard Criteria for Separation of Class 1E Equipment and Circuits”
Regulatory Guide 1.39	“Housekeeping Requirements for Water-Cooled Nuclear Power Plants”

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

Regulatory Guide 1.75	“Physical Independence of Electrical Systems”
ASME A17.1	“Safety Code for Elevators and Escalators”
IBC	“International Building Code”
IFC	“International Fire Code”
Regulatory Guide 1.189	“Fire Protection for Operating Nuclear Power Plants”
NUREG-0800, Section 9.5.1	“Fire Protection Program”
NUREG-1552	“Fire Barrier Penetration Seals in Nuclear Power Plants”

Table 9A.2-2

Systems Required in the Event of Fire to Achieve Safe Shutdown

System	Function	Reactor Condition	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	
ICS C	1/2/3/4	Isolation	III	ICS A ICS B ICS D	5.4.6	
ICS D	1/2/3/4	Isolation	IV	ICS A ICS B ICS C	5.4.6	
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 in the Event of Fire to Achieve Safe Shutdown

System	Function	Reactor Condition	Division	Backup System	Tier 2 Ref.	Remarks
ADS	2	Isolated		ICS A ICS B ICS C ICS D	6.3.3	Closed loop to and from reactor vessel.
PCCS A	3/4	Post Depressurization	—	PCCS B, C, D, E, F	6.2.2	Closed injection line from GDCS pool or suppression pool.
PCCS B	3/4	Post Depressurization	—	PCCS A, C, D, E, F	6.2.2	
PCCS C	3/4	Post Depressurization	—	PCCS A, B, D, E, F	6.2.2	
PCCS D	3/4	Post Depressurization	—	PCCS A, B, C, E, F	6.2.2	
PCCS E	3/4	Post Depressurization	—	PCCS A, B, C, D, F	6.2.2	
PCCS F	3/4	Post Depressurization	—	PCCS A, B, C, D, E	6.2.2	
Div I instrument power & signals	5/6/7	All	I	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	

Table 9A.2-2

Systems Required in the Event of Fire to Achieve Safe Shutdown

System	Function	Reactor Condition	Division	Backup System	Tier 2 Ref.	Remarks
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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-12

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-13

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-14

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-15

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-17

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-19

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-20

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-21

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-22

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-23

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-24

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-25

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-27

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-29

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-30

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-31

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-32

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-33

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-34

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-35

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-36

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-37

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-38

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-39

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-40

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}
9A.2-41

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}

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

{{{Sensitive unclassified information provided under separate submittal per 10 CFR 2.390.}}}

9A.3 ANALYSIS APPROACH

9A.3.1 Review Data

The safe shutdown analysis is based on a review of every fire area. The fire protection 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 and the design acceptance criteria for the Service Water Pump House, and Service 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 that allow classifying the room as a separate fire zone. 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;
- (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 Main Control Room, and containment, and the 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 barrier 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, 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

Two Drywell Inerting System supply (two 350 mm (14 in.)) and exhaust (one 350 mm (14 in.) and one 400 mm (16 in.)) lines for the wetwell and the drywell do not have fire dampers. There are two containment isolation valves for each supply and exhaust. The valves are normally closed except during plant outage periods, when smoke removal could be accomplished without interruption, if a fire occurs. The drywell spray function would be initiated at a temperature substantially below the threshold of damage for the penetration assembly, if required to suppress the fire.

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 the 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.

9A.3.7 Smoke Removal

See Subsection 9.5.1.2.9 for details of smoke removal provisions. 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 SAFE SHUTDOWN ANALYSIS BY FIRE AREA

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 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.

Although fire damage may result to Control Rod Drive System (CRD) and hydraulic control unit (HCU) components from a postulated fire within the Drywell, the damage does prevent the control rods from inserting into the reactor. The postulated fire assumes loss of function that results in a reactor scram and maintenance of safe shutdown by systems 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.

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 drywell and suppression spray piping, which is normally empty of water.
- 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 helps avoid spray water damage to electrical components.
- Seismic design of standpipes in the Reactor Building.
- Provision of floor drains adequately sized to handle the suppression flow.
- Installation of electrical equipment above expected flood level heights.
- Provisions for curbs around open hatches.

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 safety division. This arrangement allows any combination of the remaining three divisions 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 helps avoid spray water damage to electrical components.
- Seismic design of standpipes in the Fuel Building.
- Provision of floor drains adequately sized to handle the suppression flow.
- Installation of electrical equipment above expected flood level heights.
- Provisions for curbs around open hatches.

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.

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 in 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 non-safety 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.

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 helps avoid spray water damage to electrical components.
- Seismic design of standpipes in the Control Building.
- Provision of floor drains adequately sized to handle the suppression flow.
- Installation of electrical equipment above expected flood level heights.
- Provisions for curbs around open hatches.

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.

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 helps avoid spray water damage to electrical components.

- Provision of adequately sized floor drains and flood containment boundaries to handle the suppression flow.
- Installation of electrical equipment above expected flood level heights.
- Provisions for curbs around open hatches.

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.

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 helps avoid spray water damage to electrical components.
- Provision of adequately sized floor drains and flood containment boundaries to handle the suppression flow.
- Installation of electrical equipment above expected flood level heights.
- Provisions for curbs around open hatches.

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.

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.

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.

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 helps avoid spray water damage to electrical components.
- Provision of adequately sized floor drains and flood containment boundaries to handle the suppression flow.
- Installation of electrical equipment above expected flood level heights.
- Provisions for curbs around open hatches.

9A.4.7 Yard

The Yard includes all portions of 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.

As shown on Turbine Building and Electrical Building fire zone drawings (Figures 9A.2-12 and 9A.2-25), the significant outdoor fire hazards shall be 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 shall not contain any safety-related or safe shutdown components, and as such, a fire in the Yard shall not affect any of the four divisions used to bring the reactor to hot standby and then cold shutdown conditions.

To prevent damage from inadvertent or careless operation, as well as rupture of the fire suppression system, the following design features shall be 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.
- Provision of adequately sized flood containment boundaries to handle the suppression flow and prevent groundwater contamination.
- Installation of electrical equipment above expected flood level heights.

9A.4.8 Service Water Pump House

The Service Water Pump House 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 Water Pump House does not contain any safety-related or safe shutdown components, and as such, a fire in the Service Water Pump House does not *affect* any of the four divisions used to bring the reactor to hot standby and then cold shutdown conditions. The COL applicant shall design the Service Water Pump Building fire protection features. The basic fire protection features are presented in a method similar to that used for other buildings.

The Service Water Pump House is a non-seismic structure, and may be attached to the Cooling Towers. None of the walls or floors are fire-rated. Stairwells shall be 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 shall be provided throughout the Service Water Pump House with the use of Class A supervised product-of-combustion detection systems. Alarms, both trouble and fire, shall report to the Main Control Room.

ABC dry chemical portable fire extinguishers shall be provided on each floor of the facility, located at or near the hose stations and alarm pull boxes. Additional portable fire extinguishers shall be 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 shall be included:

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

9A.4.9 Service Building

The Service Building shall not contain any system or function that could affect the operation or shutdown of the reactor, nor shall 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 shall not *affect* any of the four divisions used to bring the reactor to hot standby and then cold shutdown conditions. The COL applicant shall design the Service Building fire protection features.

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

The Service Building shall be a completely separate non-seismic structure. It shall have controlled access tunnels to the Reactor Building, the Turbine Building, the Radwaste Building, and the Electrical Building. The exterior wall facing these buildings shall be a 3-hour barrier constructed of fire-resistive concrete. The controlled access doors in this wall shall be rated 3-

hour fire resistive, Class A doors. Other exterior walls shall be constructed of concrete, or of gypsum board mounted on metal studs. The stairwells shall be required for personnel access and egress in the event of a fire and shall be 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 shall be 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 shall be designed for Light Hazard Occupancy, 4.2 L/min/m² (0.10 gpm/ft²).

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

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

Wall, floor, and ceiling penetrations for piping, HVAC, and cable trays shall be sealed where needed for HVAC control. However, fire dampers or stops shall be 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 shall be included:

- Location of the manual suppression systems within stairwells and outside of rooms containing electrical components helps avoid spray water damage to electrical components.
- Provision of adequately sized floor drains to handle the suppression flow.
- Installation of electrical equipment above expected flood level heights.
- 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 \$5000
- Minor: 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

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.

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.2-11 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.2-1 through 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 with the application for COL.

See Figures 9A.2-12 and 9A.2-25 for fire drawings for portions of the Yard.

9A.5.8 Service Water Pump House

The Service Water Pump House is a site-specific structure and is designed by the COL applicant; the applicant will provide additional information with the application for COL.

9A.5.9 Service Building

The Service Building is protected in accordance with applicable NFPA codes. A detailed, room-by-room fire protection analysis is not required because this building does not contain any system or function that could affect the safe shutdown of the reactor.

Table 9A.5-1, Reactor Building

Fire Area: F1104		description: Elevator A		building code occupancy classification: F-1						
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.2		electrical classification: N/A						
DCD Fig:		contains safe shutdown divisional equipment or cables:		N/A						
9A.2-1		surrounded by fire barriers rated at:		3 hours						
9A.2-2		except:		basemat (non-rated); elevator doors (1.5 hr rated)						
9A.2-3										
9A.2-4										
9A.2-5										
9A.2 6										
consisting of the following Rooms:			Fire Detection		Fire Suppression					
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary				
-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)				
-6400	1291	Class IIIB lubricants Cable insulation			ABC fire extinguishers (outside Elev. at each landing)					
-1000										
4650										
9060										
		<table border="1"> <tr> <td>< 700</td> <td>Anticipated combustible load, MJ/m²</td> </tr> <tr> <td>700</td> <td>Unsprinklered combustible load limit, MJ/m²</td> </tr> </table>	< 700	Anticipated combustible load, MJ/m ²	700	Unsprinklered combustible load limit, MJ/m ²	Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.			
< 700	Anticipated combustible load, MJ/m ²									
700	Unsprinklered combustible load limit, MJ/m ²									
Assuming operation of fire suppression systems, effect of fire upon:										
Plant operation:		None								
Radiological release:		None, no radiological materials present								
Life safety:		Travel distance limits to EXITS meet NFPA 101								
Manual firefighting:		Access via stairwells and hoistway doors								
Property loss:		Negligible								

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

Fire Area: F1105		description: Elevator C		building code occupancy classification: F-1						
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1		electrical classification: N/A						
DCD Fig:		contains safe shutdown divisional equipment or cables: N/A		surrounded by fire barriers rated at: 3 hours						
9A.2-1		except: basemat (non-rated); elevator doors (1.5 hr rated)								
9A.2-2										
9A.2-3										
9A.2-4										
9A.2-5										
9A.2-6										
consisting of the following Rooms:			Fire Detection		Fire Suppression					
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary				
-11500	1105	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)				
-6400	1292	Class IIIB lubricants Cable insulation			ABC fire extinguishers (outside Elev at each landing)					
-1000										
4650										
9060										
		<table border="1"> <tr> <td>< 700</td> <td>Anticipated combustible load, MJ/m²</td> </tr> <tr> <td>700</td> <td>Unsprinklered combustible load limit, MJ/m²</td> </tr> </table>	< 700	Anticipated combustible load, MJ/m ²	700	Unsprinklered combustible load limit, MJ/m ²	<p>Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:</p> <p>Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.</p>			
< 700	Anticipated combustible load, MJ/m ²									
700	Unsprinklered combustible load limit, MJ/m ²									
Assuming operation of fire suppression systems, effect of fire upon:										
Plant operation:	None									
Radiological release:	None, no radiological materials present									
Life safety:	Travel distance limits to EXITs meet NFPA 101									
Manual firefighting:	Access via stairwells and hoistway doors									
Property loss:	Negligible									

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

Fire Area:	F1110	description:	HCU A			
Building:	Reactor		applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		
DCD Fig: 9A.2-1 9A.2-2 9A.2-3 9A.2-4				contains safe shutdown divisional equipment or cables:		building code occupancy classification:
			electrical classification:			N/A
			surrounded by fire barriers rated at:		3 hours	
					except: basemat (non-rated)	
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11500	1110	Electrical equipment	Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
-9100						
-6400						
-1000	1312	Cable insulation				
			< 1400	Anticipated combustible load, MJ/m ²	Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division I safe shutdown equipment and circuits, as well as loss of redundant Division I and II HCU solenoid circuits; if HCU's are unavailable for reactor scram, either FMCRD portion of CRD system or SLC system can be used to scram reactor (components and circuits for either are located outside this Fire Area); for all other systems, remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.	
			1400	Unsprinklered combustible load limit, MJ/m ²		
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:	Reactor scram					
Radiological release:	Contained within building					
Life safety:	Travel distance limits to EXITs meet NFPA 101					
Manual firefighting:	Access via stairwells					
Property loss:	Moderate					

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

Fire Area:	F1120	description:	HCU C			
Building:	Reactor		applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		
DCD Fig: 9A.2-1 9A.2-2 9A.2-3 9A.2-4				building code occupancy classification:		F-1
			electrical classification:		N/A	
			contains safe shutdown divisional equipment or cables:		II	
			surrounded by fire barriers rated at:		3 hours	
		except:		basemat (non-rated)		
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11500	1107	Class A combustibles Class IIIB lubricants	Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
-11500	1120	Electrical equipment				
-9100						
-6400						
-1000	1322	Cable insulation				
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division II safe shutdown equipment and circuits, as well as loss of redundant Division I and II HCU solenoid circuits; if HCU's are unavailable for reactor scram, either FMCRD portion of CRD system or SLC system can be used to scram reactor (components and circuits for either are located outside this Fire Area); for all other systems, remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:	Reactor scram					
Radiological release:	Contained within building					
Life safety:	Travel distance limits to EXITs meet NFPA 101					
Manual firefighting:	Access via stairwells					
Property loss:	Moderate					

