*** Underlined sections –Title only, no entry for design certification.**

**** Section number in parenthesis - Section under which the subject is covered**

Table 2.7.1a Main Control Room Panels Fixed Position Alarms, Displays and Controls (Continued)

A. Fixed Position Controls (Continued)		
ARI (B) Logic Reset Switch	RHR (A) Suppression Pool Cooling Mode Initiation Switch	Div. II ADS Manual ADS Channel 2 Initiation Switch
CRD Charging Water Pressure Low Scram Bypass Switch (A)	RHR (B) Suppression Pool Cooling Mode Initiation Switch	RCIC Div. I Isolation Logic Reset Switch
CRD Charging Water Pressure Low Scram Bypass Switch (B)	RHR (C) Suppression Pool Cooling Mode Initiation Switch	RCIC Div. II Isolation Logic Reset Switch
CRD Charging Water Pressure Low Scram Bypass Switch (C)	RHR (B) Primary Containment Vessel Spray Mode Initiation Switch	RCIC Inboard Isolation Control Switch
CRD Charging Water Pressure Low Scram Bypass Switch (D)	RHR (C) Primary Containment Vessel Spray Mode Initiation Switch	RCIC Outboard Isolation Control Switch
Manual Scram Reset Switch	SGTS (B) Initiation Switch	Fire Protection System Motor Pump Control Switch
RPS Div. I Trip Reset Switch	SGTS (C) Initiation Switch	Fire Protection System Diesel Pump Control Switch
RPS Div. II Trip Reset Switch	Div. I Manual ADS Channel 1 Initiation Switch	FCS (B) Control Switch
RPS Div. III Trip Reset Switch	Div. I Manual ADS Channel 2 Initiation Switch	FCS (C) Control Switch
RPS Div. IV Trip Reset Switch	Div. II Manual ADS Channel 1 Initiation Switch	

Table 2.7.1a Main Control Room Panels Fixed Position Alarms, Displays and Controls (Continued)

B. Fixed Position Displays		
RPV Water Level	RCIC Flow	SRV Positions
RCIC Turbine Speed	RCIC Injection Valve Status	Suppression Pool Level
Wetwell Pressure	HPCF (B) Injection Valve Status	Main Steamline Flow
Suppression Pool Bulk Average Temperature	HPCF (C) Injection valve status	SLC Boron Tank Water Level
HPCF (B) Flow	RHR (A) Flow	Recirculation Pump Speeds
HPCF (C) Flow	RHR (A) Injection Valve Status	Average Drywell Temperature
RPV Pressure	RHR (B) Flow	Wetwell Hydrogen Concentration Level
Drywell Pressure	RHR (B) Injection Valve Status	Drywell Hydrogen Concentration Level
Reactor Power Level, (Neutron Flux, APRM)	RHR (C) Flow	Drywell Oxygen Concentration
Reactor Power Level (SRNM)	RHR (C) Injection Valve Status	Wetwell Oxygen Concentration
Reactor Thermal Power	Emergency Diesel Generator (A) Operating Status	FCS (B) Operating Status
MSIV Position Status (Inboard And Outboard Valves)	Emergency Diesel Generator (B) Operating Status	FCS (C) Operating Status
Reactor Mode Switch Mode Indications	Emergency Diesel Generator (C) Operating Status	Main Stack Radiation Level
Main Steamline Radiation	Primary Containment Water Level	Time
Scram Solenoid Lights (8) Status	Condensate Storage Tank Water Level	Drywell Radiation Level
Manual Scram Switch (A) Indicating Light Status	SLC Pump (A) Discharge Pressure	Wetwell Radiation Level
Manual Scram Switch (B) Indicating Light Status	SLC Pump (B) Discharge Pressure	
RPV Isolation Status Display	Main Condenser Pressure	

2.8.1 Nuclear Fuel

Design Description

The fuel assembly is designed to ensure that possible fuel damage would not result in the release of radioactive materials in excess of prescribed limits. The fuel assembly is comprised of the fuel bundle, channel and channel fastener. The fuel bundle is comprised of fuel rods, water rods, fuel rods containing burnable neutron absorber, spacers, springs and assembly end fittings.

The following is a summary of the principal design requirements which must be met by the fuel and is evaluated using methods and criteria to assure that:

(1) Fuel rod failure is predicted to not occur as a result of normal operation and anticipated operational occurrences.

(2) Control rod insertion will not be prevented as a result of normal operation, anticipated operational occurrences or postulated accident.

(3) The number of fuel rod failures will not be underestimated for postulated accidents.

(4) Coolability will be maintained for all design basis events, including seismic and LOCA events.

(5) Specified acceptable fuel design limits (thermal and mechanical design limits) will not be exceeded during any condition of normal operation, including the effects of anticipated operational occurrences.

(6) In the power operating ranges, the prompt inherent nuclear feedback characteristics will tend to compensate for a rapid increase in reactivity.

(7) The reactor core and associated coolant, control and protection systems will be designed to assure that power oscillations which can result in conditions exceeding specified acceptable fuel design limits are not possible or can be reliably and readily detected and suppressed.

2.8.3 Control Rod

Design Description

Control rods in the reactor perform the functions of power distribution shaping, reactivity control, and scram reactivity insertion for safety shutdown response and have the following design features:

(1) A cruciform cross-sectional envelope shape.

(2) A coupling at the bottom for attachment to the control rod drive.

(3) Contain neutron absorbing materials.

The following is a summary of the principal design criteria which are met by the control rod:

(1) The control rod stresses, strains, and cumulative fatigue will be evaluated to not exceed the ultimate stress or strain of the material.

