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3/4.7.6 CONTROL ROOM AREA VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6 Two independent Control Room Area Ventilation Systems shall be OPERABLE.

APPLICABILITY: ALL MODES

ACTION: (Units 1 and 2)

MODES 1, 2, 3 and 4:

a. With one Control Room Area Ventilation System inoperable for reasons other than the heaters tested in 4.7.6.b and 4.7.6.e.4, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With the heaters tested in 4.7.6.b and 4.7.6.e.4 inoperable, restore the inoperable heaters to operable status within 7 days or file a Special Report in accordance with Specification 6.9.2 within 30 days specifying the reason for inoperability, and the planned actions to return the heaters to operable status.

MODES 5 and 6:

a. With one Control Room Area Ventilation System inoperable for reasons other than the heaters tested in 4.7.6.b and 4.7.6.e.4, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE Control Room Area Ventilation System.

b. With both Control Room Area Ventilation Systems inoperable for reasons other than the heaters tested in 4.7.6.b and 4.7.6.e.4, or with the OPERABLE Control Room Area Ventilation System, required to be operating by ACTION a., not capable of being powered by an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

c. The provisions of Specification 3.0.4 are not applicable.

d. With the heaters tested in 4.7.6.b and 4.7.6.e.4 inoperable, restore the inoperable heaters to operable status within 7 days or file a Special Report in accordance with Specification 6.9.2 within 30 days specifying the reason for inoperability, and the planned actions to return the heaters to operable status.

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SURVEILLANCE REQUIREMENTS

4.7.6 Each Control Room Area Ventilation System shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the control room air temperature is less than or equal to 90°F;

b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and activated carbon adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters operating;

SURVEILLANCE REQUIREMENTS (Continued)

c. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or activated carbon adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

   1) Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Position C.5.a, C.5.c, and C.5.d* of Regulatory Guide 1.52, Revisions 2, March 1978, and the system flow rate is ~~6000~~ 5200 cfm ± 10%;

   2) Verifying, within 31 days after removal, that a laboratory analysis** of a representative activated carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, and tested per ASTM D3803-89 has a methyl iodide penetration of less than 0.95%, and

   3) Verifying a system flow rate of ~~6000~~ 5200 cfm ± 10% during system operation when tested in accordance with ANSI N510-1980.

d. After every 1440 hours of activated carbon adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis** of a representative activated carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, and tested per ASTM D3803-89 has a methyl iodide penetration of less than 0.95%;

e. At least once per 18 months by:

   1) Verifying that the pressure drop across the combined HEPA filters, activated carbon adsorber banks, and moisture separators is less than 8 inches Water Gauge while operating the system at a flow rate of ~~6000~~ 5200 cfm ± 10%;

   2) Verifying that on a High Radiation-Air Intake, or Smoke Density-High test signal, an alarm is received in the control room;

   3) Verifying that the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch Water Gauge relative to adjacent areas ~~at less than or equal to~~ with a pressurization flow of ~~[illegible]~~ ≥ 2000 cfm to the control room during system operation;

   4) Verifying that the heaters dissipate 25 ± 2.5 kW at a nominal voltage of 600 VAC, and

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*The requirement for reducing refrigerant concentration to 0.01 ppm may be satisfied by operating the system for 10 hours with heaters on and operating.

**Activated carbon adsorber samples are tested at 30 degree C and 95% RH.

5) Verifying that on a High Chlorine/Toxic Gas test signal, the system automatically isolates the affected intake from outside air with recirculating flow through the HEPA filters and activated carbon adsorbers banks within 10 seconds (plus air travel time between the detectors and the isolation dampers).

f. After each complete or partial replacement of a HEPA filter bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the system at a flow rate of ~~6000~~ 5200 cfm ± 10%; and

g. After each complete or partial replacement of an activated carbon adsorber bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of ~~6000~~ 5200 cfm ± 10%.

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3/4.7.5 STANDBY NUCLEAR SERVICE WATER POND

The limitations on the standby nuclear service water pond (SNSWP) level and temperature ensure that sufficient cooling capacity is available to either: (1) provide normal cooldown of the facility, or (2) mitigate the effects of accident conditions within acceptable limits.

The limitations on minimum water level and maximum temperature are based on providing a 30-day cooling water supply to safety-related equipment without exceeding its design basis temperature and is consistent with the recommendations of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Plants," March 1974.

