3.12 BASES

A. Control Room Emergency Filter System

The Control Room Emergency Filter system is designed to filter the control room atmosphere for intake air and/or for recirculation during control room isolation conditions. The system is designed to automatically start upon control room isolation and to maintain the control room pressure to the design positive pressure so that all leakage should be out leakage.

High efficiency particulate absolute (HEPA) filters are installed before the charcoal adsorbers to prevent clogging of the iodine absorbers. The charcoal absorbers are installed to reduce the potential intake of radioiodine to the control room. The in-place test results should indicate a system leak tightness of less than 1 percent bypass leakage for the charcoal absorbers and HEPA filters. The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 99 percent for expected accident conditions. If the performance of the HEPA filters and charcoal absorbers are as specified, the resulting doses will be les than the allowable levels stated in Criterion 19 of the General Design Criteria for Nuclear Power Plants, Appendix A to 10 CFR Part 50.

If the system is found to be inoperable, there is no immediate threat to the control room and reactor operation may continue for a limited period of time while repairs are being made. If the system cannot be repaired within seven days, the reactor is shutdown and brought to cold shutdown within 24 hours.

B. Reactor Equipment Cooling (REC) System

The Reactor Equipment Cooling System consists of two, distinct subsystems, each containing two pumps and one heat exchanger. Each subsystem is capable of supplying the cooling requirements of the essential services following design accident conditions with only one pump in either subsystem.

The REC System has additional flexibility provided by the capability of interconnection of the two subsystems and the backup water supply to the critical cooling loop by the Service Water System. This flexibility and the need for only one pump in one critical cooling loop to meet the design accident requirements justifies the 30 day repair time during normal operation and the reduced requirements during head-off operations requiring the availability of the LPCI or Core Spray systems.

C. Service Water System

The Service Water System consists of two, distinct subsystems, each containing two vertical Service Water pumps located in the intake structure, and associated strainers, piping, valving and instrumentation. ~~The pumps discharge to a common header from which independent piping~~ Each subsystem supplies ~~two~~ an independent Seismic Class I cooling water loop~~s and one~~, and a common turbine building loop. Automatic valving is provided to shutoff all supply to the turbine building loop on ~~a predetermined~~ drop in header pressure thus ~~assuring~~ ensuring adequate cooling supply to the Seismic Class I loops, each ~~of which feeds one~~ capable of supplying ~~either~~ diesel generator, two RHR Service Water booster pumps, ~~one control room basement fan coil unit~~ emergency supply to the Control Room air conditioning, and one REC heat exchanger. ~~Valves are included in the common discharge header to permit the Seismic Class I Service Water System to be operated as two independent subsystems.~~ The REC heat exchangers are valved such that they can be individually backwashed without interrupting system operation.

3.12 BASES (cont'd)

During normal operation two or three pumps will be required. Three pumps are used for a normal shutdown. The loss of all a-c power will trip all operating Service Water pumps. The automatic emergency diesel generator start system and emergency equipment starting sequence will then start one selected Service Water pump per division in 30-40 seconds. In the meantime, the drop in Service Water header pressure will ~~close the turbine building cooling water isolation valve guaranteeing~~ isolate the non-critical services, ensuring adequate supply to the ~~reactor building, the control room basement, and the diesel generators from the one Service Water pump.~~ critical heat loads as described above.

Due to the redundance of pumps and the requirement of only one to meet the accident requirements, the 30 day repair time is justified.

D. Battery Room Ventilation

The temperature rise and hydrogen buildup in the battery rooms without adequate ventilation is such that continuous safe operation of equipment in these rooms cannot be assured.

4.12 BASES

A. Control Room Emergency Filter System

Pressure drop across the combined HEPA filters and charcoal absorbers of less than 6 inches of water at the system design flow rate will indicate that the filters and absorbers are not clogged by excessive amounts of foreign matter. Pressure drop should be determined at least once per operating cycle to show system performance capability.

Tests of the charcoal absorbers with halogenated hydrocarbon refrigerant should be performed in accordance with ANSI N510-1980.

The frequency of tests and sample analysis are necessary to show that the HEPA filters and charcoal absorbers can perform as evaluated. The test canisters that are installed with the adsorber trays should be used for the charcoal adsorber efficiency test. Each sample should be at least two inches in diameter and a length equal to the thickness of the bed. If test results are unacceptable, all adsorbent in the system shall be replaced with an adsorbent qualified according to Table 5.1 of ANSI N509-1980. The replacement tray for the absorber tray removed for the test should meet the same adsorbent quality. Tests of the HEPA filters with DOP aerosol shall be performed in accordance to ANSI N510-1980. Any HEPA filters found defective shall be replaced with filters qualified pursuant to Regulatory Position C.3.d of Regulatory Guide 1.52.

Operation of the system for 10 hours every month will demonstrate operability of the filters and adsorber system and remove excessive moisture built up on the adsorber.