(2) The control rod will be evaluated to be capable of insertion into the core during design basis modes of operation including safe shutdown earthquake event combined with LOCA event.

(3) The material of the control rod will be compatible with the reactor environment.

(4) The reactivity worth of the control rods will be included in the plant core analyses, and will provide, under conditions of normal operation (including anticipated operational occurrences), appropriate margin for malfunctions such as two stuck rods (associated with a given accumulator), or accidental control rod withdrawal, without exceeding specified acceptable fuel design limits.

2.8.4 Loose Parts Monitoring System

Design Description

The Loose Parts Monitoring System (LPMS) monitors the reactor pressure vessel (RPV) for indications of loose metallic parts within the reactor pressure vessel. The LPMS detects structure borne sound that can indicate the presence of loose parts impacting against the reactor pressure vessel and internals. The system alarms when sensor signal characteristics exceeds preset limits.

The LPMS consists of sensors, cables, signal conditioning equipment, alarming monitors, signal analysis and data acquisition equipment. The LPMS processes signals from multiple sensors mounted on the external surfaces of the reactor coolant pressure boundary. The LPMS is classified as non-safety-related.

The LPMS has provisions for both automatic and manual startup of data acquistion equipment with automatic activation in the event the preset alert level is reached or exceeded. The system also initiates an alarm in the main control room when an alert condition is reached.

The LPMS electronic components located inside the primary containment perform their function following all seismic events which do not require plant shutdown.

Inspections, Tests, Analyses and Acceptance Criteria

Tables 2.8.4 provides a definition of the inspections, tests and/or analyses, together with associated acceptance criteria, which will be undertaken for LPMS.

Table 2.8.4 Loose Parts Monitoring System

Inspections, Tests, Analyses and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. Equipment comprising the LPMS is defined in Section 2.8.4.	1. Inspection of the as-built system will be conducted.	1. The as-built LPMS conforms with the description in Section 2.8.4.
2. The LPMS monitors the RPV for indication of loose metallic parts.	2. Tests will be conducted on the as-built LPMS.	2. The LPMS sensitivity, without the background noise associated with plant operation, is such that it can detect a metallic loose part that weighs from 0.11 kg to 13.6 kg and impacts with a maximum kinetic energy of 0.68 joules on the inside surface of the RPV within 0.91m of a sensor.
3. Main control room alarms provided for the LPMS are defined in Section 2.8.4.	3. Inspections will be performed on the main control room alarms for the LPMS.	3. Alarms exist or can be retrieved in the main control room as defined in Section 2.8.4.
4. The LPMS electronic components located inside the primary containment perform their function following all seismic events which do not require plant shutdown.	4. Analyses will be performed or tests will be conducted on the seismic capability of the LPMS electronic components located in the primary containment.	4. An analysis or test report exists which concludes that the LPMS electronic components located inside the primary containment perform their function following all seismic events which do not require plant shutdown.

2.12.1 Electrical Power Distribution System

Design Description

The AC Electrical Power Distribution (EPD) System consists of the transmission network (TN), the plant switching stations, the Main Power Transformer (MPT), the Unit Auxiliary Transformers (UAT), the Reserve Auxiliary Transformer(s) (RAT(s)), the plant main generator (PMG) output circuit breaker, the medium voltage metal-clad (M/C) switchgear, the low voltage power center (P/C) switchgear, and the motor control centers (MCCs). The distribution system also includes the power, instrumentation and control cables and bus ducts to the distribution system loads, and the protection equipment provided to protect the distribution system equipment. The EPD System within the scope of the Certified Design starts at the low voltage terminals of the MPT and the low voltage terminals of the RAT(s) and ends at the distribution system loads. Interface requirements for the TN, plant switching stations, MPT, and RAT(s) are specified below.

The plant EPD System can be supplied power from multiple power sources; these are independent transmission lines from the TN, the PMG, and the combustion turbine generator (CTG). In addition, the EPD System can be supplied from three onsite Class 1E Standby Power Sources (Emergency Diesel Generators (DGs)). The Class 1E portion of the EPD System is shown in Figure 2.12.1.

During plant power operation, the PMG supplies power through the PMG output circuit breaker through the MPT to the TN, and to the UATs. When the PMG output circuit breaker is open, power is backfed from the TN through the MPT to the UATs.

The UATs can supply power to the non-Class 1E load groups of medium voltage M/C power generation (PG) and plant investment protection (PIP) switchgear, and to the three Class 1E divisions (Division I, II, and III) of medium voltage M/C switchgear.

The RAT(s) can supply power to the non-Class 1E load groups of medium voltage M/C PG and PIP switchgear, and to the three Class 1E divisions (Division I, II, and III) of medium voltage M/C switchgear.

Non-Class 1E load groups of medium voltage M/C switchgear are supplied power from a UAT with an alternate power supply from a RAT. In addition, the non-Class 1E medium voltage M/C switchgear can be supplied power from the CTG.

Class 1E medium voltage M/C switchgear are supplied power directly (not through any bus supplying non-Class 1E loads) from at least a UAT or a RAT. Class 1E medium voltage M/C switchgear can also be supplied power from their own dedicated Class 1E DG or from the non-Class 1E CTG.

The UATs are sized to supply their load requirements, during design operating modes, of their respective Class 1E divisions and non-Class 1E load groups. UATs are separated from the RAT(s). In addition, UATs are provided with their own oil pit, drain, fire deluge system, grounding, and lightning protection system.

The PMG, its output circuit breaker, and UAT power feeders are separated from the RAT(s) power feeders. The PMG, its output circuit breaker, and UAT instrumentation and control circuits, are separated from the RAT(s) instrumentation and control circuits.