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

Fire Area: F1130		description: HCU B		building code occupancy classification: F-1		
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig: 9A.2-1 9A.2-2 9A.2-3 9A.2-4		contains safe shutdown divisional equipment or cables:		III		
		surrounded by fire barriers rated at:		3 hours		
		except:		basemat (non-rated)		
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11500	1130	Electrical equipment	Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
-9100						
-6400						
-1000	1332	Cable insulation				
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division III safe shutdown equipment and circuits, as well as loss of redundant Division I and II HCU solenoid circuits; if HCU's are unavailable for reactor scram, either FMCRD portion of CRD system or SLC system can be used to scram reactor (components and circuits for either are located outside this Fire Area); for all other systems, remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		Reactor scram				
Radiological release:		Contained within building				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Moderate				

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

Fire Area: F1140		description: HCU D		building code occupancy classification: F-1		
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig:		contains safe shutdown divisional equipment or cables: IV		surrounded by fire barriers rated at: 3 hours		
9A.2-1		except: basemat (non-rated)				
9A.2-2						
9A.2-3						
9A.2-4						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11500	1140	Electrical equipment	Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
-9100						
-6400						
-1000	1342	Cable insulation				
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division IV safe shutdown equipment and circuits, as well as loss of redundant Division I and II HCU solenoid circuits; if HCU's are unavailable for reactor scram, either FMCRD portion of CRD system or SLC system can be used to scram reactor (components and circuits for either are located outside this Fire Area); for all other systems, remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		Reactor scram				
Radiological release:		Contained within building				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Moderate				

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

Fire Area: F1150		description: Nonsafety NE quadrant				
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804				
DCD Fig:		building code occupancy classification: F-1				
9A.2-1	9A.2-6	electrical classification: N/A				
9A.2-2	9A.2-7	contains safe shutdown divisional equipment or cables: I				
9A.2-3	9A.2-8	surrounded by fire barriers rated at: 3 hours				
9A.2-4	9A.2-9	except: basemat (non-rated); elevator doors (1.5 hr rated)				
9A.2-5						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11500	1100, 1150, 1151	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers
-6400	1250, 1293					
-1000	1300, 1304					
4650	1400 below floor	Cable insulation			CO2 fire extinguishers	Hose racks (in nearby stairwells)
5050	1400	Cable insulation				
9060	1500	Electrical equipment				
< 700 EL 4650 & below; < 1400 EL 5050 & above		Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:		
700 EL 4650 & below; 1400 EL 5050 & above		Unsprinklered combustible load limit, MJ/m ²		Complete burnout of all equipment and cables within this Fire Area results in loss of only Division I safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.		
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		Reactor scram				
Radiological release:		Contained within building				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Moderate				

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

Fire Area: F1152		description: Nonsafety SE quadrant	
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804	
DCD Fig:		building code occupancy classification: F-1	
9A.2-1	9A.2-6	electrical classification: N/A	
9A.2-2	9A.2-7	contains safe shutdown divisional equipment or cables: III	
9A.2-3	9A.2-8	surrounded by fire barriers rated at: 3 hours	
9A.2-4	9A.2-9	except: basemat (non-rated); elevator doors (1.5 hr rated)	
9A.2-5			
consisting of the following Rooms:			
EL	Room #	Potential Combustibles	Fire Detection Primary Secondary
-11500	1101, 1106, 1152	Class IIIB lubricants Cable insulation	Area-wide ionization Manual pulls (outside stairwell at each landing)
	1153		
-6400	1204, 1294, 1251, 1252		
-1000	1301, 1306	Area-wide ionization	
4650	1401 below floor	Cable insulation	
5050	1401	Cable insulation	
9060	1501	Electrical equipment	CO2 fire extinguishers Hose racks (in nearby stairwells)
< 700 EL 4650 & below; < 1400 EL 5050 & above		Anticipated combustible load, MJ/m ²	
700 EL 4650 & below; 1400 EL 5050 & above		Unsprinklered combustible load limit, MJ/m ²	
Assuming operation of fire suppression systems, effect of fire upon:		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
Plant operation:	Reactor scram		Complete burnout of all equipment and cables within this Fire Area results in loss of only Division III safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.
Radiological release:	Contained within building		
Life safety:	Travel distance limits to EXITS meet NFPA 101		
Manual firefighting:	Access via stairwells		
Property loss:	Moderate		

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

Fire Area: F1160		description: Nonsafety NW quadrant	
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804	
DCD Fig:		building code occupancy classification: F-1	
9A.2-1	9A.2-6	electrical classification: N/A	
9A.2-2	9A.2-7	contains safe shutdown divisional equipment or cables: IV	
9A.2-3	9A.2-8	surrounded by fire barriers rated at: 3 hours	
9A.2-4	9A.2-9	except: basemat (non-rated)	
9A.2-5			
consisting of the following Rooms:			
EL	Room #	Potential Combustibles	Fire Detection Primary Secondary
-11500	1103, 1160, 1161	Class IIIB lubricants Cable insulation	Area-wide ionization Manual pulls (outside stairwell at each landing)
-6400	1260, 1296		
-1000	1303, 1305		
4650	1403 below floor	Cable insulation	Hose racks (in nearby stairwells) ABC fire extinguishers
5050	1403	Cable insulation	
9060	1503	Electrical equipment	
			CO2 fire extinguishers Hose racks (in nearby stairwells)
< 700 EL 4650 & below; < 1400 EL 5050 & above		Anticipated combustible load, MJ/m ²	
700 EL 4650 & below; 1400 EL 5050 & above		Unsprinklered combustible load limit, MJ/m ²	
Assuming operation of fire suppression systems, effect of fire upon:			Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division IV safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.
Plant operation:	Reactor scram		
Radiological release:	Contained within building		
Life safety:	Travel distance limits to EXITS meet NFPA 101		
Manual firefighting:	Access via stairwells		
Property loss:	Moderate		

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

Fire Area: F1162		description: Nonsafety SW quadrant	
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804	
DCD Fig:		building code occupancy classification: F-1	
9A.2-1	9A.2-6	electrical classification: N/A	
9A.2-2	9A.2-7	contains safe shutdown divisional equipment or cables: II	
9A.2-3	9A.2-8	surrounded by fire barriers rated at: 3 hours	
9A.2-4	9A.2-9	except: basemat (non-rated); elevator doors (1.5 hr rated)	
9A.2-5			
consisting of the following Rooms:			
EL	Room #	Potential Combustibles	Fire Detection Primary Secondary
-11500	1102, 1162	Class IIIB lubricants Cable insulation	Area-wide ionization
	1163		
-6400	1295		Manual pulls (outside stairwell at each landing)
4650	1402 below floor	Cable insulation	
5050	1402	Cable insulation	
9060	1502	Electrical equipment	
			Fire Suppression Primary Secondary
			Hose racks (in nearby stairwells)
			CO2 fire extinguishers
			ABC fire extinguishers
			Hose racks (in nearby stairwells)
< 700 EL 4650 & below; < 1400 EL 5050 & above		Anticipated combustible load, MJ/m ²	Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:
700 EL 4650 & below; 1400 EL 5050 & above		Unsprinklered combustible load limit, MJ/m ²	
Assuming operation of fire suppression systems, effect of fire upon:			
Plant operation:	Reactor scram		
Radiological release:	Contained within building		
Life safety:	Travel distance limits to EXITs meet NFPA 101		
Manual firefighting:	Access via stairwells		
Property loss:	Moderate		
Complete burnout of all equipment and cables within this Fire Area results in loss of only Division II safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.			

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

Fire Area:	F1170	description:	Drywell and Containment			
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:	N/A		
9A.2-2	9A.2-7		contains safe shutdown divisional equipment or cables:	I, II, III, IV		
9A.2-3	9A.2-8	surrounded by fire barriers rated at:	3 hours			
9A.2-4	9A.2-9	except:	basemat (non-rated), including basaltic concrete			
9A.2-5						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-8800	1170	Class IIIB lubricants Cable insulation Filter media	None	Portable fire detection used as needed during outage activities	Inerted environment during power operation	Hose racks and ABC fire extinguishers (via hatches at EL -6400, EL 13570, EL 17500, and EL 34000)
-6400	1206					
4650	1170, 14P0					
9060	1570	None				
17500	17P0, 17P1, 17P2					
27000	18P3A, 18P3B, 18P4A, 18P4B, 18P4C, 18P5A, 18P5B, 18P5C, 18P3C, 18P3D, 18P4D, 18P4E, 18P4F, 18P6A, 18P6B, 18P6C					
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: During plant operation, this entire Fire Area is inerted by nitrogen and will not support combustion. When not inerted (during shutdowns and outages), complete burnout of all equipment and cables within this Fire Area is prevented by limited amount of combustibles and spatial separation between redundant divisional circuits to ensure that no more than two divisions of safe shutdown equipment will be affected by a single fire. See also section 9A.6.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:	Reactor scram; outage required to restore					
Radiological release:	Contained within containment structure					
Life safety:	Travel distance limits to EXIT's meet NFPA 101					
Manual firefighting:	Access via hatches					
Property loss:	Significant					

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

Fire Area: F1190		description: Stairwells A and E		building code occupancy classification: F-1		
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig:		contains safe shutdown divisional equipment or cables: N/A		surrounded by fire barriers rated at: 3 hours		
9A.2-1 9A.2-6		except: basemat (non-rated)				
9A.2-2 9A.2-7						
9A.2-3 9A.2-8						
9A.2-4 9A.2-9						
9A.2-5						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11500	1190	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-6400						
-1000						
4650						
9060						
13570	1690					
17500						
27000						
34000						
		negligible	Anticipated combustible load, MJ/m ²	Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.		
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				

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

Fire Area: F1191		description: Stairwell B				
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig:				building code occupancy classification: F-1		
9A.2-1 9A.2-6				electrical classification: N/A		
9A.2-2 9A.2-7				contains safe shutdown divisional equipment or cables: N/A		
9A.2-3 9A.2-8		surrounded by fire barriers rated at: 3 hours				
9A.2-4 9A.2-9		except: basemat (non-rated)				
9A.2-5						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11500	1191	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-6400						
-1000						
4650						
9060						
13570						
17500						
27000						
34000						
37000						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				

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

Fire Area: F1192		description: Stairwells C and F		building code occupancy classification: F-1		
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig:		contains safe shutdown divisional equipment or cables: N/A		surrounded by fire barriers rated at: 3 hours		
9A.2-1	9A.2-6	except: basemat (non-rated)				
9A.2-2	9A.2-7					
9A.2-3	9A.2-8					
9A.2-4	9A.2-9					
9A.2-5						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11500	1192	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-6400						
-1000						
4650						
9060						
13570	1691					
17500						
27000						
34000						
		negligible	Anticipated combustible load, MJ/m ²	Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:		
		700	Unsprinklered combustible load limit, MJ/m ²	Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.		
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				

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

Fire Area: F1193		description: Stairwell D				
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig:				building code occupancy classification:	F-1	
9A.2-1	9A.2-6			electrical classification:	N/A	
9A.2-2	9A.2-7			contains safe shutdown divisional equipment or cables:	N/A	
9A.2-3	9A.2-8			surrounded by fire barriers rated at:	3 hours	
9A.2-4	9A.2-9			except:	basemat (non-rated)	
9A.2-5						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11500	1193	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-6400						
-1000						
4650						
9060						
13570						
17500						
27000						
34000						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:			Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.			
Plant operation:	None					
Radiological release:	None, no radiological materials present					
Life safety:	Travel distance limits to EXITs meet NFPA 101					
Manual firefighting:	Access via exterior and interior doors					
Property loss:	Negligible					

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

Fire Area:	F1194	description:	Elevator B			
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:	N/A	
9A.2-2				contains safe shutdown divisional equipment or cables:	N/A	
9A.2-3		surrounded by fire barriers rated at:	3 hours			
9A.2-4		except:	basemat (non-rated); elevator doors (1.5 hr rated)			
9A.2-5						
9A.2-6						
9A.2-7						
9A.2-8						
9A.2-9						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11500	1194	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)
37000	1980	Class IIIB lubricants Cable insulation Electrical equipment			CO2 fire extinguisher (outside room)	
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:	None					
Radiological release:	None, no radiological materials present					
Life safety:	Travel distance limits to EXITs meet NFPA 101					
Manual firefighting:	Access via stairwells and hoistway doors					
Property loss:	Negligible					

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

Fire Area: F1195		description: Interior Stairwell A				
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-1 9A.2-2 9A.2-3 9A.2-4		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11200	1195	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-9100						
-6400						
-1000						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via interior doors				
Property loss:		Negligible				
Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.						

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

Fire Area: F1196		description: Interior Stairwell B				
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-1 9A.2-2 9A.2-3				building code occupancy classification:	F-1	
				electrical classification:	N/A	
				contains safe shutdown divisional equipment or cables:	N/A	
				surrounded by fire barriers rated at:	3 hours	
		except:		basemat (non-rated)		
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11200	1196	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-9100						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via interior doors				
Property loss:		Negligible				
						Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.

