

5A.2 CLASSES OF STRUCTURES, SYSTEMS, AND EQUIPMENT

5A.2.1 SEISMIC CATEGORY I

Throughout the context of this appendix, Category I shall mean Seismic Category I structures, systems, and equipment. Category I structures, systems, and equipment are those whose failure could cause uncontrolled release of radioactivity or those essential for immediate and long-term operation following a LOCA. When a system as a whole is referred to as Category I, positions not associated with loss-of-function of the system may be designated as Category II.

5A.2.1.1 Typical Category I Structures

- a. Containment structure shell
- b. The Auxiliary Building below Elevation 69'0"
- c. Enclosures for the critical service water pumps, critical saltwater pumps, and auxiliary feedwater pumps and for auxiliary feedwater valves and piping header in the tank farm
- d. Foundations for Category I system components

The analysis of Category I equipment, systems and components located at various levels of the structures, were performed by modal analysis floor response spectra method.

The floor response spectra curves were generated by subjecting the building model to the selected base excitation, then determining the maximum response of a single degree of freedom system, of varying natural period of vibration and for several values of damping, at each floor elevation.

5A.2.1.2 Typical Category I Equipment and Systems

- a. Reactor vessel and internals including control rods and control rod drives
- b. Other primary coolant system components (steam generators, pressurizer, pumps, etc.) and piping, including vent and drain piping inside the Containment
- c. Containment penetrations up to and including the first isolation valve outside the Containment
- d. Atmospheric dump and main steam safety valves and associated piping from main steam headers
- e. Penetration room ventilation ducting
- f. Spent fuel storage racks
- g. Auxiliary feedwater pump, condensate storage tank, and associated piping
- h. Main emergency generator including fuel supply
- i. Control boards, switchgear, load centers, batteries, and cable runs serving Category I equipment
- j. Unit 1 and 2 cable spreading room cable tray support systems are qualified by analysis and tests per Section 5A.3.1.5.11 and IEEE 344 1971/Later
- k. Critical Service Water System
- l. Critical Saltwater System
- m. Containment Spray System, including refueling water tank
- n. Containment structure air cooling system
- o. Low-Pressure Safety Injection and Shutdown Cooling System
- p. High-Pressure Safety Injection System

- q. Chemical and Volume Control System
- r. Safety injection tanks and piping
- s. Spent fuel pool purification system
- t. All equipment in the radioactive waste processing systems except the reactor coolant and miscellaneous waste evaporators (Retired in place), the spent resin metering tank, the miscellaneous waste monitor tank and associated piping and the radioactive waste processing skid. UFSAR Section 14.23 describes the supporting analysis for the waste processing system components that are postulated to fail due to a seismic event. Although failure of the liquid waste processing system components downstream of 1/2CV-4260 have been analyzed for dose consequences in UFSAR Section 14.23, the effects of flooding on components located outside of Auxiliary Building Room 418 have not been analyzed. As a result, the liquid waste processing system, exclusive of the components listed above, will be maintained Seismic Category I.)

Calvert Cliffs has no Category I tunnels or underground cells. For the design methods and actual arrangement of Category I underground piping, refer to Section 5A.3.2.1.

Category I underground cabling supplies power to the saltwater pumps. These cables are located in reinforced concrete conduit duct banks extending from the Category I steam generator auxiliary feed pump room to the Category I intake structure. Both ends of the duct bank penetrate Category I structure wall, where the cables rise in conduit and terminate at the switchgear. It is not considered credible that service continuity to the saltwater pumps would be interrupted due to slight relative movements between the duct bank and the Category I building connections. A Category I buried duct bank runs between the new Diesel Generator Building and the Auxiliary Building for the electrical distribution for Diesel Generator 1A. Portions of this buried duct bank are also common to the Station Blackout Diesel.

Where Category I structures are directly connected to Category II items such as equipment and piping systems, Category II systems are restrained in such a way that damage or excessive movement of Category II items will not adversely affect the Category I structures or equipment.

5A.2.2 SEISMIC CATEGORY II

Category II structures, systems, and equipment are those whose failure would not result in the release of radioactivity and would not prevent reactor shutdown. The failure of Category II structures, systems, and equipment may interrupt power generation.

All Category II structures are located at a sufficient distance away from Category I structures such that the failure or excessive movement of Category II structures will not cause the failure of the Seismic Category I structures.