The MPT and its switching station instrumentation and control circuits, from the switchyard(s) to the main control room (MCR), are separated from the RAT(s) and its switching station instrumentation and control circuits.

The medium voltage M/C switchgear and low voltage P/C switchgear, with their respective transformers, and the low voltage MCCs are sized to supply their load requirements. M/C and P/C switchgear, with their respective transformers, and MCCs are rated to withstand fault currents for the time required to clear the fault from the power source. The PMG output circuit breaker, and power feeder and load circuit breakers for the M/C and P/C switchgear, and MCCs are sized to supply their load requirements and are rated to interrupt fault currents.

Class 1E equipment is protected from degraded voltage conditions.

EPD System interrupting devices (circuit breakers and fuses) are coordinated so that the circuit interrupter closest to the fault opens before other devices.

Instrumentation and control power for the Class 1E divisional medium voltage M/C switchgear and low voltage P/C switchgear is supplied from the Class 1E DC power system in the same division.

The PMG output circuit breaker is equipped with redundant trip devices which are supplied from separate, non-Class 1E DC power systems.

EPD System cables and bus ducts are sized to supply their load requirements and are rated to withstand fault currents for the time required to clear the fault from its power source.

For the EPD System, Class 1E power is supplied by three independent Class 1E divisions. Independence is maintained between Class 1E divisions, and also between Class 1E divisions and non-Class 1E equipment.

The only non-Class 1E loads connected to the Class 1E EPD System are the Fine Motion Control Rod Drives (FMCRDs) and the associated AC standby lighting system.

There are no automatic connections between Class 1E divisions.

2.12.14 Vital AC Power Supply

Design Description

The Vital AC Power Supply consists of Class 1E and non-Class 1E uninterruptible power supplies, and their respective alternating current (AC) distribution panels, power, and instrumentation and control cables to the distribution system loads. The AC distribution system also includes the protection equipment provided to protect the AC distribution equipment. The Class 1E Vital AC Power Supply connections to the Electrical Power Distribution (EPD) System and the Direct Current Power Supply are shown on Figure 2.12.14.

The Class 1E Vital AC Power Supply consists of four divisions (Division I, II, III, and IV) of uninterruptible power supplies with their respective distribution panels. Each Class 1E power supply provides uninterruptible, regulated AC power to Class 1E circuits which require continuity of power during a loss of preferred power (LOPP). Each Class 1E Vital AC Power Supply is a constant voltage constant frequency (CVCF) inverter power supply unit.

The non-Class 1E Vital AC Power Supply consists of uninterruptible power supplies with their respective distribution panels. Each non-Class 1E power supply provides uninterruptible, regulated AC power to non-Class 1E circuits which require continuity of power during a LOPP. Each non-Class 1E Vital AC Power Supply is a CVCF inverter power supply unit.

Each Class 1E CVCF unit has three input power sources. Except for the Division IV CVCF unit, the normal power to each Class 1E CVCF unit is supplied from an AC motor control center (MCC) in the same Class 1E division as the CVCF unit. The Division IV Class 1E CVCF unit is supplied AC power from a Division II AC MCC. The backup power for each Class 1E CVCF unit is supplied from the direct current (DC) battery in the same Class 1E division as the CVCF unit. In addition, each Class 1E CVCF unit contains an alternate power supply. The alternate power supply is supplied power from the same AC power source as the normal power supply.

Each Class 1E CVCF normal and backup power supply is synchronized, in both frequency and phase, with its alternate power supply and maintains continuity of power during transfer from the inverter to the alternate supply. Automatic transfer between each Class 1E CVCF unit's three power sources is provided. Manual transfer between each Class 1E CVCF unit power source is also provided.

Each Class 1E CVCF unit is sized to provide output power to its respective distribution panel loads. There are no automatic connections between Class 1E divisions.

Class 1E CVCF units and their respective distribution panels are identified according to their Class 1E division and are located in Seismic Category I structures and in their respective divisional areas. Independence is provided between Class 1E divisions, and also between Class 1E divisions and non-Class 1E equipment.

Class 1E Vital AC Power Supply system distribution panels and their circuit breakers and fuses are sized to supply their load requirements. Distribution panels are rated to withstand fault currents for the time required to clear the fault from its power source. Circuit breakers and fuses are rated to interrupt fault currents.

Class 1E Vital AC Power Supply system interrupting devices (circuit breakers and fuses) are coordinated so that the circuit interrupter closest to the fault opens before other devices.

Class 1E Vital AC Power Supply system cables are sized to supply their load requirements and are rated to withstand fault currents for the time required to clear the fault from its power source.

The Class 1E Vital AC Power Supply system supplies an operating voltage at the terminals of the Class 1E utilization equipment that is within the utilization equipment's voltage tolerance limits.

Class 1E Vital AC Power Supply system cables and raceways are identified according to their Class 1E division. Class 1E divisional cables are routed in Seismic Category I structures and in their respective divisional raceways.

The Class 1E Vital AC Power Supply has alarms for high and low CVCF unit output voltage and frequency in the main control room (MCR).

Class 1E equipment is classified as Seismic Category I.

Class 1E equipment which is located in areas designated as harsh environment areas is qualified for harsh environments.

Inspections, Tests, Analyses and Acceptance Criteria

Table 2.12.14 provides a definition of the inspections, tests, and/or analyses, together with associated acceptance criteria, which will be undertaken for the Vital AC Power Supply.