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

Fire Area: F1197		description: Interior Stairwell C				
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-1 9A.2-2 9A.2-3	building code occupancy classification: F-1		electrical classification: N/A			
	contains safe shutdown divisional equipment or cables: N/A					
	surrounded by fire barriers rated at: 3 hours					
	except: basemat (non-rated)					
consisting of the following Rooms:						
		Fire Detection		Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11200	1197	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-6400						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via interior doors				
Property loss:		Negligible				

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

Fire Area: F1198		description: Interior Stairwell D		building code occupancy classification: F-1		
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig: 9A.2-1 9A.2-2 9A.2-3		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11200	1198	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-9100						
-6400						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via interior doors				
Property loss:		Negligible				

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

Fire Area: F1203		description: CRD and Containment Access				
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 20, 72, 101, 804				
DCD Fig: 9A.2-2 9A.2-3		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: II				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-6400	1203	Class IIIB lubricants Cable insulation	Cross-zoned ionization and spot heat	Suppression flowswitch	Preaction sprinkler 12.2 L/min per m ²	Hose racks (in nearby stairwells)
-1000	1302, 1307, 1308	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside stairwells at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers
		> 700 (room 1203)	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		< 700 (other rooms)	Anticipated combustible load, MJ/m ²			
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		Reactor scram; outage required to restore				
Radiological release:		Contained within building				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Moderate				

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

Fire Area: F1210		description: Division I Battery				
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-2 9A.2-3		building code occupancy classification: F-1 per IBC 302.1.1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: I				
		surrounded by fire barriers rated at: 3 hours				
		except: elevator doors (1.5 hr rated)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles or Hazards	Primary	Secondary	Primary	Secondary
-6400	1210	12,360 L of battery acid Battery cell cases Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division I safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via stairwell and interior doors				
Property loss:		Moderate				

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

Fire Area: F1220		description: Division II Battery				
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-2 9A.2-3				building code occupancy classification:	F-1 per IBC 302.1.1	
				electrical classification:	N/A	
				contains safe shutdown divisional equipment or cables:		II
				surrounded by fire barriers rated at:	3 hours	
		except:		elevator doors (1.5 hr rated)		
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles or Hazards	Primary	Secondary	Primary	Secondary
-6400	1220	12,360 L of battery acid Battery cell cases Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division II safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwell and interior doors				
Property loss:		Moderate				

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

Fire Area: F1230		description: Division III Battery				
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-2 9A.2-3		building code occupancy classification: F-1 per IBC 302.1.1		electrical classification: N/A		
		contains safe shutdown divisional equipment or cables: III				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles or Hazards	Primary	Secondary	Primary	Secondary
-6400	1230	6840 L of battery acid Battery cell cases Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division III safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwell and interior doors				
Property loss:		Moderate				

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

Fire Area: F1240 Building: Reactor DCD Fig: 9A.2-2 9A.2-3		description: Division IV Battery applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		building code occupancy classification: F-1 per IBC 302.1.1 electrical classification: N/A contains safe shutdown divisional equipment or cables: IV						
		surrounded by fire barriers rated at: 3 hours except: N/A								
consisting of the following Rooms:			Fire Detection		Fire Suppression					
EL	Room #	Potential Combustibles or Hazards	Primary	Secondary	Primary	Secondary				
-6400	1240	6840 L of battery acid Battery cell cases Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (in nearby stairwell)				
		<table border="1"> <tr> <td>< 1400</td> <td>Anticipated combustible load, MJ/m²</td> </tr> <tr> <td>1400</td> <td>Unsprinklered combustible load limit, MJ/m²</td> </tr> </table>	< 1400	Anticipated combustible load, MJ/m ²	1400	Unsprinklered combustible load limit, MJ/m ²			Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division IV safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.	
< 1400	Anticipated combustible load, MJ/m ²									
1400	Unsprinklered combustible load limit, MJ/m ²									
Assuming operation of fire suppression systems, effect of fire upon:										
Plant operation:		None								
Radiological release:		None, no radiological materials present								
Life safety:		Travel distance limits to EXITs meet NFPA 101								
Manual firefighting:		Access via stairwell and interior doors								
Property loss:		Moderate								

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

Fire Area: F1262		description: B Demineralizers				
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-2 9A.2-3		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-6400	1261, 1262	Class IIIB lubricants Cable insulation	Area-wide ionization	None	Hose racks at stairwells (via hatches at EL -1000)	ABC fire extinguishers (at EL -1000)
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		Contained within building				
Life safety:		Travel distance limits to EXIT's meet NFPA 101				
Manual firefighting:		Limited Access via hatches				
Property loss:		Minor				

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

Fire Area:	F1311	description:	Division I Electrical				
Building:	Reactor		applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804			
DCD Fig:	9A.2-2 9A.2-3 9A.2-4 9A.2-5 9A.2-6 9A.2-7 9A.2-8			building code occupancy classification:		F-1	
			electrical classification:		N/A		
			contains safe shutdown divisional equipment or cables:				I
			surrounded by fire barriers rated at:		3 hours		
			except:		elevator doors (1.5 hr rated)		
consisting of the following Rooms:			Fire Detection		Fire Suppression		
EL		Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-6400		1211	Cable insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO2 fire extinguishers	Hose racks at stairwells
-1000	1311, 1313	Electrical equipment					
13570	1610	Cable insulation					
17500	1711	Cable insulation					
	1700, 1710, 1712, 1713	Cable insulation Class IIIB lubricants			ABC fire extinguishers		
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:		
		1400	Unsprinklered combustible load limit, MJ/m ²				
Assuming operation of fire suppression systems, effect of fire upon:			Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division I safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.				
Plant operation:	None						
Radiological release:	None, no radiological materials present						
Life safety:	Travel distance limits to EXITS meet NFPA 101						
Manual firefighting:	Access via stairwell and interior doors						
Property loss:	Significant						

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

Fire Area:	F1321	description:	Division II Electrical				
Building:	Reactor		applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804			
DCD Fig:	9A.2-2 9A.2-3 9A.2-4 9A.2-5 9A.2-6 9A.2-7 9A.2-8			building code occupancy classification:		F-1	
			electrical classification:		N/A		
			contains safe shutdown divisional equipment or cables:				II
			surrounded by fire barriers rated at:		3 hours		
			except:		elevator doors (1.5 hr rated)		
consisting of the following Rooms:			Fire Detection		Fire Suppression		
EL		Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-6400		1221	Cable insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO2 fire extinguishers	Hose racks at stairwells
-1000	1321, 1323	Electrical equipment					
13570	1620	Cable insulation					
17500	1721	Cable insulation Class IIIB lubricants	ABC fire extinguishers				
	1720, 1722, 1723						
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division II safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.		
		1400	Unsprinklered combustible load limit, MJ/m ²				
Assuming operation of fire suppression systems, effect of fire upon:							
Plant operation:	None						
Radiological release:	None, no radiological materials present						
Life safety:	Travel distance limits to EXITs meet NFPA 101						
Manual firefighting:	Access via stairwell and interior doors						
Property loss:	Significant						

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

Fire Area: F1331		description: Division III Electrical		building code occupancy classification: F-1		
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig:		contains safe shutdown divisional equipment or cables: III		surrounded by fire barriers rated at: 3 hours		
9A.2-2		except: elevator doors (1.5 hr rated)				
9A.2-3						
9A.2-4						
9A.2-5						
9A.2-6						
9A.2-7						
9A.2-8						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-6400	1231	Cable insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO2 fire extinguishers	Hose racks at stairwells
-1000	1331	Electrical equipment				
13570	1630	Cable insulation				
17500	1731	Cable insulation				
	1703, 1730, 1732	Cable insulation Class IIIB lubricants	ABC fire extinguishers			
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division III safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwell and interior doors				
Property loss:		Significant				

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

Fire Area: F1341		description: Division IV 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		electrical classification: N/A				
9A.2-3		contains safe shutdown divisional equipment or cables: IV				
9A.2-4		surrounded by fire barriers rated at: 3 hours				
9A.2-5		except: N/A				
9A.2-6						
9A.2-7						
9A.2-8						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-6400	1241	Cable insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO2 fire extinguishers	Hose racks at stairwells
-1000	1341	Electrical equipment				
13570	1640	Cable insulation				
17500	1741	Cable insulation				
	1701, 1740, 1742	Cable insulation Class IIIB lubricants			ABC fire extinguishers	
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division IV safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwell and interior doors				
Property loss:		Significant				

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

Fire Area: F1450		description: Hydrogen Gas A				
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 50A, 72, 101, 497, 804				
DCD Fig: 9A.2-4		building code occupancy classification: F-1				
		electrical classification: Group D Class I Div II				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:						
		Fire Detection		Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	1450	Electrical equipment Cable insulation Hydrogen	Area-wide spot heat	Manual pull	ABC fire extinguisher	Hydrant
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via door				
Property loss:		Minor				

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

Fire Area: F1460		description: Hydrogen Gas B		building code occupancy classification: F-1		
Building: Reactor		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 50A, 72, 101, 497, 804		electrical classification: Group D Class I Div II		
DCD Fig: 9A.2-4		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	1460	Electrical equipment Cable insulation Hydrogen	Area-wide spot heat	Manual pull	ABC fire extinguisher	Hydrant
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via door				
Property loss:		Minor				

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

Fire Area: F1600		description: Refueling Floor and Common Access				
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.2-4		electrical classification: N/A				
9A.2-5		contains safe shutdown divisional equipment or cables: N/A				
9A.2-6		surrounded by fire barriers rated at: 3 hours				
9A.2-7		except: driveway (non-rated) ; elevator doors (1.5 hr rated)				
9A.2-8						
9A.2-9						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	1490	Transient combustibles	Area-wide linear heat	Manual pulls (outside stairwell at each landing)	Hose racks at stairwells	ABC fire extinguishers
13570	1600	Class IIIB lubricants Electrical equipment Cable insulation				
17500	17P3	None	None			
27000	18P0, 18P1, 18P2					
34000	1900, 1903, 1904, 1905, 1906	Transient combustibles Electrical equipment Cable insulation Class A combustibles Filter media	Area-wide ionization			
	above ceiling 1905,1906	Cable insulation				
	1901, 1902	None				
	1907, 1908					

Fire Area:	F1600 (continued)	description:	Refueling Floor and Common Access (continued)
Building:	Reactor	applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804
DCD Fig: 9A.2-4 9A.2-5 9A.2-6 9A.2-7 9A.2-8 9A.2-9			building code occupancy classification: F-1
			electrical classification: N/A
			contains safe shutdown divisional equipment or cables: N/A
		surrounded by fire barriers rated at:	3 hours
		except:	driveway (non-rated) ; elevator doors (1.5 hr rated)
	< 700	Anticipated combustible load, MJ/m ²	Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.
	700	Unsprinklered combustible load limit, MJ/m ²	
Assuming operation of fire suppression systems, effect of fire upon:			
Plant operation:	None; restoration required before refueling		
Radiological release:	Contained within building		
Life safety:	Travel distance limits to EXITs meet NFPA 101		
Manual firefighting:	Access via stairwells		
Property loss:	Moderate		

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

Fire Area: F1770		description: Main Steam Tunnel		
Building: Reactor & Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 15, 72, 101, 804		
DCD Fig: 9A.2-7 9A.2-8 9A.2-13 9A.2-14 9A.2-15 9A.2-16	building code occupancy classification: F-1		electrical classification: N/A	
	contains safe shutdown divisional equipment or cables: I, II, III, IV			
	surrounded by fire barriers rated at: 3 hours		except: north side (water curtain sprinklers in F4100)	
	consisting of the following Rooms:		Fire Detection	
	EL	Room #	Potential Combustibles	Fire Suppression
			Primary Secondary Primary Secondary	
8200	part of 4393	Class IIIB lubricants	Area-wide linear heat Manual pulls (outside stairwell at each landing) Hose racks at stairwells ABC fire extinguishers at access doors	
17500	1770	Cable insulation		
		< 700	Anticipated combustible load, MJ/m ²	
		700	Unsprinklered combustible load limit, MJ/m ²	
Assuming operation of fire suppression systems, effect of fire upon:				
Plant operation:	Reactor scram; turbine trip; outage required to restore			
Radiological release:	Contained within building			
Life safety:	Travel distance limits to EXITs meet NFPA 101			
Manual firefighting:	Access via interior doors			
Property loss:	Moderate			
Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of Division I, II, III, and IV containment isolation instrumentation; containment isolation is maintained by inboard MSIV's, outside of this Fire Area. No safe shutdown functions are affected by this fire; all other safe shutdown equipment is unaffected by the fire and is operable. See section 9A.6.				

Table 9A.5-2, Fuel Building

Fire Area: F2100		description: New and Spent Fuel Handling				
Building: Fuel		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.2-5	electrical classification: N/A				
9A.2-2	9A.2-6	contains safety-related divisional equipment or cables: N/A				
9A.2-3	9A.2-7	surrounded by fire barriers rated at: 3 hours				
9A.2-4	9A.2-8	except: basemat (non-rated); elevator doors (1.5 hr rated)				
consisting of the following Rooms:						
			Fire Detection			
			Fire Suppression			
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11500	2101	Class IIIB lubricants	Area-wide photoelectric	Manual pulls (outside stairwell at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers
	2100, 2102, 2103, 2104, 2151, 2161, 2190, 2191	Cable insulation	Area-wide ionization			
	21P0, 21P1, 21P2	None	None			
-6400	2200, 2201, 2202, 2251, 2261	Class IIIB lubricants	Area-wide ionization			
-1000	2300, 2301, 2302	Cable insulation				
4650	2400	Class IIIB lubricants	Area-wide linear heat			
	2401	Cable insulation Transient combustibles Class A combustibles	Area-wide ionization			
17500	1702	None				

Table 9A.5-2, Fuel Building (Cont.)

Fire Area: F2192		description: Elevator A						
Building: Fuel		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1						
DCD Fig:		building code occupancy classification: F-1						
<table border="1"> <tr><td>9A.2-1</td></tr> <tr><td>9A.2-2</td></tr> <tr><td>9A.2-3</td></tr> <tr><td>9A.2-4</td></tr> <tr><td>9A.2-5</td></tr> </table>		9A.2-1	9A.2-2	9A.2-3	9A.2-4	9A.2-5	electrical classification: N/A	
		9A.2-1						
		9A.2-2						
		9A.2-3						
		9A.2-4						
9A.2-5								
contains safe shutdown divisional equipment or cables: N/A								
surrounded by fire barriers rated at: 3 hours								
except: basemat (non-rated); elevator doors (1.5 hr rated)								
consisting of the following Rooms:		Fire Detection						
EL	Room #	Potential Combustibles						
			Primary Secondary					
-11500	2192	Class IIIB lubricants Cable insulation	Area-wide ionization Manual pulls (outside Elev at each landing)					
9060	2500	Class IIIB lubricants Cable insulation Electrical equipment	ABC fire extinguishers (outside Elev at each landing) CO2 fire extinguisher (outside room)					
		<table border="1"> <tr><td>< 700</td></tr> <tr><td>700</td></tr> </table>	< 700	700	Anticipated combustible load, MJ/m ² Unsprinklered combustible load limit, MJ/m ²			
< 700								
700								
Assuming operation of fire suppression systems, effect of fire upon:		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:						
Plant operation:	None		Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.					
Radiological release:	None, no radiological materials present							
Life safety:	Travel distance limits to EXITs meet NFPA 101							
Manual firefighting:	Access via stairwell and hoistway doors							
Property loss:	Negligible							

Table 9A.5-2, Fuel Building (Cont.)