The peak containment pressure analysis assumes that the Nuclear Service Water (RN) flow to the Containment Spray and Component Cooling heat exchangers has a temperature of 86.5°F. This temperature is important in that it, in part, determines the capacity for energy removal from containment. The peak containment pressure occurs when energy addition to containment (core decay heat) is balanced by energy removal from these heat exchangers. This balance is reached far out in time, after the transition from injection to cold leg recirculation and after ice melt. Because of the effectiveness of the ice bed in condensing the steam which passes through it, containment pressure is insensitive to small variations in containment spray temperature prior to ice meltout.

To ensure that the RN temperature assumptions are met, Lake Wylie temperature is monitored. During periods of time while Lake Wylie temperature is greater than 86.5°F, the emergency procedure for transfer of ECCS flow paths to cold leg recirculation directs the operator to align at least one train of containment spray to be cooled by a loop of Nuclear Service Water which is aligned to the SNSWP.

3/4.7.6 CONTROL ROOM AREA VENTILATION SYSTEM

The OPERABILITY of the Control Room Area Ventilation System ensures that: (1) the ambient air temperature does not exceed the allowable temperature for continuous-duty rating for the equipment and instrumentation cooled by this system, and (2) the control room will remain habitable for operations personnel during and following all credible accident conditions. Operation of the system with the heaters operating to maintain low humidity using automatic control for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The Control Room Area Ventilation System filter units have no bypass line. Either Control Room Area Ventilation System train must operate in the filtered mode continuously. When a train is in operation, its associated heater also runs continuously. The specified laboratory test method, namely, ASTM D3803-89, implies that heaters may be unavailable for controlling the relative humidity of the influent air entering the charcoal adsorber section to less than or equal to 70 percent. This is acceptable, since accident analysis with appropriate adsorber efficiencies for radioiodine in elemental and organic forms based on the above test shows that the control room radiation doses to be within the 10 CFR Part 50, Appendix A, In order to test the VC system at its most challenging condition, a system flow rate of 5200 cfm ±10% is established. This flow range is for test purposes only and operation below this range during normal operation is allowed.

3/4.7.6 CONTROL ROOM AREA VENTILATION SYSTEM (Continued)

GDC 19 limits during design basis LOCA conditions. However, specifications are included to ensure heater operability and corrective ACTIONS are identified to address the contingency of inoperable heaters; these are in place to increase the safety margin of the filters. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rems or less whole body, or its equivalent GDC 19 limit. ANSI N510-1980 will be used as a procedural guide for surveillance testing.

The 18-month surveillance to verify a positive pressure of greater than 1/8 inch water gauge, with ~~less~~ greater than or equal to ~~4000~~ 2000 cfm of pressurization flow to the control room, is to be conducted using only one intake from outside air open. By testing the capability to pressurize the control room using each intake individually, the design basis which assumes reopening of the two intakes following isolation on chlorine, smoke or radiation, is tested.

3/4.7.7 AUXILIARY BUILDING FILTERED EXHAUST SYSTEM

The OPERABILITY of the Auxiliary Building Filtered Exhaust System ensures that radioactive materials leaking from the ECCS equipment within the auxiliary building following a LOCA are filtered prior to reaching the environment. Operation of the system with the heaters operating to maintain low humidity using automatic control for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The specified laboratory test method, namely, ASTM D3803-89, implies that heaters may be unavailable for controlling the relative humidity of the influent air entering the charcoal adsorber section to less than or equal to 70 percent. This is acceptable, since accident analysis with appropriate adsorber efficiencies for radioiodine in elemental and organic forms based on the above test shows that the site boundary radiation doses to be within the 10 CFR Part 100 limits during design basis LOCA conditions. However, specifications are included to ensure heater operability and corrective ACTIONS are identified to address the contingency of inoperable heaters; these are in place to increase the safety margin of the filters. The operation of this system and the resultant effect on offsite dosage calculations was not taken credit for in the safety analyses. However, the operation of this system and the resultant effect on the NRC staff's offsite dose calculations was assumed in the staff's SER, NUREG-0954. ANSI N510-1980 will be used as a procedural guide for surveillance testing.

3/4.7.8 SNUBBERS

All snubbers are required OPERABLE to ensure that the structural integrity of the Reactor Coolant System and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads.

Snubbers are classified and grouped by design and manufacturer but not by size. For example, mechanical snubbers utilizing the same design features of