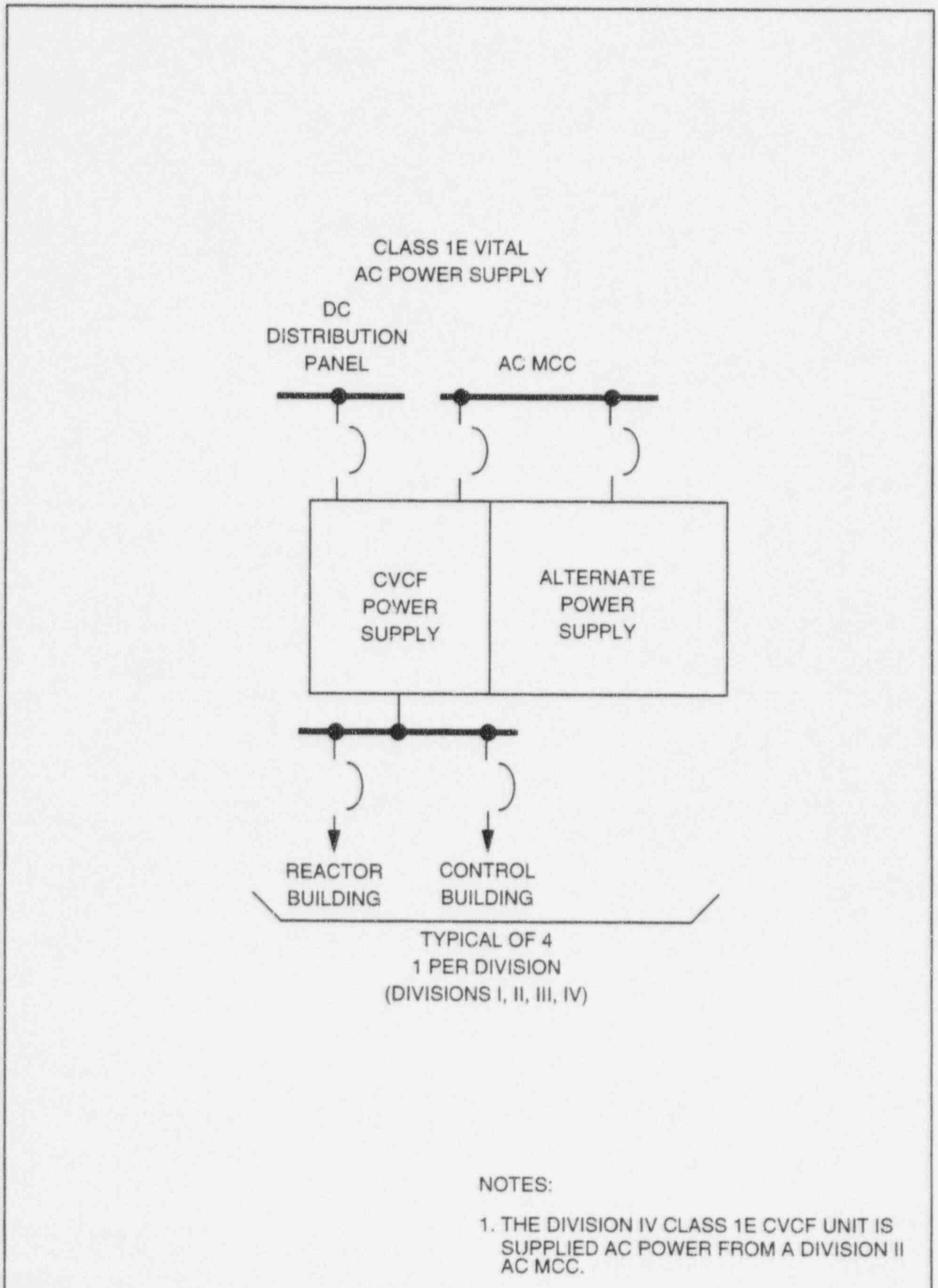


Figure 2.12.14 Vital AC Power Supply

Table 2.12.14 Vital AC Power Supply

Inspections, Tests, Analyses and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
1. The basic configuration of the Vital AC Power Supply is described in Section 2.12.14.	1. Inspections of the as-built system will be conducted.	1. The as-built Vital AC Power Supply conforms with the basic configuration described in Section 2.12.14.
2. Each Class 1E CVCF unit has three input power sources. Except for the Division IV CVCF unit, the normal power to each Class 1E CVCF unit is supplied from an AC MCC in the same Class 1E division as the CVCF unit. The Division IV Class 1E CVCF unit is supplied AC power from a Division II AC MCC. The backup power for each Class 1E CVCF unit is supplied from the DC battery in the same Class 1E division as the CVCF unit. In addition, each Class 1E CVCF unit contains an alternate power supply. The alternate power supply is supplied power from the same AC power source as the normal power supply.	2. Inspections of the as-built Class 1E Vital AC Power Supply system will be conducted.	2. Each as-built CVCF unit has three input power sources. Except for the Division IV CVCF unit, the normal power to each CVCF unit is supplied from an AC MCC in the same Class 1E division as the CVCF unit. The Division IV CVCF unit is supplied AC power from a Division II AC MCC. The backup power for each CVCF unit is supplied from the DC battery in the same Class 1E division as the CVCF unit. In addition, each Class 1E CVCF unit contains an alternate power supply. The alternate power supply is supplied power from the same AC power source as the normal power supply.
3. Automatic transfer between each Class 1E CVCF unit's three power sources is provided and maintains continuity of power during transfer from the inverter to the alternate supply. Manual transfer between each Class 1E CVCF unit power source is also provided.	3. Tests on each as-built Class 1E CVCF unit will be conducted by providing a test signal in one power source at a time. A test of the manual transfer will also be conducted.	3. Each as-built Class 1E CVCF unit automatically and manually transfers between the unit's three power sources and maintains continuity of power during transfer from the inverter to the alternate supply.
4. Each Class 1E CVCF unit is sized to provide output power to its respective distribution panel loads.	4. Analyses for each as-built Class 1E CVCF unit to determine the power requirements of its loads will be performed.	4. Analyses for each as-built Class 1E CVCF unit exist and conclude that each CVCF unit's capacity, as determined by its nameplate rating, exceeds its analyzed load requirements.