Fire Area: F2193		description: Stairwell A		building code occupancy classification: F-1		
Building: Fuel		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig:		contains safe shutdown divisional equipment or cables:		N/A		
9A.2-1		surrounded by fire barriers rated at:		3 hours		
9A.2-2		except:		basemat (non-rated)		
9A.2-3						
9A.2-4						
9A.2-5						
9A.2-6						
9A.2-7						
9A.2-8						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11500	2193	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-6400						
-1000						
4650						
9060						
22500						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				

Table 9A.5-2, Fuel Building (Cont.)

Fire Area: F2490		description: Stairwell B		building code occupancy classification: F-1		
Building: Fuel		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig:		contains safe shutdown divisional equipment or cables: N/A		surrounded by fire barriers rated at: 3 hours		
9A.2-4		except: basemat (non-rated)				
9A.2-5						
9A.2-6						
9A.2-7						
9A.2-8						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	2490	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
22500						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via exterior door				
Property loss:		Negligible				

Table 9A.5-2, Fuel Building (Cont.)

Fire Area: F2600		description: HVAC Penthouse A		building code occupancy classification: F-1		
Building: Fuel		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804		electrical classification: N/A		
DCD Fig: 9A.2-7 9A.2-2		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
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	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None; restoration required before refueling				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Moderate				

Table 9A.5-2, Fuel Building (Cont.)

Fire Area: F2601		description: HVAC Penthouse B				
Building: Fuel		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		electrical classification: N/A				
9A.2-2		contains safe shutdown divisional equipment or cables: N/A				
9A.2-3		surrounded by fire barriers rated at: 3 hours				
9A.2-4		except: basemat (non-rated)				
9A.2-5						
9A.2-6						
9A.2-7						
9A.2-8						
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-11500	2194	Cable insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
22500	2601	Class IIIB lubricants Cable insulation Filter media				
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None; restoration required before refueling				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Moderate				

Table 9A.5-3, Control Building

Fire Area: F3100		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: N/A		
9A.2-3				contains safe shutdown divisional equipment or cables: N/A		
9A.2-4		surrounded by fire barriers rated at: 3 hours				
9A.2-5		except: basemat (non-rated); elevator doors (1.5 hr rated)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-7400	3100	Cable insulation	Area-wide ionization	Manual pulls (at EXITs)	Hose racks (in nearby stairwells)	ABC fire extinguishers
-2000	3200	Class A combustibles				
	3203					
4650	3300					
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:			Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.			
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Negligible				

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

Fire Area:	F3110	description:	Division I Electrical			
Building:	Control		applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 90A, 101, 804		
DCD Fig:	<div style="border: 1px solid black; padding: 2px;"> 9A.2-2 9A.2-3 9A.2-4 9A.2-5 </div>	contains safe shutdown divisional equipment or cables:		building code occupancy classification:	F-1	
			electrical classification:	N/A		
			surrounded by fire barriers rated at:	3 hours		
			except:	basemat (non-rated)		
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-7400	duct bank	Cable insulation	None	None	None	None
	3110 below access floor		Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers
-6800	3250	Cable insulation Electrical equipment	HVAC temperature indication		CO2 fire extinguishers	Hose racks (in nearby stairwells)
	3110				Hose racks (in nearby stairwells)	ABC fire extinguishers
	3251	Insulation		Internal manual spray		
9060	3401, 3404, 3406	Class IIIB lubricants Cable insulation Filter media				
	Charcoal Filter	Charcoal				
<div style="border: 1px solid black; padding: 2px;"> < 700 at EL 9060; < 1400 EL -6800 & below </div>		Anticipated combustible load, MJ/m ²	Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division I safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.			
<div style="border: 1px solid black; padding: 2px;"> 700 at EL 9060; 1400 EL -6800 & below </div>		Unsprinklered combustible load limit, MJ/m ²				
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:	None					
Radiological release:	None, no radiological materials present					
Life safety:	Travel distance limits to EXITS meet NFPA 101					
Manual firefighting:	Access via stairwells					
Property loss:	Significant					

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

Fire Area: F3120		description: Division II Electrical								
Building: Control		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 101, 804								
DCD Fig: 9A.2-2 9A.2-3		building code occupancy classification: F-1								
		electrical classification: N/A								
		contains safe shutdown divisional equipment or cables: II								
		surrounded by fire barriers rated at: 3 hours								
		except: basemat (non-rated)								
consisting of the following Rooms:			Fire Detection		Fire Suppression					
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary				
-7400	duct bank	Cable insulation	None	None	None	None				
-7400	3120 below access floor		Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO2 fire extinguishers	Hose racks (in nearby stairwells)				
-6800	3120	Cable insulation Electrical equipment								
		<table border="1"> <tr> <td>< 1400</td> <td>Anticipated combustible load, MJ/m²</td> </tr> <tr> <td>1400</td> <td>Unsprinklered combustible load limit, MJ/m²</td> </tr> </table>		< 1400	Anticipated combustible load, MJ/m ²	1400	Unsprinklered combustible load limit, MJ/m ²	Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:		
< 1400	Anticipated combustible load, MJ/m ²									
1400	Unsprinklered combustible load limit, MJ/m ²									
Assuming operation of fire suppression systems, effect of fire upon:				Complete burnout of all equipment and cables within this Fire Area results in loss of only Division II safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.						
Plant operation:		None								
Radiological release:		None, no radiological materials present								
Life safety:		Travel distance limits to EXITS meet NFPA 101								
Manual firefighting:		Access via stairwells								
Property loss:		Significant								

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

Fire Area:	F3130	description:	Division III Electrical			
Building:	Control	applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 90A, 101, 804			
DCD Fig:	9A.2-2 9A.2-3 9A.2-4 9A.2-5		building code occupancy classification:		F-1	
			electrical classification:		N/A	
			contains safe shutdown divisional equipment or cables:		III	
			surrounded by fire barriers rated at:	3 hours		
			except:	basemat (non-rated)		
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-7400	duct bank	Cable insulation	None	None	None	None
	3130 below floor		Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers
-6800	3260	Cable insulation Electrical equipment	HVAC temperature indication		CO2 fire extinguishers	Hose racks (in nearby stairwells)
	3130				Insulation	Hose racks (in nearby stairwells)
	3261	Class IIIB lubricants Cable insulation Filter media		Internal manual spray		
9060	3402, 3403, 3407		Charcoal			
	Charcoal Filter					
< 700 at EL 9060; < 1400 EL -6800 & below		Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:		
700 at EL 9060; 1400 EL -6800 & below		Unsprinklered combustible load limit, MJ/m ²				
Assuming operation of fire suppression systems, effect of fire upon:			Complete burnout of all equipment and cables within this Fire Area results in loss of only Division III safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.			
Plant operation:	None					
Radiological release:	None, no radiological materials present					
Life safety:	Travel distance limits to EXITS meet NFPA 101					
Manual firefighting:	Access via stairwells					
Property loss:	Significant					

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

Fire Area:	F3140	description:	Division IV Electrical			
Building:	Control		applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 101, 804		
DCD Fig: 9A.2-2 9A.2-3 9A.2-4 9A.2-5				building code occupancy classification:		F-1
			electrical classification:		N/A	
			contains safe shutdown divisional equipment or cables:		IV	
			surrounded by fire barriers rated at:		3 hours	
			except:		basemat (non-rated)	
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-7400	duct bank	Cable insulation	None	None	None	None
	3140 below access floor		Area-wide ionization	Manual pulls (outside stairwell at each landing)	CO2 fire extinguishers	Hose racks (in nearby stairwells)
-6800	3140	Cable insulation Electrical equipment				
4650	3301 below access floor	Cable insulation				
5250	3301	Cable insulation Electrical equipment				
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:			Complete burnout of all equipment and cables within this Fire Area results in loss of only Division IV safe shutdown equipment and circuits; remaining three divisions of safe shutdown are unaffected by fire and are operable. Automatic logic control scheme (any two out of four redundant signals) remains operable.			
Plant operation:	None					
Radiological release:	None, no radiological materials present					
Life safety:	Travel distance limits to EXITS meet NFPA 101					
Manual firefighting:	Access via stairwells					
Property loss:	Significant					

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

Fire Area: F3190		description: Stairwell A	
Building: Control		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804	
DCD Fig: 9A.2-2 9A.2-3 9A.2-4 9A.2-5	building code occupancy classification:		F-1
	electrical classification:		N/A
	contains safe shutdown divisional equipment or cables:		N/A
	surrounded by fire barriers rated at:		3 hours
	except:		basemat (non-rated)
consisting of the following Rooms:			
EL	Room #	Potential Combustibles	Fire Detection Primary Secondary Fire Suppression Primary Secondary
-7400	3190	None	Area-wide ionization Manual pulls (outside stairwell at each landing) Hose racks ABC fire extinguishers
-2000			
4650			
9060			
		negligible	Anticipated combustible load, MJ/m ²
		700	Unsprinklered combustible load limit, MJ/m ²
Assuming operation of fire suppression systems, effect of fire upon:			Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.
Plant operation:	None		
Radiological release:	None, no radiological materials present		
Life safety:	Travel distance limits to EXITS meet NFPA 101		
Manual firefighting:	Access via exterior and interior doors		
Property loss:	Negligible		

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

Fire Area: F3191		description: Elevator A					
Building: Control		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1					
DCD Fig: 9A.2-2 9A.2-3 9A.2-4 9A.2-5	building code occupancy classification:		F-1				
	electrical classification:		N/A				
	contains safe shutdown divisional equipment or cables:		N/A				
	surrounded by fire barriers rated at:		3 hours				
	except:		basemat (non-rated); elevator doors (1.5 hr rated)				
consisting of the following Rooms:							
EL	Room #	Potential Combustibles	Fire Detection Primary Secondary				
			Fire Suppression Primary Secondary				
-7400	3191	Class IIIB lubricants Cable insulation	Area-wide ionization Manual pulls (outside Elev at each landing)				
9060	3405	Class IIIB lubricants Cable insulation Electrical equipment	CO2 fire extinguisher (outside room) Hose racks (in nearby stairwell)				
		<table border="1"> <tr> <td>< 700</td> <td>Anticipated combustible load, MJ/m²</td> </tr> <tr> <td>700</td> <td>Unsprinklered combustible load limit, MJ/m²</td> </tr> </table>	< 700	Anticipated combustible load, MJ/m ²	700	Unsprinklered combustible load limit, MJ/m ²	Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:
< 700	Anticipated combustible load, MJ/m ²						
700	Unsprinklered combustible load limit, MJ/m ²						
Assuming operation of fire suppression systems, effect of fire upon:			Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.				
Plant operation:	None						
Radiological release:	None, no radiological materials present						
Life safety:	Travel distance limits to EXITS meet NFPA 101						
Manual firefighting:	Access via stairwells and hoistway doors						
Property loss:	Negligible						

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

Fire Area: F3192		description: Stairwell B					
Building: Control		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804					
DCD Fig: 9A.2-2 9A.2-3 9A.2-4 9A.2-5	building code occupancy classification:		F-1				
	electrical classification:		N/A				
	contains safe shutdown divisional equipment or cables:		N/A				
	surrounded by fire barriers rated at:		3 hours				
	except:		basemat (non-rated)				
consisting of the following Rooms:							
EL	Room #	Potential Combustibles	Fire Detection Primary Secondary Fire Suppression Primary Secondary				
-7400	3192	None	Area-wide ionization Manual pulls (outside stairwell at each landing) Hose racks ABC fire extinguishers				
-2000							
4650							
9060							
<table border="1"> <tr> <td>negligible</td> <td>Anticipated combustible load, MJ/m²</td> </tr> <tr> <td>700</td> <td>Unsprinklered combustible load limit, MJ/m²</td> </tr> </table>		negligible	Anticipated combustible load, MJ/m ²	700	Unsprinklered combustible load limit, MJ/m ²	Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
negligible	Anticipated combustible load, MJ/m ²						
700	Unsprinklered combustible load limit, MJ/m ²						
Assuming operation of fire suppression systems, effect of fire upon:							
Plant operation:		None					
Radiological release:		None, no radiological materials present					
Life safety:		Travel distance limits to EXITS meet NFPA 101					
Manual firefighting:		Access via exterior and interior doors					
Property loss:		Negligible					

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

Fire Area:	F3270	description:	Main Control Room Complex					
Building:	Control	applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 90A, 101, 804					
DCD Fig: 9A.2-3 9A.2-4			building code occupancy classification:	B				
			electrical classification:	N/A				
			contains safe shutdown divisional equipment or cables:	I, II, III, IV				
			surrounded by fire barriers rated at:	3 hours				
			except:	N/A				
		interior fire barriers rated at:	1 hour					
		around:	room 3275 (Main Control Room)					
consisting of the following Rooms:			Fire Detection		Fire Suppression			
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary		
-2000	below access floor	Cable insulation	Area-wide ionization	Manual pulls (outside stairwells at each landing)	CO2 fire extinguishers	Hose racks (in nearby stairwells)		
	3274, 3276	Cable insulation Class A combustibles						
-1400	3275, 3270, 3271, 3272, 3273, 3274	Cable insulation Electrical equipment Class A combustibles					Hose racks (in nearby stairwells)	ABC fire extinguishers
	3204, 3205, 3201, 3202	Cable insulation Class IIIA lubricants Filter media Class A combustibles						
	above ceiling	Insulation	Area-wide ionization					
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:			
		1400	Unsprinklered combustible load limit, MJ/m ²					
Assuming operation of fire suppression systems, effect of fire upon:			Complete burnout of all equipment and cables within this Fire Area affects MCR control of all four divisions of safe shutdown equipment. Operators manually scram reactor before evacuating MCR. Reactor and safe shutdown control transferred to either Remote Shutdown Panel (located in separate Fire Areas F1313 and F1323), which isolates MCR circuits. See also section 9A.6.					
Plant operation:	Reactor scram; turbine trip; outage required to restore							
Radiological release:	None, no radiological materials present							
Life safety:	Travel distance limits to EXITs meet NFPA 101							
Manual firefighting:	Access via stairwells							
Property loss:	Significant							

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

Fire Area: F3302		description: Non-1E Electrical	
Building: Control		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 75, 101, 804	
DCD Fig: 9A.2-4 9A.2-5		building code occupancy classification: F-1	
		electrical classification: N/A	
		contains safe shutdown divisional equipment or cables: N/A	
		surrounded by fire barriers rated at: 3 hours	
		except: N/A	
consisting of the following Rooms:			
		Fire Detection	
		Fire Suppression	
EL	Room #	Potential Combustibles	
		Primary	Secondary
4650	3302 below access floor	Cable insulation	Area-wide ionization
			Manual pulls (outside stairwell at each landing)
5250	3302	Electrical equipment Cable insulation	
			CO2 fire extinguishers
			Hose racks (in nearby stairwells)
		< 1400	Anticipated combustible load, MJ/m ²
		1400	Unsprinklered combustible load limit, MJ/m ²
Assuming operation of fire suppression systems, effect of fire upon:			
Plant operation:	None		
Radiological release:	None, no radiological materials present		
Life safety:	Travel distance limits to EXITS meet NFPA 101		
Manual firefighting:	Access via stairwells		
Property loss:	Significant		
Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.			

