

7.6 OPERATING CONTROL STATIONS

7.6.1 GENERAL LAYOUT

The operating control stations consist of: (a) the Control Room, used for plant control during startup, normal operation, shutdown, and emergency operation; (b) an auxiliary control station used for the waste processing systems (common to both Units 1 and 2); and, (c) various local control stations for miscellaneous noncritical systems.

7.6.2 CONTROL ROOM

The Control Room, which is accessible from both the Auxiliary and Turbine Buildings, houses benchboard control boards, the combined benchboard-vertical control boards and miscellaneous vertical boards for both units. All control boards are designed to Seismic Category I requirements. For further information concerning seismic loading and design, refer to Figures 2.6-4 and 2.6-5, Response Spectra - Operating Basis (OBE) and Design Basis Earthquake, respectively.

The Control Room can be occupied under all credible incident conditions. It has two separate air conditioning units, two particulate, absolute, and charcoal filter unit assemblies with dampers and fans, and an airborne radioactivity detector in the return line. Filter unit dampers and fans, which act to automatically shunt a portion of the Control Room air through the filter unit assemblies, actuate upon sensing a high airborne radioactivity level or in response to a SIAS initiation from either unit. The filter unit dampers and fans can also be remotely actuated from the Control Room.

None of the materials used in the construction of the Control Room will support combustion, and electrical wiring is flame resistant. Also, portable CO₂ fire extinguishers are placed in readily-accessible stations in the Control Room, and respiratory protective equipment is available to the operators at all times.

7.6.3 RADIOACTIVE WASTE DISPOSAL SYSTEM CONTROL PANELS

The waste-processing local control panel, located in the Auxiliary Building, provides the controls, instrumentation, and alarms required to initiate, operate, and monitor the waste-processing systems. Critical indications are duplicated in the Control Room. All alarms are annunciated at their local panel with a master alarm provided in the Control Room.

7.6.4 MISCELLANEOUS LOCAL CONTROL PANELS

Local control panels for noncritical systems are located throughout the plant. Each panel contains the indications, controls, and alarms required for safe operation of the system. The various systems are provided with local alarms and a common alarm on the control board to alert the operator of any abnormal conditions within each of the systems.

7.6.5 FEATURES WHICH ENHANCE SAFE OPERATION

In order to maintain channel separation, the control boards contain fire barriers that separate the ESF and control channels, thus preventing loss of all protection due to a single fault.

The plant annunciator system is located across the top of the main control boards, providing visual and audible indication of abnormal conditions which require operator action.

7.6.6 REMOTE SHUTDOWN CAPABILITY

Numerous design features are provided to maintain Control Room accessibility. However, in the event the operator is forced to abandon the Control Room, emergency procedures

require that the reactor shall first be tripped. During this condition, local controls and the Auxiliary Shutdown Panel, located in the 45' Elevation switchgear rooms (immediately adjacent to the Control Room), provide the instrumentation and controls necessary to safely bring the plant to the hot shutdown condition.

The Auxiliary Shutdown Panel, as supplemented by local control panels, provides the remote shutdown capability required by 10 CFR 50.48 for applicable fire scenarios. No automatic safety features are actuated from remote shutdown monitoring instrumentation. Electrical isolation devices are installed such that a fire at the Auxiliary Shutdown Panel will not prevent shutdown of the plant from the Control Room, and vice versa.

Locally available instrumentation and the instrumentation available at the Auxiliary Shutdown Panel (1C43) ensure it will be possible to perform the following functions, and monitor their effectiveness, from areas external to the Control Room.

- a. Insert the CEAs and trip the turbine generator;
- b. Borate the RCS; and,
- c. Remove reactor decay heat following a reactor trip.

These instruments include:

<u>INSTRUMENT</u>	<u>READOUT LOCATION</u>	<u>MEASUREMENT RANGE</u>
Wide Range Neutron Flux	1C43	0.1 cps-200% power
Reactor Trip Breaker Indication	Cable Spreading Room	OPEN-CLOSE
Reactor Coolant Cold Leg Temperature	1C43	212-705°F
Pressurizer Pressure	1C43	0-4000 psia
Pressurizer Level	1C43	0-360 inches
Steam Generator Pressure	1C43	0-1200 psig
Steam Generator Level	1C43	-401 to +63.5 inches

Additional communications capability is provided at the control stations for use in accomplishing these functions.

It is possible to maintain the plant in a hot shutdown condition from these alternate locations until access is permitted back into the Control Room. If required, the plant can then be placed in a cold shutdown condition from the Control Room.

Instrumentation required by the reactor operator to monitor key safety parameters from outside the Control Room is specified in the Technical Specifications.