2.3.4 Fire Protection System

Design Description

The fire protection system (FPS) detects and suppresses fires in the plant. The FPS consists of water distribution systems, automatic and manual suppression systems, a fire detection and alarm system, and portable fire extinguishers. The FPS provides fire protection for the nuclear island, the annex building, the turbine building, the radwaste building and the diesel generator building.

The FPS is as shown in Figure 2.3.4-1 and the component locations of the FPS are as shown in Table 2.3.4-3.

1. The functional arrangement of the FPS is as described in the Design Description of this Section 2.3.4.
2. The FPS piping identified in Table 2.3.4-4 remains functional following a safe shutdown earthquake.
3. The FPS provides the safety-related function of preserving containment integrity by isolation of the FPS line penetrating the containment.
4. The FPS provides for manual fire fighting capability in plant areas containing safety-related equipment.
5. Displays of the parameters identified in Table 2.3.4-1 can be retrieved in the main control room (MCR).
6. The FPS provides nonsafety-related containment spray for severe accident management.
7. The FPS provides two fire water storage tanks, each capable of holding at least 300,000 gallons of water.
8. Two FPS fire pumps provide at least 2000 gpm each at a total head of at least 350 ft.
9. The fuel tank for the diesel-driven fire pump is capable of holding at least 385 gallons.
10. Individual fire detectors provide fire detection capability and can be used to initiate fire alarms in areas containing safety-related equipment.
11. The FPS seismic standpipe subsystem can be supplied from the FPS fire main by opening the normally closed cross-connect valve to the FPS plant fire main.

Table 2.3.4-1

Equipment Name	Tag No.	Display	Control Function
Motor-driven Fire Pump	FPS-MP-01A	Yes (Run Status)	Start
Diesel-driven Fire Pump	FPS-MP-01B	Yes (Run Status)	Start
Jockey Pump	FPS-MP-02	Yes (Run Status)	Start

Table 2.3.4-2 Inspections, Tests, Analyses, and Acceptance Criteria				
No.	**ITAAC No.**	**Design Commitment**	**Inspections, Tests, Analyses**	**Acceptance Criteria**
335	2.3.04.08	8. Two FPS fire pumps provide at least 2000 gpm each at a total head of at least 350 ft.	Testing and/or analysis of each fire pump will be performed.	The tests and/or analysis concludes that each fire pump provides a flow rate of at least 2000 gpm at a total head of at least 350 ft.
336	2.3.04.09	9. The fuel tank for the diesel-driven fire pump is capable of holding at least 385 gallons.	Inspection of the diesel-driven fire pump fuel tank will be performed.	The volume of the diesel driven fire pump fuel tank is at least 385 gallons.
337	2.3.04.10	10. Individual fire detectors provide fire detection capability and can be used to initiate fire alarms in areas containing safety-related equipment.	Testing will be performed on the as-built individual fire detectors in the fire areas identified in subsection 3.3, Table 3.3-3. (Individual fire detectors will be tested using simulated fire conditions.)	The tested individual fire detectors respond to simulated fire conditions.
338	2.3.04.11	11. The FPS seismic standpipe subsystem can be supplied from the FPS fire main by opening the normally closed cross-connect valve to the FPS plant fire main.	Inspection for the existence of a cross-connect valve from the FPS seismic standpipe subsystem to FPS plant fire main will be performed.	Valve FPS-PL-V101 exists and can connect the FPS seismic standpipe subsystem to the FPS plant fire main.

Table 2.3.4-3		
Component Name	**Tag No.**	**Location**
Motor-driven Fire Pump	FPS-MP-01A	Turbine Building
Diesel-driven Fire Pump	FPS-MP-01B	Yard
Jockey Pump	FPS-MP-02	Turbine Building
Primary Fire Water Tank	FPS-MT-01A	Yard
Secondary Fire Water/Clearwell Storage Tank	FPS-MT-01B	Yard
Fire Pump Diesel Fuel Day Tank	FPS-MT-02	Yard