Table 9A.5-4, Turbine Building

Fire Area: F4100		description: Turbine Equipment				
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 12, 13, 14, 15, 72, 90A, 101, 497, 804				
DCD Fig:		building code occupancy classification: F-1				
9A.2-12		electrical classification: N/A				
9A.2-13		contains safe shutdown divisional equipment or cables: N/A				
9A.2-14		surrounded by fire barriers rated at: 3 hours				
9A.2-15		except: basemat (non-rated); elevator doors (1.5 hr rated); exterior underground walls (non-rated); exterior walls above EL 12000 (non-rated); south end at F1770 (water curtain sprinklers)				
9A.2-16						
9A.2-17						
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-1400	4180, 4181, 4182, 41F1A, 41F1B, 41F1C, 41F1D, 41F1E, 41F1F, 41F1G, 41F0, 41F2, 41F3, 41F4, 41F5, 41F6, 41F7, 41F8, 41F9	Class IIIB lubricants Cable insulation	Area-wide photoelectric Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers
	4100, 4101, 4102, 4105, 4107, 4199	Class IIIB lubricants Cable insulation Filter media				
	4106, 4184, 4185, 4186	Class IIIB lubricants Cable insulation	Suppression flowswitch		Wet-pipe sprinkler 16.3 L/min per m ² over most remote 465 m ²	Hose racks (in nearby stairwells)
4650	4205, 4206, 4207, 4202, 4203					
8200	4293					
	4293 (end of tunnel)	Class IIIB lubricants	Suppression flowswitch		Dry-pilot deluge 37.2 L/min per meter (water curtain)	

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4100 (continued)		description: Turbine Equipment							
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 12, 13, 14, 15, 72, 90A, 101, 497, 804							
DCD Fig:		building code occupancy classification: F-1							
<table border="1"> <tr><td>9A.2-12</td></tr> <tr><td>9A.2-13</td></tr> <tr><td>9A.2-14</td></tr> <tr><td>9A.2-15</td></tr> <tr><td>9A.2-16</td></tr> <tr><td>9A.2-17</td></tr> </table>		9A.2-12	9A.2-13	9A.2-14	9A.2-15	9A.2-16	9A.2-17	electrical classification: N/A	
		9A.2-12							
		9A.2-13							
9A.2-14									
9A.2-15									
9A.2-16									
9A.2-17									
surrounded by fire barriers rated at:		contains safe shutdown divisional equipment or cables: N/A							
except:		3 hours basemat (non-rated); elevator doors (1.5 hr rated); exterior underground walls (non-rated); exterior walls above EL 12000 (non-rated); south end at F1770 (water curtain sprinklers)							
consisting of the following Rooms:			Fire Detection		Fire Suppression				
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary			
4650	4201, 4204, 4280, 4281, 4282, 4283, 4284, 4290, 4291, 42F1A, 42F1B, 42F1C, 42F1D, 42F1E, 42F1F, 42F1G, 42F1H, 42F4, 42F2A, 42F2B, 42F2C, 42F2D, 42F2E, 42F2F, 42F2G, 42F2H	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers			
	4200, 4294	Electrical equipment Cable insulation Class IIIB lubricants Transient combustibles	Suppression flowswitch		Dry-pipe sprinkler 8.1 L/min per m ² over most remote 181 m ²	Hose racks (in nearby stairwells)			
7650	42F0	Class IIIB lubricants Cable insulation	Area-wide ionization		Hose racks (in nearby stairwells)	ABC fire extinguishers			
12000	4300, 4301, 4302, 4303, 4304, 4305, 4306, 4309, 4383, 4387, 4394	Class IIIB lubricants Cable insulation Filter media							

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4100 (continued)		description: Turbine Equipment				
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 12, 13, 14, 15, 72, 90A, 101, 497, 804				
DCD Fig:		building code occupancy classification: F-1				
9A.2-12		electrical classification: N/A				
9A.2-13		contains safe shutdown divisional equipment or cables: N/A				
9A.2-14		surrounded by fire barriers rated at: 3 hours				
9A.2-15		except: basemat (non-rated); elevator doors (1.5 hr rated); exterior underground walls (non-rated); exterior walls above EL 12000 (non-rated); south end at F1770 (water curtain sprinklers)				
9A.2-16						
9A.2-17						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
12000	4380, 4381, 4382	Cable insulation	Suppression flowswitch	Manual pulls (outside stairwell at each landing)	Wet-pipe sprinkler 16.3 L/min per m ² over most remote 465 m ²	Hose racks (in nearby stairwells)
16000	4391, 4392	Class IIIB lubricants				
23500						
20000	4390, 4405 curbed area		Area-wide ionization		Hose racks (in nearby stairwells)	ABC fire extinguishers
	rest of 4405, 4400, 4401, 4402, 4403, 4404	Class IIIB lubricants Cable insulation Filter media	Suppression flowswitch		Dry-pilot deluge 12.2 L/min per m ²	Hose racks (in nearby stairwells)
	H2 seal oil unit	Class IIIB lubricants	Area-wide ionization		Hose racks (in nearby stairwells)	ABC fire extinguishers
28000	4580 above ceiling	Cable insulation	Area-wide linear heat		Automatic preaction spray 12.2 L/min per m ²	Hose racks (in nearby stairwells)
	4500, 4501, 4502, 4503, 4504, 4580, 4581, 4582, 4583, 4505, 4508, 4509	Class IIIB lubricants Cable insulation Filter media	Area-wide spot heat		Manual low pressure CO2 30% concentration two-shot volume	CO2 fire extinguishers
	4506, 4507		Spot heat over each bearing			
	Turbine-generator bearings	Class IIIB lubricants	Process indication			
	Generator housing	Hydrogen	Area-wide ionization			
	Exciter housing					

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4100 (continued)		description: Turbine Equipment				
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 12, 13, 14, 15, 72, 90A, 101, 497, 804				
DCD Fig: 9A.2-12 9A.2-13 9A.2-14 9A.2-15 9A.2-16 9A.2-17	surrounded by fire barriers rated at:	building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		except: 3 hours				
		except: basemat (non-rated); elevator doors (1.5 hr rated); exterior underground walls (non-rated); exterior walls above EL 12000 (non-rated); south end at F1770 (water curtain sprinklers)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
33000	4600	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside stairwells at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers
	4602	Filter media				
43500	4505	Class IIIB lubricants				
54000	4505	Cable insulation				
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		Turbine trip; restoration required prior to restart				
Radiological release:		Contained within building				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Significant				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4103		description: Feedwater Pumps				
Building: Turbine		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: N/A				
9A.2-13		contains safe shutdown divisional equipment or cables: N/A				
9A.2-14		surrounded by fire barriers rated at: 3 hours				
9A.2-15		except: basemat (non-rated)				
9A.2-16						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-1400	4103, 4104	Class IIIB lubricants Cable insulation Filter media	Area-wide ionization	Area-wide spot heat	Preaction sprinkler 12.2 L/min per m ² over most remote 302 m ²	Hose racks (in nearby stairwells)
	4183		Area-wide photoelectric			
	4292	Insulation	Area-wide ionization			
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		Turbine trip; outage required to restore				
Radiological release:		Contained within building				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Moderate				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4108		description: Charcoal Adsorbers				
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 15, 72, 101, 804				
DCD Fig: 9A.2-12 9A.2-13 9A.2-14 9A.2-15		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-1400	Adsorber, Adsorber A, Adsorber B, Adsorber C, Adsorber D, Adsorber E, Adsorber F, Adsorber G, Adsorber H	Charcoal	Process indication	Manual pulls (outside Elev at each landing)	Internal manual spray in each adsorber vessel	Hose racks (in nearby stairwell)
	4108	Class IIIB lubricants Cable insulation	Area-wide ionization		Hose racks (in nearby stairwell)	ABC fire extinguishers (outside Elev at each landing)
12000	4386					
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		Contained within building				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells and interior doors				
Property loss:		Moderate				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4190		description: Elevator A		building code occupancy classification: F-1		
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1		electrical classification: N/A		
DCD Fig:		contains safe shutdown divisional equipment or cables:		N/A		
9A.2-12		surrounded by fire barriers rated at:		3 hours		
9A.2-13		except:		basemat (non-rated); elevator doors (1.5 hr rated)		
9A.2-14						
9A.2-15						
9A.2-16						
9A.2-17						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-1400	4190	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside Elev at each landing)	Hose racks (in nearby stairwell)	ABC fire extinguishers (outside Elev at each landing)
36000	4680	Class IIIB lubricants Cable insulation Electrical equipment			CO2 fire extinguisher (outside room)	Hose racks (in nearby stairwell)
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells and hoistway doors				
Property loss:		Negligible				

Table 9A5-4, Turbine Building (Cont.)

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:	N/A	
9A.2-13				contains safe shutdown divisional equipment or cables:	N/A	
9A.2-14		surrounded by fire barriers rated at:		3 hours		
9A.2-15		except:		basemat (non-rated)		
9A.2-16						
9A.2-17						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-1400	4191	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
4650						
12000						
20000						
28000						
33000						
36000						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4192		description: Elevator B		building code occupancy classification: F-1		
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1		electrical classification: N/A		
DCD Fig:		contains safe shutdown divisional equipment or cables: N/A		surrounded by fire barriers rated at: 3 hours		
9A.2-12		except: basemat (non-rated); elevator doors (1.5 hr rated)				
9A.2-13						
9A.2-14						
9A.2-15						
9A.2-16						
9A.2-17						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-1400	4192	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside Elev at each landing)	Hose racks (in nearby stairwell)	ABC fire extinguishers (outside Elev at each landing)
57000	4681	Class IIIB lubricants Cable insulation Electrical equipment			CO2 fire extinguisher (outside room)	Hose racks (in nearby stairwell)
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via stairwells and hoistway doors				
Property loss:		Negligible				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4193		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:	N/A	
9A.2-13				contains safe shutdown divisional equipment or cables:	N/A	
9A.2-14		surrounded by fire barriers rated at:		3 hours		
9A.2-15		except:		basemat (non-rated)		
9A.2-16						
9A.2-17						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-1400	4193	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
4650						
12000						
20000						
28000						
33000						
43500						
54000						
57000						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:	None					
Radiological release:	None, no radiological materials present					
Life safety:	Travel distance limits to EXITs meet NFPA 101					
Manual firefighting:	Access via exterior and interior doors					
Property loss:	Negligible					

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4194		description: Elevator C		building code occupancy classification: F-1		
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1		electrical classification: N/A		
DCD Fig:		contains safe shutdown divisional equipment or cables: N/A		surrounded by fire barriers rated at: 3 hours		
9A.2-12		except: basemat (non-rated); elevator doors (1.5 hr rated)				
9A.2-13						
9A.2-14						
9A.2-15						
9A.2-16						
9A.2-17						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-1400	4194	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside Elev at each landing)	Hose racks (in nearby stairwell)	ABC fire extinguishers (outside Elev at each landing)
31000	4682	Class IIIB lubricants Cable insulation Electrical equipment			CO2 fire extinguisher (outside room)	Hose racks (in nearby stairwell)
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via stairwells and hoistway doors				
Property loss:		Negligible				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4195		description: Stairwell C				
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:	N/A	
9A.2-13				contains safe shutdown divisional equipment or cables:	N/A	
9A.2-14		surrounded by fire barriers rated at:		3 hours		
9A.2-15		except:		basemat (non-rated)		
9A.2-16						
9A.2-17						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-1400	4195	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
4650						
12000						
20000						
28000						
31000						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				
Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.						

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4196		description: Elevator D		building code occupancy classification: F-1		
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1		electrical classification: N/A		
DCD Fig:		contains safe shutdown divisional equipment or cables:		N/A		
9A.2-12		surrounded by fire barriers rated at:		3 hours		
9A.2-13		except:		basemat (non-rated); elevator doors (1.5 hr rated)		
9A.2-14						
9A.2-15						
9A.2-16						
9A.2-17						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-1400	4196	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside Elev at each landing)	Hose racks (in nearby stairwell)	ABC fire extinguishers (outside Elev at each landing)
31000	4683	Class IIIB lubricants Cable insulation Electrical equipment			CO2 fire extinguisher (outside room)	Hose racks (in nearby stairwell)
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via stairwells and hoistway doors				
Property loss:		Negligible				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4197		description: Stairwell D				
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: N/A		
9A.2-13				contains safe shutdown divisional equipment or cables: N/A		
9A.2-14		surrounded by fire barriers rated at: 3 hours				
9A.2-15		except: basemat (non-rated)				
9A.2-16						
9A.2-17						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-1400	4197	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
4650						
12000						
20000						
28000						
31000						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				
Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.						

