

Actuation of these systems causes selected fire dampers and doors to the protected area to close and the HVAC fans to the area to shut down ensuring that the minimum concentration of CO₂ is maintained.

The design basis for the areas protected by automatic CO₂ are as follows: (1) auxiliary instrument rooms - the primary fire hazard is cables and is considered a deep-seated fire source; therefore, the system must have a 50-percent flooding factor per NFPA 12, 1973 Edition to maintain carbon dioxide concentration for a substantial period of time to assure complete extinguishment. In addition, the leakage from the room must be limited. (2) computer room (CO₂ system is provided for property protection) - the system must achieve a 30-percent concentration within 2 minutes and 50-percent concentration within 7 minutes after system discharge; (3) diesel generator engine rooms - the primary fire hazard is a surface fire (diesel fuel); therefore, the system must achieve a 34-percent concentration within 1 minute and maintain at least a 34 percent concentration for 20 minutes; (4) diesel generator electrical board rooms (CO₂ systems are provided for property protection) - the system must achieve a 30-percent concentration within 2 minutes and 50-percent concentration within 7 minutes after system discharge; and (5) lube oil storage and fuel oil transfer rooms (CO₂ system is provided for property protection) - the system must achieve a 34-percent concentration within 1 minute.

The applicant's CO₂ storage tank for supplying CO₂ to the diesel generator system is located in the diesel generator building. The diesel generators are protected from the effects of a postulated failure of this tank by an 18-inch-thick reinforced concrete wall. The vent path for the tank room for the storage tank compartment is through a set of double doors which lead into the stairwell and, if needed, through another set of double doors which open to the atmosphere from the stairwell.

The CO₂ for the balance of the plant is supplied from a storage tank in an underground vault in the yard. The failure of the tank cannot pose a threat to any safety-related areas or structures.

The staff finds that the applicant's design criteria and bases for the automatic CO₂ fire suppression systems did not take any exceptions to Position C.5 of Appendix A to BTP (APCSB) 9.5-1 and, therefore, are acceptable.

4.2.2 Manual Suppression Capability

4.2.2.1 Hose Stations

Manual hose stations are located throughout the plant to ensure that an effective hose stream can be directed to any safety-related area in the plant. The system is designed according to the requirements of NFPA-14 (1974), "Standpipe and Hose System for Sizing, Spacing, and Pipe Support Requirements," except for those hose stations in certain areas of the plant in which the applicant has requested a deviation to exceed the 100-foot hose spacing limitation. These deviations are discussed in Section 6.9.4, "Deviation - Manual Hose Stations."

In addition, the applicant performed a code compliance review and identified several areas in which the manual fire-fighting hose stations and standpipe system deviated from the code. Some of the more important NFPA-14 code