Table 2.14.6 Atmospheric Control System (Continued)

Inspections, Tests, Analyses and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
6. Main control room displays and controls provided for the AC System are as defined in Section 2.14.6.	6. Inspections will be performed on the main control room displays and controls for the AC System.	6. Displays and controls exist or can be retrieved in the main control room as defined in Section 2.14.6.
7. RSS displays provided for the AC System are as defined in Section 2.14.6.	7. Inspections will be performed on the RSS displays for the AC System.	7. Displays exist on the RSS as defined in Section 2.14.6.
8. The COPS pneumatic actuated valves shown on Figure 2.14.6 have active safety-related functions to both open and close, and perform these functions against a pressure of 0.72 MPa (absolute) ±5% and under fluid flow and temperature conditions.	8. Tests will be conducted in a test facility for both opening and closing under differential pressure, fluid flow and temperature conditions.	8. Upon receipt of an actuating signal, each valve both opens and closes.
9. The two valves in the containment overpressure protection system fail open on loss of pneumatic pressure or loss of electrical power to the valve actuating solenoid. The other pneumatic valves shown on Figure 2.14.6 fail closed on loss of pneumatic pressure or loss of electrical power to the valve actuating solenoids.	9. Tests will be conducted on the as-built AC System pneumatic valves.	9. The two valves in the containment overpressure protection system fail open on loss of pneumatic pressure or loss of electrical power to the valve actuating solenoid. The other pneumatic valves shown on Figure 2.14.6 fail closed on loss of pneumatic pressure or loss of electrical power to the valve actuating solenoids.

Fire dampers with fusible links in HVAC duct work close under air flow conditions.

The R/B Safety-Related Electrical Equipment HVAC System has the following displays and controls in the main control rooms:

(1) Controls and status indication for the active safety-related components shown on Figures 2.15.5f, 2.15.5g, and 2.15.5h.

(2) Parameter displays for the instruments shown on Figures 2.15.5f, 2.15.5g and 2.15.5h.

R/B Safety-Related Diesel Generator HVAC System

The R/B Safety-Related DG HVAC System provides ventilation for the DG rooms when the DGs operate, and consists of three independent divisions. Each division consists of a filter unit and two supply fans. Figure 2.15.5i shows the basic system configuration and scope.

The R/B Safety-Related DG HVAC System is classified as safety-related.

On receipt of a DG start signal, both DG supply fans start. When the DG is operating, the R/B Safety-Related DG HVAC System and the R/B Safety-Related Electrical Equipment HVAC System maintain the temperature below 50°C.

The R/B Safety-Related DG HVAC System is classified as Seismic Category I. The R/B Safety-Related DG HVAC System is located in the Reactor Building.

Each of the three divisions of the R/B Safety-Related DG HVAC System is powered from the respective Class 1E division as shown on Figure 2.15.5i. In the R/B Safety-Related DG HVAC System, independence is provided between Class 1E divisions, and also between the Class 1E divisions and non-Class 1E equipment.

Each mechanical division of the R/B Safety-Related DG HVAC System (Divisions A, B, C) is physically separated from the other divisions.

The R/B Safety-Related DG HVAC System has the following displays and controls in the main control room:

(1) Controls and status indication for the active safety-related components shown on Figure 2.15.5i.

R/B Secondary Containment HVAC System

The R/B Secondary Containment HVAC System provides heating and cooling for the secondary containment. Figure 2.15.5j shows the basic system configuration and scope.

Except for the secondary containment isolation dampers, the R/B Secondary Containment HVAC System is classified as non-safety-related.

Normal Operating Mode

In the normal operating mode, two supply fans and two exhaust fans operate. The supply fans operate only when the exhaust fans are operating.

The R/B Secondary Containment HVAC System maintains a negative pressure in the secondary containment relative to the outside atmosphere.

The R/B Secondary Containment HVAC System isolation dampers are closed upon receipt of an isolation signal from the Leak Detection System (LDS) or a signal indicating loss of secondary containment exhaust fans.

Smoke Removal Mode

The smoke removal mode is manually initiated by starting the standby exhaust and supply fans, opening the exhaust filter unit bypass dampers, and partially closing exhaust dampers for divisions not affected by fire.

The R/B Secondary Containment HVAC System penetrations of secondary containment and isolation dampers are classified as Seismic Category I. The R/B Secondary Containment HVAC System is located in the Reactor Building, except for some of the R/B secondary containment HVAC supply and exhaust air components which are located in the Turbine Building.

Each R/B Secondary Containment HVAC System isolation damper requiring electrical power is powered from the Class 1E division, as shown on Figure 2.15.5j. In the R/B Secondary Containment HVAC System, independence is provided between Class 1E divisions, and also between Class 1E divisions and non-Class 1E equipment.