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4250		description: Cooling Water A		building code occupancy classification: F-1		
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig: 9A.2-13 9A.2-14		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	4250	Electrical equipment Cable insulation Class IIIB lubricants	Area-wide ionization	Manual pulls (outside stairwells at each landing)	Hose racks (in nearby stairwells)	CO2 fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Moderate				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4260		description: Cooling Water B				
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-13 9A.2-14		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	4260	Electrical equipment Cable insulation Class IIIB lubricants	Area-wide ionization	Manual pulls (outside stairwells at each landing)	Hose racks (in nearby stairwells)	CO2 fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Moderate				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4307		description: Turbine EHC		building code occupancy classification: F-1		
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 15, 72, 101, 804		electrical classification: N/A		
DCD Fig: 9A.2-14		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
12000	4307	~1000 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 m ²	Hose racks (in nearby stairwells)
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		Turbine trip; restoration required prior to restart				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via interior door				
Property loss:		Moderate				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4308		description: Turbine Lube Oil		building code occupancy classification: F-1		
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 11, 13, 14, 15, 16, 72, 101, 804		electrical classification: N/A		
DCD Fig: 9A.2-14 9A.2-15		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
12000	4308	~48,000 L Class IIIB lubricants Cable insulation	Suppression flowswitch	Manual pulls (outside stairwells at each landing)	Dry-pilot foam-water deluge 16.3 L/min per m ²	Hose racks (in nearby stairwells)
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		Turbine trip; restoration required prior to restart				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via interior door				
Property loss:		Moderate				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4350		description: Instrument Air A		building code occupancy classification: F-1		
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig: 9A.2-14		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
12000	4350	Cable insulation Class IIIB lubricants	Area-wide ionization	Manual pulls (outside stairwells at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Minor				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4360		description: Instrument Air B		building code occupancy classification: F-1		
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig: 9A.2-14		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
12000	4360	Cable insulation Class IIIB lubricants	Area-wide ionization	Manual pulls (outside stairwells at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Minor				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4550		description: Chilled Water A		building code occupancy classification: F-1		
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASHRAE 15		electrical classification: N/A		
DCD Fig: 9A.2-16 9A.2-17		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
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
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Moderate				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4560		description: Chilled Water B		building code occupancy classification: F-1		
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASHRAE 15		electrical classification: N/A		
DCD Fig: 9A.2-16 9A.2-17		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
28000	4560	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
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Moderate				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4651		description: Water Tanks A		building code occupancy classification: F-1		
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig: 9A.2-17		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
33000	4651	Cable insulation Class IIIB lubricants	Area-wide ionization	Manual pulls (outside stairwells at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Minor				

Table 9A5-4, Turbine Building (Cont.)

Fire Area: F4661		description: Water Tanks B				
Building: Turbine		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-17		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
3300 0	4661	Cable insulation Class IIIB lubricants	Area-wide ionization	Manual pulls (outside stairwells at each landing)	Hose racks (in nearby stairwells)	ABC fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Minor				

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

Fire Area:	F6102	description:	Electrical Equipment			
Building:	Radwaste		applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		
DCD Fig: 9A.2-20 9A.2-21						building code occupancy classification:
					electrical classification:	N/A
				contains safe shutdown divisional equipment or cables:		N/A
		surrounded by fire barriers rated at:		3 hours		
		except:		basemat (non-rated); elevator doors (1.5 hr rated); exterior underground walls (non-rated)		
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-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, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:	None; restoration required before handling radwaste					
Radiological release:	None, no radiological materials present					
Life safety:	Travel distance limits to EXITS meet NFPA 101					
Manual firefighting:	Access via stairwells					
Property loss:	Moderate					

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

Fire Area: F6190		description: Elevator		building code occupancy classification: F-1		
Building: Radwaste		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804; ASME A17.1		electrical classification: N/A		
DCD Fig:		contains safe shutdown divisional equipment or cables:		N/A		
9A.2-20		surrounded by fire barriers rated at: 3 hours		except: basemat (non-rated); elevator doors (1.5 hr rated)		
9A.2-21						
9A.2-22						
9A.2-23						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-9350	6190	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)
13650	6580	Class IIIB lubricants Cable insulation Electrical equipment			CO2 fire extinguisher (outside room)	
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via stairwells and hoistway doors				
Property loss:		Negligible				

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

Fire Area: F6191		description: Stairwell A				
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: N/A		
9A.2-21				contains safe shutdown divisional equipment or cables: N/A		
9A.2-22		surrounded by fire barriers rated at: 3 hours				
9A.2-23		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-9350	6191	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-2350						
4650						
10650						
13650						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				

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

Fire Area:	F6192	description:	Stairwell B			
Building:	Radwaste	applicable codes:	IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804			
DCD Fig:	9A.2-20 9A.2-21 9A.2-22 9A.2-23			building code occupancy classification:	F-1	
				electrical classification:	N/A	
			contains safe shutdown divisional equipment or cables:			N/A
			surrounded by fire barriers rated at:	3 hours		
		except:	basemat (non-rated)			
consisting of the following Rooms:		Fire Detection		Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-9350	6192	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-2350						
4650						
10650						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:	None					
Radiological release:	None, no radiological materials present					
Life safety:	Travel distance limits to EXITS meet NFPA 101					
Manual firefighting:	Access via exterior and interior doors					
Property loss:	Negligible					
						Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.

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

Fire Area: F6193		description: Stairwell C				
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: N/A		
9A.2-21				contains safe shutdown divisional equipment or cables: N/A		
9A.2-22		surrounded by fire barriers rated at: 3 hours				
9A.2-23		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-9350	6193	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-2350						
4650						
10650						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				

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

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: N/A		
9A.2-21				contains safe shutdown divisional equipment or cables: N/A		
9A.2-22		surrounded by fire barriers rated at: 3 hours				
9A.2-23		except: basemat (non-rated)				
9A.2-24						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-9350	6194	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
-2350						
4650						
10650						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				

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

Fire Area: F6270		description: Radwaste Control Room Complex	
Building: Radwaste		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804	
DCD Fig: 9A.2-21 9A.2-22		building code occupancy classification: B	
		electrical classification: N/A	
		contains safe shutdown divisional equipment or cables: N/A	
		surrounded by fire barriers rated at: 3 hours	
		except: elevator doors (1.5 hr rated); basemat for 6287 (non-rated)	
		interior fire barriers rated at: 1 hours	
		around surrounding room 6270	
consisting of the following Rooms:			
EL	Room #	Potential Combustibles	Fire Detection Primary Secondary
			Fire Suppression Primary Secondary
-2350	6270	Electrical equipment Cable insulation Class A combustibles	Area-wide ionization Manual pulls (outside stairwells at each landing)
	6270 below raised floor	Cable insulation	CO2 fire extinguishers Hose racks (in nearby stairwells)
	6287	Electrical equipment Cable insulation	Hose racks (in nearby stairwells) ABC fire extinguishers
4650	6382	Class A combustibles Transient combustibles	
		< 1400	Anticipated combustible load, MJ/m ²
		1400	Unsprinklered combustible load limit, MJ/m ²
Assuming operation of fire suppression systems, effect of fire upon:			
Plant operation:		None; restoration required before handling radwaste	
Radiological release:		None, no radiological materials present	
Life safety:		Travel distance limits to EXITS meet NFPA 101	
Manual firefighting:		Access via stairwells	
Property loss:		Moderate	
Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.			

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

Fire Area: F6290		description: Stairwell E				
Building: Radwaste		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-21 9A.2-22 9A.2-23		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-2350	6290	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
4650						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				

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

Fire Area: F6301		description: HVAC Equipment				
Building: Radwaste		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804				
DCD Fig: 9A.2-22 9A.2-23		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
surrounded by fire barriers rated at: 3 hours		except: elevator doors (1.5 hr rated)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	6380	Class IIIB lubricants Cable insulation Filter media	Area-wide ionization	Manual pulls (outside stairwells at each landing)	Hose racks	ABC fire extinguishers
10650	6480					
	6490	Insulation				
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None; restoration required before handling radwaste				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Minor				

Table 9A.5-6, Electrical Building

Fire Area: F5100		description: Corridors		building code occupancy classification: F-1		
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 90A, 101, 804		electrical classification: N/A		
DCD Fig:		contains safe shutdown divisional equipment or cables: N/A		surrounded by fire barriers rated at: 3 hours		
9A.2-25		except: basemat (non-rated); elevator doors (1.5 hr rated)				
9A.2-26						
9A.2-27						
9A.2-30						
9A.2-31						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5100, 5101, 5102, 5189	Cable insulation	Area-wide ionization	Manual pulls (at EXITs)	Hose racks (in nearby stairwells)	ABC fire extinguishers
9080	5200					
13000	5300, 5391					
18000	5400					
22000	5500					
27000	5600					
30000	5702					
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:	None					
Radiological release:	None, no radiological materials present					
Life safety:	Travel distance limits to EXITs meet NFPA 101					
Manual firefighting:	Access via doors					
Property loss:	Negligible					

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

Fire Area: F5150		description: Batteries A				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-25 9A.2-26		building code occupancy classification: F-1 per IBC 302.1.1	electrical classification: N/A			
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:						
		Fire Detection		Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5150	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)
	5151	11,040 L of battery acid Battery cell cases Cable insulation				
	5152	13,680 L of battery acid Battery cell cases Cable insulation				
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Moderate				

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

Fire Area: F5154		description: Diesel Generator A				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804				
DCD Fig: 9A.2-25 9A.2-26 9A.2-27		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5154	Cable insulation Class IIIB lubricants Class II fuel oil	Cross-zoned UV/IR and spot heat	Suppression flowswitch	Preaction foam sprinkler 10.2 L/min per m ²	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Significant				
Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.						

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

Fire Area: F5255		description: Day Tank A				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804				
DCD Fig: 9A.2-25 9A.2-26		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
8000	5255	Cable insulation Class IIIB lubricants 20,000L Class II fuel oil	Cross-zoned UV/IR and spot heat	Suppression flowswitch	Preaction foam deluge 16.3 L/min per m ²	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Moderate				

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

Fire Area: F5156		description: DG Electrical Equipment A				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-25 9A.2-26		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5156	Electrical equipment Cable insulation Class IIIB lubricants	Area-wide ionization	Manual pulls (at EXITs)	CO2 fire extinguishers	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Moderate				
Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.						

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

Fire Area: F5160		description: Batteries B				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-25 9A.2-26		building code occupancy classification: F-1 per IBC 302.1.1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles and Hazards	Primary	Secondary	Primary	Secondary
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	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Moderate				

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

Fire Area: F5164		description: Diesel Generator B				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804				
DCD Fig: 9A.2-25 9A.2-26 9A.2-27		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5164	Cable insulation Class IIIB lubricants Class II fuel oil	Cross-zoned UV/IR and spot heat	Suppression flowswitch	Preaction foam sprinkler 10.2 L/min per m ²	Hose racks (in nearby stairwell)
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Significant				
Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.						

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

Fire Area: F5265		description: Day Tank B				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804				
DCD Fig: 9A.2-25 9A.2-26		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
8000	5265	Cable insulation Class IIIB lubricants 20,000L Class II fuel oil	Cross-zoned UV/IR and spot heat	Suppression flowswitch	Preaction foam deluge 16.3 L/min per m ²	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Moderate				

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

Fire Area: F5166		description: DG Electrical Equipment B				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-25 9A.2-26		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5166	Electrical equipment Cable insulation Class IIIB lubricants	Area-wide ionization	Manual pulls (at EXITs)	CO2 fire extinguishers	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Moderate				
Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.						

Table 9A.5-6, Electrical Building (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: 9A.2-25 9A.2-26		building code occupancy classification: B				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection			
			Fire Suppression			
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5180, 5181A, 5181B, 5181C, 5181D, 5182A, 5182B, 5183, 5184, 5185, 5186A, 5186B, 5187	Computer equipment Furniture Cable insulation Class A combustibles Transient combustibles	Suppression flowswitch	Manual pulls (at EXITs)	Wet-pipe sprinkler 4.1 L/min per m ² over most remote 140 m ²	Hose racks (in nearby stairwells)
	above ceiling	Insulation	Area-wide ionization		Class ABC fire extinguishers	
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Minor				

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

Fire Area: F5188		description: Fire Protection Equipment				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 15, 16, 72, 101, 804				
DCD Fig: 9A.2-25 9A.2-26		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5188	Cable insulation Class IIIB lubricants	Area-wide ionization	Manual pulls (at EXITs)	Hose racks (in nearby stairwells)	ABC fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via door				
Property loss:		Minor				

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

Fire Area: F5190		description: Elevator A				
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		electrical classification: N/A				
9A.2-26		contains safe shutdown divisional equipment or cables: N/A				
9A.2-27		surrounded by fire barriers rated at: 3 hours				
9A.2-30		except: basemat (non-rated); elevator doors (1.5 hr rated)				
9A.2-31						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
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			CO2 fire extinguisher	
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells and hoistway doors				
Property loss:		Negligible				

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

Fire Area: F5191		description: Stairwell A				
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: N/A		
9A.2-26				contains safe shutdown divisional equipment or cables: N/A		
9A.2-27						
9A.2-30		surrounded by fire barriers rated at: 3 hours				
9A.2-31		except: basemat (non-rated); elevator doors (1.5 hr rated)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5191	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
9800						
13000						
18000						
22000						
27000						
30000						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				
Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.						

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

Fire Area: F5192		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		electrical classification: N/A				
9A.2-26		contains safe shutdown divisional equipment or cables: N/A				
9A.2-27		surrounded by fire barriers rated at: 3 hours				
9A.2-30		except: basemat (non-rated); elevator doors (1.5 hr rated)				
9A.2-31						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
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			CO2 fire extinguisher	
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells and hoistway doors				
Property loss:		Negligible				

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

Fire Area: F5193		description: Stairwell B				
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:	N/A	
9A.2-26				contains safe shutdown divisional equipment or cables:	N/A	
9A.2-27		surrounded by fire barriers rated at:		3 hours		
9A.2-30		except:		basemat (non-rated)		
9A.2-31						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5193	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
9800						
13000						
18000						
22000						
27000						
30000						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				
Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.						

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

Fire Area: F5194		description: Stairwell C				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-25 9A.2-26		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-2000	5194	None	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks	ABC fire extinguishers
1300						
4650						
		negligible	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via exterior and interior doors				
Property loss:		Negligible				

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

Fire Area: F5250		description: Lower Cable Spreading A				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804				
DCD Fig: 9A.2-26 9A.2-27		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
9800	5250	Cable insulation	Suppression flowswitch	Manual pulls (at EXITs)	Wet-pipe sprinkler 12.2 L/min per m ² over most remote 235 m ²	Hose racks (in nearby stairwells)
		> 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Moderate				

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

Fire Area: F5260		description: Lower Cable Spreading B				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804				
DCD Fig: 9A.2-26 9A.2-27		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5163	Cable insulation	Suppression flowswitch	Manual pulls (at EXITs)	Wet-pipe sprinkler 12.2 L/min per m ² over most remote 235 m ²	Hose racks (in nearby stairwells)
9800	5260					
		> 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Moderate				

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

Fire Area: F5301		description: Battery C				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-27 9A.2-28		building code occupancy classification: F-1 per IBC 302.1.1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles and Hazards	Primary	Secondary	Primary	Secondary
13000	5301	5520 L of battery acid Battery cell cases Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Moderate				
						Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.

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

Fire Area: F5302		description: Electrical Equipment C				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-27 9A.2-28		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
13000	5302	Electrical equipment Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Moderate				

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

Fire Area: F5303		description: Electronic Equipment		building code occupancy classification: F-1		
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig: 9A.2-27 9A.2-28		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
13000	5303 below floor	Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
13400	5303	Electrical equipment Cable insulation				
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Moderate				

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

Fire Area: F5350		description: Lower Electrical Equipment A				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-27 9A.2-28		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
13000	5350	Electrical equipment Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Significant				

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

Fire Area: F5360		description: Lower Electrical Equipment B				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-27 9A.2-28		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
13000	5360	Electrical equipment Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Significant				

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

Fire Area: F5450		description: Upper Cable Spreading A				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804				
DCD Fig: 9A.2-28 9A.2-29		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
except: N/A						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5153	Cable insulation	Suppression flowswitch	Manual pulls (at EXITs)	Wet-pipe sprinkler 12.2 L/min per m ² over most remote 235 m ²	Hose racks (in nearby stairwells)
18000	5450					
		> 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Moderate				

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

Fire Area: F5460		description: Upper Cable Spreading B				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804				
DCD Fig: 9A.2-28 9A.2-29		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
18100	5460	Cable insulation	Suppression flowswitch	Manual pulls (at EXITs)	Wet-pipe sprinkler 12.2 L/min per m ² over most remote 235 m ²	Hose racks (in nearby stairwells)
		> 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Moderate				

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

Fire Area: F5550		description: Upper Electrical Equipment A				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-29 9A.2-30		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
22000	5550	Electrical equipment Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Significant				

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

Fire Area: F5560		description: Upper Electrical Equipment B				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 72, 101, 804				
DCD Fig: 9A.2-29 9A.2-30		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: N/A				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
22000	5560	Electrical equipment Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	CO2 fire extinguishers	Hose racks (in nearby stairwell)
		< 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via doors				
Property loss:		Significant				

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

Fire Area: F5650		description: HVAC Equipment A		building code occupancy classification: F-1		
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 15, 72, 90A, 101, 804		electrical classification: N/A		
DCD Fig:		contains safe shutdown divisional equipment or cables:		surrounded by fire barriers rated at: 3 hours		
9A.2-25 9A.2-29		except: N/A				
9A.2-26 9A.2-30						
9A.2-27 9A.2-31						
9A.2-28						
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5290A, 5291A	Insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks (at stairwells)	ABC fire extinguishers
27000	5650, 5651, 5652, 5653	Class IIIB lubricants Cable insulation Filter media Insulation				
	Charcoal Filter 5653	Charcoal	HVAC temperature indication		Internal manual spray	Hose racks (at stairwells)
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via interior doors				
Property loss:		Moderate				

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

Fire Area: F5660		description: HVAC Equipment B				
Building: Electrical		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 14, 15, 72, 90A, 101, 804				
DCD Fig:		building code occupancy classification: F-1				
9A.2-25	9A.2-29	electrical classification: N/A				
9A.2-26	9A.2-30	contains safe shutdown divisional equipment or cables: N/A				
9A.2-27	9A.2-31	surrounded by fire barriers rated at: 3 hours				
9A.2-28		except: N/A				
consisting of the following Rooms:						
			Fire Detection			
			Fire Suppression			
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	5290B, 5291B	Insulation	Area-wide ionization	Manual pulls (outside stairwell at each landing)	Hose racks (at stairwells)	ABC fire extinguishers
27000	5660, 5661, 5662, 5663	Class IIIB lubricants Cable insulation Filter media Insulation				
	Charcoal Filter 5663	Charcoal	HVAC temperature indication		Internal manual spray	Hose racks (at stairwells)
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via interior doors				
Property loss:		Moderate				

Table 9A.5-7, Yard

Fire Area: F4201		description: Lube Oil Storage		building code occupancy classification: U		
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 30, 804		electrical classification: N/A		
DCD Fig: 1.1-1		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: none				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		191,000 L Class IIIB lubricating oil	LO system instrumentation	Manual pull	Hydrants	ABC fire extinguishers
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None; restoration required before LO outage				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		Access from north and south sides				
Property loss:		Moderate				

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

Fire Area: F4202		description: Hydrogen Storage		building code occupancy classification: U		
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 50A, 497, 804		electrical classification: N/A		
DCD Fig: 1.1-1		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at: none				
		except: N/A				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		140 m ³ hydrogen	HY system instrumentation	Manual pull	Hydrant	ABC fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		Turbine power reduction (due to loss of HY makeup)				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		Access all around				
Property loss:		Moderate				

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

Fire Area: F4251		description: Feedpump ASD Transformer A				
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 15, 72, 804				
DCD Fig: 9A.2-25		building code occupancy classification: U				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated); north side (open); top (open)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		< 4000 L Class IIIA insulating mineral oil (~15 MVA)	Transformer instrumentation	None	Hydrants	CO2 fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None (turbine operates at 100% w/ 3 FW pumps)				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		Access via open north side				
Property loss:		Moderate				

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

Fire Area: F4252		description: Feedpump ASD Transformer C				
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 15, 72, 804				
DCD Fig: 9A.2-25		building code occupancy classification: U				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated); north side (open); top (open)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		< 4000 L Class IIIA insulating mineral oil (~15 MVA)	Transformer instrumentation	None	Hydrants	CO2 fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None (turbine operates at 100% w/ 3 FW pumps)				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		Access via open north side				
Property loss:		Moderate				

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

Fire Area:	F4261	description:	Feedpump ASD Transformer B			
Building:	Yard		applicable codes:	IBC; Reg Guide 1.189; NFPA 15, 72, 804		
DCD Fig: 9A.2-25			building code occupancy classification:		U	
			electrical classification:		N/A	
		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at:		3 hours		
		except:		basemat (non-rated); north side (open); top (open)		
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		< 4000 L Class IIIA insulating mineral oil (~15 MVA)	Transformer instrumentation	None	Hydrants	CO2 fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:	None (turbine operates at 100% w/ 3 FW pumps)					
Radiological release:	None, no radiological materials present					
Life safety:	N/A					
Manual firefighting:	Access via open north side					
Property loss:	Moderate					

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

Fire Area: F4262		description: Feedpump ASD Transformer D				
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 15, 72, 804				
DCD Fig: 9A.2-25		building code occupancy classification: U				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated); north side (open); top (open)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		< 4000 L Class IIIA insulating mineral oil (~15 MVA)	Transformer instrumentation	None	Hydrants	CO2 fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None (turbine operates at 100% w/ 3 FW pumps)				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		Access via open north side				
Property loss:		Moderate				

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

Fire Area: F4271		description: Main Transformer Phase A				
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 15, 72, 804				
DCD Fig: 9A.2-13 9A.2-14		building code occupancy classification: U				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated); north side (open); top (open)				
consisting of the following Rooms:			Fire Detection			
			Fire Suppression			
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		>18,900 L Class IIIA insulating mineral oil (~625 MVA)	Dry-pilot heat around transformer	Transformer instrumentation	Dry-pilot deluge 10.2 L/min per m ² on all surfaces	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		Turbine trip; outage required to replace MT w/ ST				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		Access via open north side				
Property loss:		Significant				

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

Fire Area: F4272		description: Main Transformer Phase B				
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 15, 72, 804				
DCD Fig: 9A.2-13 9A.2-14		building code occupancy classification: U				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated); north side (open); top (open)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		>18,900 L Class IIIA insulating mineral oil (~625 MVA)	Dry-pilot heat around transformer	Transformer instrumentation	Dry-pilot deluge 10.2 L/min per m ² on all surfaces	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		Turbine trip; outage required to replace MT w/ ST				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		Access via open north side				
Property loss:		Significant				

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

Fire Area: F4273		description: Main Transformer Phase C				
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 15, 72, 804				
DCD Fig: 9A.2-13 9A.2-14		building code occupancy classification: U				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated); north side (open); top (open)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		>18,900 L Class IIIA insulating mineral oil (~625 MVA)	Dry-pilot heat around transformer	Transformer instrumentation	Dry-pilot deluge 10.2 L/min per m ² on all surfaces	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		Turbine trip; outage required to replace MT w/ ST				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		Access via open north side				
Property loss:		Significant				

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

Fire Area: F4274		description: Spare Main Transformer	
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 15, 72, 804	
DCD Fig: 9A.2-13 9A.2-14		building code occupancy classification: U	
		electrical classification: N/A	
		contains safe shutdown divisional equipment or cables: N/A	
		surrounded by fire barriers rated at: 3 hours only on east side	
		except:	
consisting of the following Rooms:			Fire Detection
EL	Room #	Potential Combustibles	Fire Suppression
			Primary Secondary Primary Secondary
4650		none (transformer maintained dry) (~625 MVA)	None None Hydrants ABC fire extinguishers
		negligible	Anticipated combustible load, MJ/m ² Unsprinklered combustible load limit, MJ/m ²
		700	
Assuming operation of fire suppression systems, effect of fire upon:			
Plant operation:		None	
Radiological release:		None, no radiological materials present	
Life safety:		N/A	
Manual firefighting:		Access via all sides except east	
Property loss:		Moderate	
Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.			

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

Fire Area: F5157		description: Reserve Auxiliary Transformer A				
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 15, 72, 804				
DCD Fig: 9A.2-25 9A.2-26		building code occupancy classification: U				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated); north side (open); top (open)				
consisting of the following Rooms:			Fire Detection			
			Fire Suppression			
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		>18,900 L Class IIIA insulating mineral oil (~105 MVA)	Dry-pilot heat around transformer	Transformer instrumentation	Dry-pilot deluge 10.2 L/min per m ² on all surfaces	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		Access via open north side				
Property loss:		Significant				

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

Fire Area: F5158		description: Unit Auxiliary Transformer A				
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 15, 72, 804				
DCD Fig: 9A.2-25 9A.2-26		building code occupancy classification: U	electrical classification: N/A			
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated); north side (open); top (open)				
consisting of the following Rooms:						
		Fire Detection		Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		>18,900 L Class IIIA insulating mineral oil (~105 MVA)	Dry-pilot heat around transformer	Transformer instrumentation	Dry-pilot deluge 10.2 L/min per m ² on all surfaces	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		Access via open north side				
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; NFPA 11, 16, 30, 72, 804				
DCD Fig: 1.1-1		building code occupancy classification: U				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: none				
		except: N/A				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		~756,000 L Class II fuel oil	Spot heat inside tank	UV/IR fire detection inside tank	Automatic foam surface cross-zoned deluge 6.5 L/min per m ²	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		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; NFPA 15, 72, 804				
DCD Fig: 9A.2-25 9A.2-26		building code occupancy classification: U				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated); north side (open); top (open)				
consisting of the following Rooms:			Fire Detection			
			Fire Suppression			
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		>18,900 L Class IIIA insulating mineral oil (~105 MVA)	Dry-pilot heat around transformer	Transformer instrumentation	Dry-pilot deluge 10.2 L/min per m ² on all surfaces	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		Access via open north side				
Property loss:		Significant				

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

Fire Area: F5168		description: Unit Auxiliary Transformer B				
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 15, 72, 804				
DCD Fig: 9A.2-25 9A.2-26		building code occupancy classification: U	electrical classification: N/A			
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated); north side (open); top (open)				
consisting of the following Rooms:						
		Fire Detection		Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		>18,900 L Class IIIA insulating mineral oil (~105 MVA)	Dry-pilot heat around transformer	Transformer instrumentation	Dry-pilot deluge 10.2 L/min per m ² on all surfaces	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		Access via open north side				
Property loss:		Significant				

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

Fire Area: F5169		description: Fuel Oil Storage B				
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 11, 16, 30, 72, 804				
DCD Fig: 1.1-1		building code occupancy classification: U				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: none				
		except: N/A				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650		~756,000 L Class II fuel oil	Spot heat inside tank	UV/IR fire detection inside tank	Automatic foam surface cross-zoned deluge 6.5 L/min per m ²	Hydrants
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		N/A				
Manual firefighting:		Access all around				
Property loss:		Moderate				

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

Fire Area: F7150		description: Diesel Fire Pump C	
Building: Yard		applicable codes: IBC; Reg Guide 1.189; NFPA 13, 10, 20, 30, 72, 90A, 101, 804	
DCD Fig: 1.1-1		building code occupancy classification: H-3	
		electrical classification: N/A	
		contains safe shutdown divisional equipment or cables: N/A	
		surrounded by fire barriers rated at: 3 hours	
		except: exterior walls (non-rated), roof (non-rated)	
consisting of the following Rooms:			Fire Detection
EL	Room #	Potential Combustibles	Fire Suppression
			Primary Secondary
4650	7150	< 2500 L Class IB fuel Class IIIB lubricants Cable insulation	Primary Secondary Suppression flowswitch Manual pull Wet-pipe sprinkler 12.2 L/min per m ² Hydrant
		> 700	Anticipated combustible load, MJ/m ²
		700	Unsprinklered combustible load limit, MJ/m ²
Assuming operation of fire suppression systems, effect of fire upon:			
Plant operation:		None	
Radiological release:		None, no radiological materials present	
Life safety:		Travel distance limits to EXITS meet NFPA 101	
Manual firefighting:		Access via door	
Property loss:		Minor	
Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.			