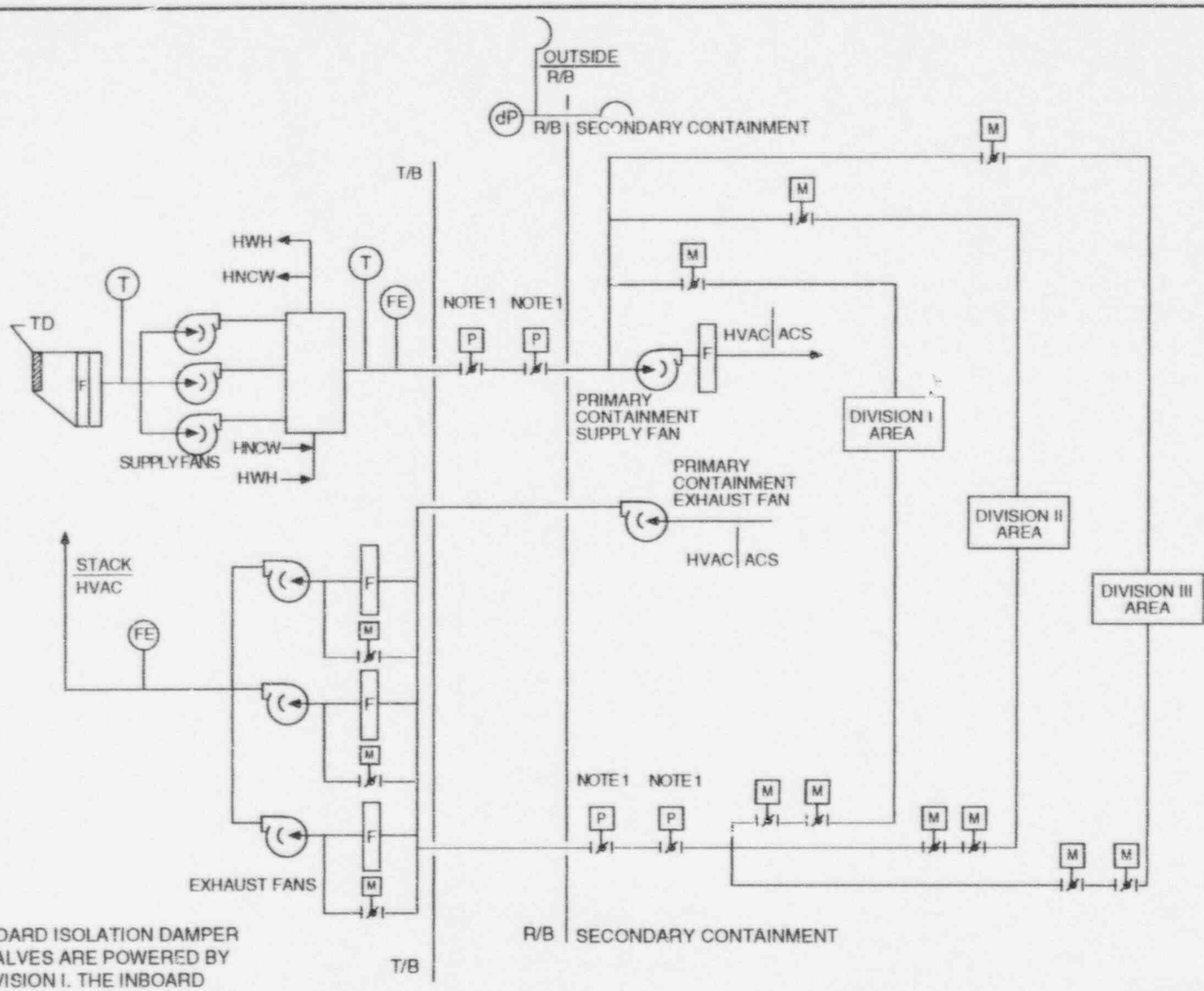
Fire dampers with fusible links in HVAC duct work close under air flow conditions.

The R/B Secondary Containment HVAC System has the following displays and controls in the main control room:

(1) Control and status indication for the active components shown on Figure 2.15.5j.

(2) Parameter displays for the instruments shown on Figure 2.15.5j.

The exhaust duct secondary containment isolation dampers are located in the secondary containment and qualified for a harsh environment.



NOTES:
1. THE OUTBOARD ISOLATION DAMPER SOLENOID VALVES ARE POWERED BY CLASS 1E DIVISION I. THE INBOARD ISOLATION DAMPER SOLENOID VALVES ARE POWERED BY CLASS 1E DIVISION II.

Figure 2.15.5j Reactor Building Secondary Containment HVAC System

Table 2.15.5a Control Room Habitability Area HVAC System

Inspections, Tests, Analyses and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
1. The basic configuration of the CRHA HVAC System is as shown on Figure 2.15.5a.	1. Inspections of the as-built system will be conducted.	1. The as-built CRHA HVAC System conforms with the basic configuration shown on Figure 2.15.5a.
2. The emergency filtration unit have at least 95% removal efficiency for all forms of iodine (elemental organic, particulate, and hydrogen iodide).	2. a. Test will be conducted on each as-built emergency filtration unit. b. Tests in a test facility will be conducted on the iodine absorber material.	2. The emergency filtration unit efficiency is at least 95%.
3. The exhaust fan automatically starts when the supply fan is started.	3. Tests will be conducted on each division of the CRHA HVAC System by starting the supply fan.	3. The exhaust fan automatically starts when the supply fan is started.
4. The MCAE is maintained at a minimum pressure of 3.2 mm water gauge above the outside atmosphere.	4. Tests will be conducted on the as-built CRHA HVAC System in the normal mode of operation.	4. The MCAE is maintained at a minimum pressure of 3.2 mm water gauge above the outside atmosphere.
5. a. On receipt of a PRM System signal for high radiation in the outside air intake of the operating division, the normal outside air intake dampers close, the exhaust air dampers close, the exhaust fan stops, the minimum outside air intake dampers open, and one fan of the emergency filtration unit starts.	5. a. Tests will be conducted on each CRHA HVAC System division using a simulated initiation signal.	5. a. Upon receipt of a simulated initiation signal the following occurs: (1) Normal outside air intake dampers are closed. (2) Exhaust air dampers are closed. (3) Exhaust fan is stopped. (4) Minimum outside air intake dampers are opened. (5) Emergency filtration unit fan is started.