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

Fire Area: F8151		description: Breathing Air Storage A	
Building: EBAS Structure		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 72, 90A, 101, 804	
DCD Fig: 9A.2-3 9A.2-4		building code occupancy classification: F-1	
		electrical classification: N/A	
		contains safe shutdown divisional equipment or cables: I	
		surrounded by fire barriers rated at: 3 hours	
		except: basemat (non-rated), exterior walls (non-rated)	
consisting of the following Rooms:			Fire Detection
Potential Combustibles			Fire Suppression
EL	Room #	Potential Combustibles	Primary Secondary
-7400	8151	Class IIIB lubricants Cable insulation	Area-wide ionization Manual pulls (outside stairwell) Hose racks (in nearby stairwell) ABC fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²
		700	Unsprinklered combustible load limit, MJ/m ²
Assuming operation of fire suppression systems, effect of fire upon:			
Plant operation:		None	
Radiological release:		None, no radiological materials present	
Life safety:		Travel distance limits to EXITs meet NFPA 101	
Manual firefighting:		Limited Access via hatches	
Property loss:		Minor	
Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division I emergency breathing air; remaining two divisions of breathing air are unaffected by fire and are operable.			

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

Fire Area: F8152		description: Breathing Air Storage B				
Building: EBAS Structure		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 72, 90A, 101, 804				
DCD Fig: 9A.2-3 9A.2-4		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: II				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated), exterior walls (non-rated)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-7400	8152	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	Hose racks (in nearby stairwell)	ABC fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area results in loss of only Division II emergency breathing air; remaining two divisions of breathing air are unaffected by fire and are operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Limited Access via hatches				
Property loss:		Minor				

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

Fire Area: F8153		description: Breathing Air Storage C				
Building: EBAS Structure		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 72, 90A, 101, 804				
DCD Fig: 9A.2-3 9A.2-4		building code occupancy classification: F-1				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: III				
		surrounded by fire barriers rated at: 3 hours				
		except: basemat (non-rated), exterior walls (non-rated)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-7400	8153	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pulls (outside stairwell)	Hose racks (in nearby stairwell)	ABC fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITS meet NFPA 101				
Manual firefighting:		Limited Access via hatches				
Property loss:		Minor				
Complete burnout of all equipment and cables within this Fire Area results in loss of only Division III emergency breathing air; remaining two divisions of breathing air are unaffected by fire and are operable.						

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

Fire Area:		F8250		description:		Electric Firepump A						
Building:		Fire Pump Enclosure		applicable codes:		IBC; Reg Guide 1.189; NFPA 10, 20, 72, 90A, 101, 804						
DCD Fig:		9A.2-4		building code occupancy classification:		F-1						
				electrical classification:		N/A						
				contains safe shutdown divisional equipment or cables:		N/A						
				surrounded by fire barriers rated at:		3 hours						
				except:		exterior walls (non-rated), roof (non-rated)						
consisting of the following Rooms:			Fire Detection		Fire Suppression							
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary						
4650	8250	Class IIIB lubricants Cable insulation	Area-wide ionization	Manual pull	CO2 fire extinguisher	Hydrant						
		<table border="1"> <tr> <td>< 700</td> <td>Anticipated combustible load, MJ/m²</td> </tr> <tr> <td>700</td> <td>Unsprinklered combustible load limit, MJ/m²</td> </tr> </table>		< 700	Anticipated combustible load, MJ/m ²	700	Unsprinklered combustible load limit, MJ/m ²	Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:				
< 700	Anticipated combustible load, MJ/m ²											
700	Unsprinklered combustible load limit, MJ/m ²											
Assuming operation of fire suppression systems, effect of fire upon:				Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.								
Plant operation:		None										
Radiological release:		None, no radiological materials present										
Life safety:		Travel distance limits to EXITs meet NFPA 101										
Manual firefighting:		Access via door										
Property loss:		Minor										

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

Fire Area: F8260		description: Diesel Fire Pump B				
Building: Fire Pump Enclosure		applicable codes: IBC; Reg Guide 1.189; NFPA 13, 10, 20, 30, 72, 90A, 101, 804				
DCD Fig: 9A.2-4		building code occupancy classification: H-3				
		electrical classification: N/A				
		contains safe shutdown divisional equipment or cables: N/A				
		surrounded by fire barriers rated at: 3 hours				
		except: exterior walls (non-rated), roof (non-rated)				
consisting of the following Rooms:			Fire Detection	Fire Suppression		
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
4650	8260	< 2500 L Class IB fuel Class IIIB lubricants Cable insulation	Suppression flowswitch	Manual pull	Wet-pipe sprinkler 12.2 L/min per m ²	Hydrant
		> 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via door				
Property loss:		Minor				

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

Fire Area: F9101		description: Uncontrolled Access		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 90A, 101, 804		
Building: Tunnel		building code occupancy classification: F-1		electrical classification: N/A		
DCD Fig: 9A.2-3 9A.2-25		contains safe shutdown divisional equipment or cables: N/A		surrounded by fire barriers rated at: 3 hours		
		except: basemat (non-rated)				
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
-2000	9101	Cable insulation Class IIIB lubricants Class A combustibles Transient combustibles Insulation	Area-wide ionization	Manual pulls (at EXITs)	Hose racks	ABC fire extinguishers
		< 700	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		700	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None; will impede access into EB				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Minor				

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

Fire Area: F9150		description: Cable Tunnel A		building code occupancy classification: F-1		
Building: Tunnel		applicable codes: IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 101, 804		electrical classification: N/A		
DCD Fig: 9A.2-3 9A.2-4		contains safe shutdown divisional equipment or cables:		N/A		
		surrounded by fire barriers rated at:		3 hours		
		except:		N/A		
consisting of the following Rooms:			Fire Detection		Fire Suppression	
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary
1300	9150	Cable insulation	Area-wide ionization	Suppression flowswitch	Preaction sprinkler 12.2 L/min per m ² over most remote 235 m ²	Hose racks (in nearby stairwells)
		> 1400	Anticipated combustible load, MJ/m ²		Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.	
		1400	Unsprinklered combustible load limit, MJ/m ²			
Assuming operation of fire suppression systems, effect of fire upon:						
Plant operation:		None				
Radiological release:		None, no radiological materials present				
Life safety:		Travel distance limits to EXITs meet NFPA 101				
Manual firefighting:		Access via stairwells				
Property loss:		Minor				

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

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: 9A.2-3 9A.2-4		building code occupancy classification: F-1	electrical classification: N/A
		contains safe shutdown divisional equipment or cables: N/A	
		surrounded by fire barriers rated at: 3 hours	
		except: N/A	
consisting of the following Rooms:			
	Fire Detection		Fire Suppression
EL	Room #	Potential Combustibles	
		Primary	Secondary
1300	9160	Cable insulation	Area-wide ionization
			Suppression flowswitch
			Preaction sprinkler 12.2 L/min per m ² over most remote 235 m ²
			Hose racks (in nearby stairwells)
		> 1400	Anticipated combustible load, MJ/m ²
		1400	Unsprinklered combustible load limit, MJ/m ²
Assuming operation of fire suppression systems, effect of fire upon:			
Plant operation:	None		
Radiological release:	None, no radiological materials present		
Life safety:	Travel distance limits to EXITs meet NFPA 101		
Manual firefighting:	Access via stairwells		
Property loss:	Minor		
Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown: Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.			

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

Fire Area:		F9201		description:		Controlled Access						
Building:		Tunnel		applicable codes:		IBC; Reg Guide 1.189; NFPA 10, 13, 14, 72, 90A, 101, 804						
DCD Fig:		9A.2-4 9A.2-13		building code occupancy classification:		F-1						
				electrical classification:		N/A						
				contains safe shutdown divisional equipment or cables:		N/A						
				surrounded by fire barriers rated at:		3 hours						
				except:		basemat (non-rated); elevator doors (1.5 hr rated)						
consisting of the following Rooms:			Fire Detection		Fire Suppression							
EL	Room #	Potential Combustibles	Primary	Secondary	Primary	Secondary						
4650	9201	Cable insulation Class IIIB lubricants Class A combustibles Transient combustibles Insulation	Area-wide ionization	Manual pulls (at EXITs)	Hose racks	ABC fire extinguishers						
		<table border="1"> <tr> <td>< 700</td> <td>Anticipated combustible load, MJ/m²</td> </tr> <tr> <td>700</td> <td>Unsprinklered combustible load limit, MJ/m²</td> </tr> </table>		< 700	Anticipated combustible load, MJ/m ²	700	Unsprinklered combustible load limit, MJ/m ²	Assuming all fire suppression systems inoperable, effect of design basis fire on safe shutdown:				
< 700	Anticipated combustible load, MJ/m ²											
700	Unsprinklered combustible load limit, MJ/m ²											
Assuming operation of fire suppression systems, effect of fire upon:												
Plant operation:		None; will impede access into TB and RWB										
Radiological release:		None, no radiological materials present										
Life safety:		Travel distance limits to EXITs meet NFPA 101										
Manual firefighting:		Access via stairwells										
Property loss:		Minor										
					Complete burnout of all equipment and cables within this Fire Area affects no safe shutdown divisional equipment or circuits; all safe shutdown divisional equipment is operable.							

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. It is a COL licensee requirement to provide a detailed design with equivalent construction to tested wall assemblies when penetrating rated fire barriers or testing will be required. The COL licensee shall provide a reliable design for piping penetration in the Reactor Building with equivalent construction to tested wall assemblies when rated fire barriers testing is required.

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 fire water 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 and MSIV Closure 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 will 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.

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 will propagate 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
- 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 will occur 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.6.4.2 Main Steamline Tunnel Area Temperature and Radiation Monitoring

These divisional detectors are physically located in the MSL 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 will provide 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 will provide 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.6.4.3 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 conduit 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.6.4.4 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 279. 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.6.4.5 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 non-safety.

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 essential 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 essential 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 essential 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.6.4.6 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.6.4.7 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.6.4.8 Standby Liquid Control

The Standby Liquid Control System (SLC) is comprised of two independent trains. Each train is located entirely in one fire area, and as such a fire in one division will 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.6.4.9 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 non-safety 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 in 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.6.4.10 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 be 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.6.4.11 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 scrambling the reactor. The Safety System and Logic Control (SSL) automatically actuates the safety systems. The postulated fire assumes loss of all component functions in 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.6.5 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 proposed for these levels. This is acceptable for the following reasons:

- Noncombustible Type I-A concrete construction
- 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 ($<1400 \text{ MJ/m}^2$) 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 ($<700 \text{ MJ/m}^2$) within the nonsprinklered 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
- 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

Nonetheless, this “alternative method” of fire protection for underground portions of the Reactor, Control, and Fuel Buildings would require approval from the building code authority during the building permit process as allowed by Section 104.11 of the IBC. The COL licensee shall obtain approval from the appropriate authority having jurisdiction prior to construction for the “alternative method” of fire protection for underground portions of the Reactor, Control and Fuel Buildings.

9A.6.6 Lack of Fire Fighter Exterior Access Openings, without Sprinkler Protection

Section 903.2.10 of the International Building Code (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 proposed throughout these buildings. This is acceptable for the following reasons:

- Noncombustible Type I-A concrete construction
- 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/m²) 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) within the nonsprinklered 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
- 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
- Adding enough exterior openings to comply with Section 903.2.10 would impose an unacceptable security risk

Nonetheless, this “alternative method” of fire protection for nonsprinklered Reactor, Control, and Fuel Buildings would require approval from the building code authority during the building permit process as allowed by Section 104.11 of the IBC. The COL licensee shall obtain approval from the appropriate authority having jurisdiction prior to construction for the “alternative method” of fire protection for nonsprinklered Reactor, Control and Fuel Buildings involving lack of exterior access openings for fire department personnel.

9A.7 COL INFORMATION

9A.7.1 The COL applicant shall establish fire hazard design acceptance criteria for the Service Water Pump Building and Service Building (Refer to 9A.1).

- 9A.7.2 The COL applicant shall include drawings showing the fire area separation and fire protection features for the Yard Service Water Pump Building and Service Building (Refer to 9A.2.2).
- 9A.7.3 The COL applicant shall include fire zone drawings for those portions of the Yard except for that associated with Turbine and Electrical Building equipment (Refer to 9A.4.7).
- 9A.7.4 The COL applicant shall design the Service Water Pump Building fire protection features (Refer to 9A.4.8).
- 9A.7.5 The COL applicant shall design the Service Building fire protection features (Refer to 9A.4.9).
- 9A.7.6 The COL licensee shall provide reliable design for piping penetration in the Reactor Building with equivalent construction to tested wall assemblies when rated fire barriers testing is required (Refer to 9A.6.1).
- 9A.7.7 The COL licensee shall obtain approval from the appropriate authority having jurisdiction prior to construction for the “alternative method” of fire protection for underground portions of the Reactor, Control and Fuel Buildings (Refer to 9A.6.5).
- 9A.7.8 The COL licensee shall obtain approval from the appropriate authority having jurisdiction prior to construction for the “alternative method” of fire protection for nonsprinkled Reactor, Control and Fuel Buildings involving lack of exterior access openings for fire department personnel (Refer to 9A.6.6).