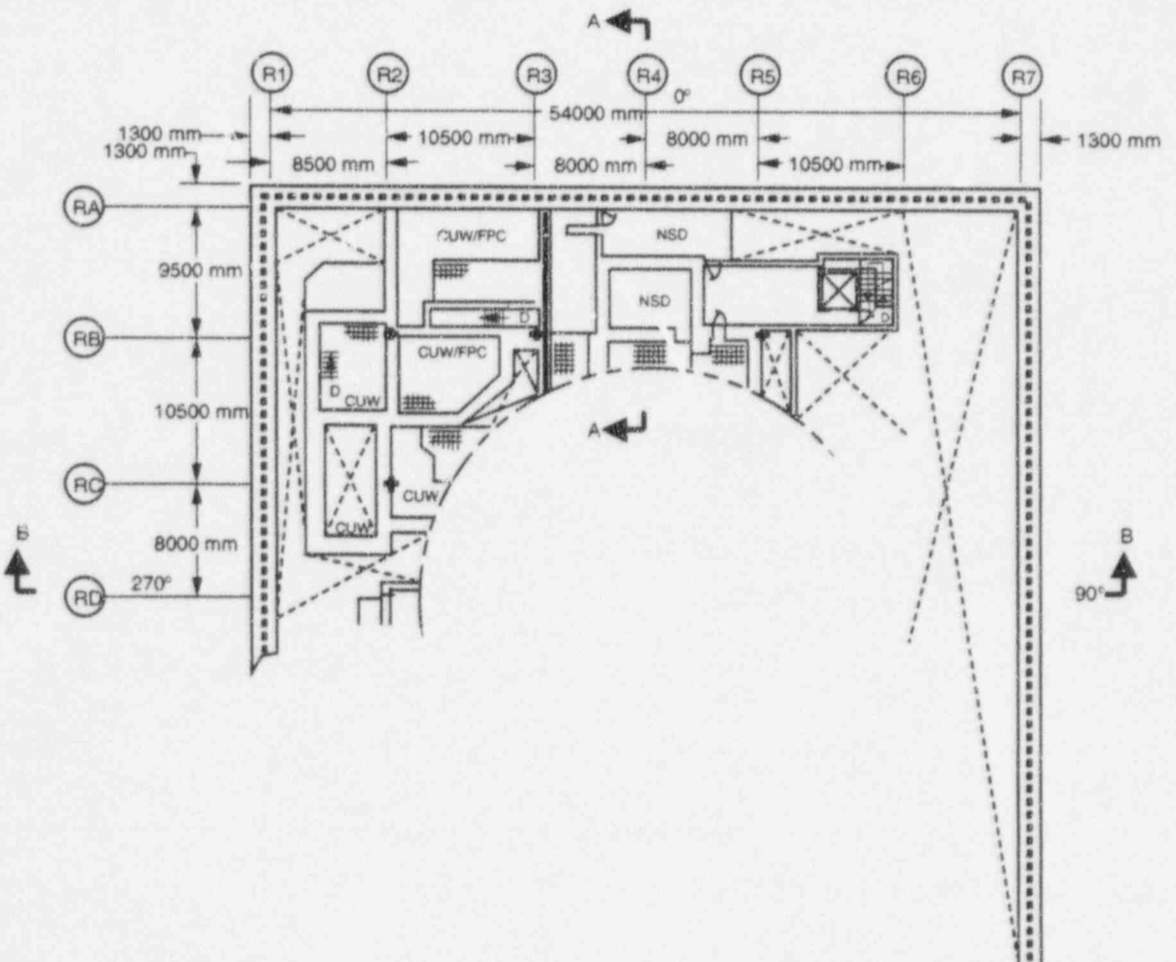
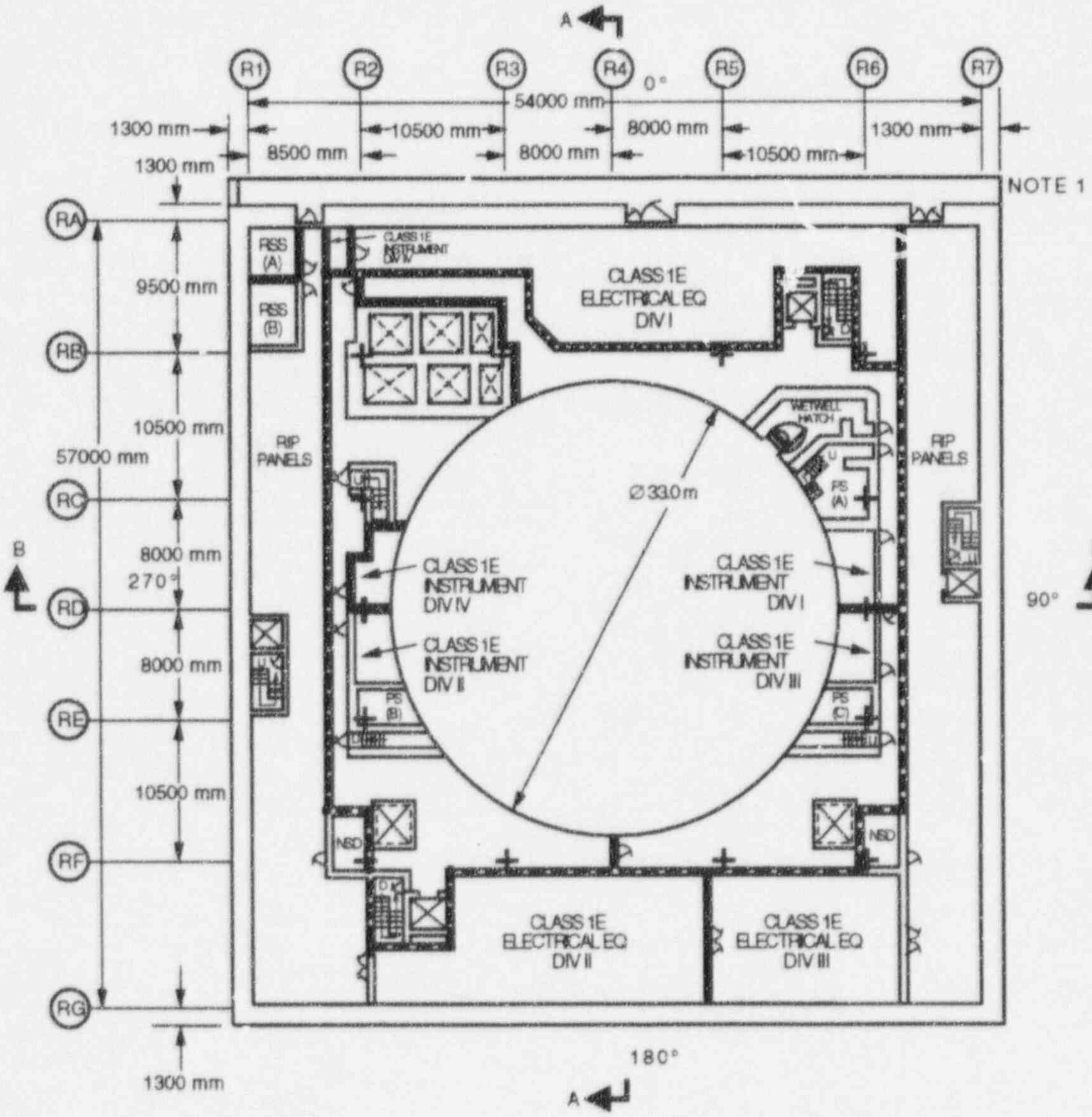


Figure 2.15.10g Reactor Building Arrangement —Elevation 1500 mm



NOTE 1: Watertight doors to be provided in access corridor to prevent flood water external to the Reactor Building from entering the Reactor Building

Figure 2.15.10h Reactor Building Arrangement, Floor B1F—Elevation 4800 mm

5.0 Site Parameters

This section provides a definition of the site parameters used as the basis for the Certified Design.

Table 5.0 ABWR Site Parameters

Maximum Ground Water Level:
61.0 cm below grade

Maximum Flood (or Tsunami) Level:
30.5 cm below grade

Precipitation (for Roof Design):
- Maximum rainfall rate: 49.3 cm/h(3)
- Maximum snow load: 2.394 kPa

Ambient Design Temperature:
1% Exceedance Values
- Maximum: 37.8°C dry bulb
  25°C wet bulb (coincident)
  26.7°C wet bulb (non-coincident)
- Minimum: –23.3°C–

0% Exceedance Values (Historical Limit)
- Maximum: 46.1°C dry bulb
  26.7°C wet bulb (coincident)
  27.2°C wet bulb (non-coincident)
- Minimum: –40°C

Exclusion Area Boundary (EAB): An area whose boundary has a Chi/Q less than or equal to 1.37×10^{-3} s/m^3.

Extreme Wind: Basic Wind Speed:
177 km/h(1)/197 km/h(2)

Tornado
- Maximum tornado wind speed: 483 km/h
- Maximum pressure drop: 13.827 kPaD
- Missile spectra: Spectrum I(4)

Soil Properties:
- Minimum static bearing capacity: 718.20 kPa
- Minimum shear wave velocity: 305 m/s(6)
- Liquefaction potential: None at plant site resulting from site specific SSE ground motion

Seismology:
- SSE response spectra: See Figures 5.0a and 5.0b(7)

Meteorological Dispersion (Chi/Q):
- Maximum 2-hour 95% EAB 1.37×10^{-3} s/m^3
- Maximum 2-hour 95% LPZ 4.11×10^{-4} s/m^3
- Maximum annual average (8760 hour) LPZ 1.17×10^{-6} s/m^3

(1) 50-year recurrence interval; value to be utilized for design of non-safety-related structures only.

(2) 100-year recurrence interval; value to be utilized for design for safety-related structures only.

(3) Maximum value for 1 hour over 2.6 km^2 probable maximum precipitation (PMP) with ratio of 5 minutes to 1 hour PMP of 0.32. Maximum short-term rate: 15.7cm/5 min.

(4) Spectrum I missiles consist of a massive high kinetic energy missile which deforms on impact, a rigid missile to test penetration resistance, and a small rigid missile of a size sufficient to just pass through any openings in protective barriers. These missiles consists of an 1800 kg automobile, a 125 kg, 20 cm diameter armor piercing artillery shell, and a 2.54 cm diameter solid steel sphere, all impacting at 35% of the maximum horizontal windspeed of the design basis tornado. The first two missiles are assumed to impact at normal incidence, the last to impinge upon barrier openings in the most damaging directions.

(5) At foundation level of the reactor and control buildings.

(6) This is the minimum shear wave velocity at low strains after the soil property uncertainties have been applied.

(7) Free-field, at plant grade elevation.