CONTAINMENT SYSTEMS

ANNULUS VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.1.8 Two independent Annulus Ventilation Systems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one Annulus Ventilation System inoperable, 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.

SURVEILLANCE REQUIREMENTS

4.6.1.8 Each Annulus Ventilation System shall be demonstrated OPERABLE:

a. 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 pre-heaters operating;

b. 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 1% (Unit 1), 0.05% (Unit 2) and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d* of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 9000 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, meets the laboratory testing criteria of ~~Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978~~ ASTM D3803-86, Test method "A" for a methyl iodide penetration of less than ~~1%~~ 0.71% ; and

3) Verifying a system flow rate of 9000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1980.

*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.

SURVEILLANCE REQUIREMENTS (Continued)

c. After every 720 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, meets the laboratory testing criteria of ~~Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978~~, for a methyl iodide penetration of less than ~~1%~~ 0.71%, ASTM D3803-86 Test method "A".

d. 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 9000 cfm ± 10%;

2) Verifying that the system starts automatically on any ~~Phase "A" Isolation~~ SAFETY INJECTION test signal,**

3) Verifying that the filter cooling electric motor-operated bypass valves can be manually opened,

4) Verifying that each system produces a negative pressure of greater than or equal to 0.5 inch Water Gauge in the annulus within 1 minute after a start signal, and

5) Verifying that the pre-heaters dissipate 45 ± 6.7 kW.

e. 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 1% (Unit 1), 0.05% (Unit 2) in accordance with ANSI N510-1980 for a DOP test aerosol while operating the system at a flow rate of 9000 cfm ± 10%; and

f. 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 1% (Unit 1), 0.05% (Unit 2) in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 9000 cfm ± 10%.

**This surveillance need not be performed until prior to entering HOT SHUTDOWN following the Unit 1 first refueling.

ASTM D3803-86 Test Method "A" will be used for surveillance testing of methyl iodicle penetration. This method uses a relative humidity of 95% to verify a methyl iodide penetration factor. This increased humidity factor permits allowances for degraded bus voltages allowed by Technical Specifications at the lower heater capacity

3/4.6.1.8 ANNULUS VENTILATION SYSTEM

The OPERABILITY of the Annulus Ventilation System ensures that during LOCA conditions, containment vessel leakage into the annulus will be filtered through the HEPA filters and activated carbon adsorber trains prior to discharge to the atmosphere. 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. This requirement is necessary to meet the assumptions used in the safety analyses and limit the SITE BOUNDARY radiation doses to within the dose guideline values of 10 CFR Part 100 during LOCA conditions. ANSI N510-1980 will be used as a procedural guide for surveillance testing.

3/4.6.1.9 CONTAINMENT PURGE SYSTEMS

The containment purge supply and exhaust isolation valves for the lower compartment and the upper compartment (24-inch), and instrument room (12-inch), and the Hydrogen Purge System (4-inch) are required to be sealed closed during plant operation since these valves have not been demonstrated capable of closing during a LOCA. Maintaining these valves sealed closed during plant operations ensures that excessive quantities of radioactive materials will not be released via the Containment Purge System. To provide assurance that these containment valves cannot be inadvertently opened, the valves are sealed closed in accordance with Standard Review Plan 6.2.4 which includes mechanical devices to seal or lock the valve closed, or prevents power from being supplied to the valve operator.

The use of the containment purge lines is restricted to the 4-inch Containment Air Release and Addition System valves since, unlike the lower compartment and the upper compartment, instrument room, and the Hydrogen Purge System valves, these 4-inch valves are capable of closing during a LOCA. Therefore, the SITE BOUNDARY dose guideline values of 10 CFR Part 100 would not be exceeded in the event of an accident during containment purging operation. Operation with the line open will be limited to 3000 hours during a calendar year for the 4-inch valves. The total time the containment purge (vent) system isolation valves may be open during MODES 1, 2, 3, and 4 in a calendar year is a function of anticipated need and operating experience. Only safety-related reasons; e.g., containment pressure control or the reduction of airborne radioactivity to facilitate personnel access for surveillance and maintenance activities, may be used to justify the opening of these isolation valves.

Leakage integrity tests with a maximum allowable leakage rate for containment purge supply and exhaust valves will provide early indication of resilient material seal degradation and will allow opportunity for repair before gross leakage failures could develop. The 0.60 L_a leakage limit of Specification 3.6.1.2b. shall not be exceeded when the leakage rates determined by the leakage integrity tests of these valves are added to the previously determined total for all valves and penetrations subject to Type B and C tests.

ATTACHMENT II

TECHNICAL SPECIFICATION CHANGE REQUEST

Proposed Technical Specification Amendment

This Technical Specification(TS) change request will change TS 4.6.1.8.b.2 and 4.6.1.8.c. to read "...meets the laboratory testing criteria of ASTM D3803-86, Test Method "A" for a methyl iodide penetration of less than 0.71%." The TS Bases for TS 4.6.1.8 are modified to reflect the above test criteria. Revising the carbon adsorber test method will assure that the Annulus Ventilation filters have a decontamination efficiency of greater than or equal to 95% under all anticipated operating modes.

This proposed TS change also contains a revision to TS Surveillance 4.6.1.8.d.2. This Surveillance is changed to read, "Verifying that the system starts on any SAFETY INJECTION test signal". This change is made because the surveillance currently states that the system should start automatically on any Phase "A" Isolation test signal.

Discussion

During the HVAC Review currently in progress at Catawba Nuclear Station it was discovered that the Safety-Related Annulus Ventilation System Heaters were not conservatively sized for all postulated operating modes. During low voltage conditions sufficient power is not supplied to the Annulus Ventilation Heaters for them to maintain the relative humidity of the air entering the Annulus Ventilation System Below 70%.

The Electrical Distribution System at Catawba can be powered from either offsite power or the Safety-Related Diesel Generators. Station Technical Specifications allow the Diesel Generators to operate at 4160 VAC $\pm$ 420 VAC and offsite power to drop under degraded bus conditions to approximately 3685 VAC. The minimum calculated voltage supplied to the Annulus Ventilation Heaters was conservatively calculated to be 541.18 VAC.

The design basis of the Annulus Ventilation System Heaters is to ensure that the relative humidity of the air entering the Annulus Ventilation System carbon adsorber beds is less than 70% relative humidity. Under low voltage conditions, with the maximum TS allowed Annulus Ventilation flow rate of 9900 cfm the relative humidity of the air entering the carbon adsorber beds was calculated to be approximately 74%. In order to satisfy the design basis maximum relative humidity of 70% the maximum allowed Annulus Ventilation flow rate has been limited to less than 8700 cfm.

With a restricted upper limit of 8700 cfm and a lower limit required per TS of 8100 cfm, an unnecessarily restrictive operating margin is placed on the system.

TS 4.6.1.8.d.2 is also corrected to reflect the fact that the Annulus Ventilation System Starts automatically on a Safety Injection signal, not a Phase "A" Isolation signal.

Technical Justification

This proposed amendment to TS will change the carbon adsorber test method to ensure that the Annulus ventilation filters have a decontamination efficiency of greater than or equal to 95% under all anticipated operating conditions. The maximum expected relative humidity under the worst case of highest flow and lowest voltage is 74%. The laboratory test of carbon samples will be conservatively tested at 95% relative humidity, instead of the 70% which is currently required. Changing the allowable penetration for the carbon beds to 0.71% instead of 1% raises the safety factor of the Annulus Ventilation System. Using the methodology of Regulatory Guide 1.52, Revision 2, March 1978, changing the allowable methyl iodide penetration to 0.71% ensures that the Decontamination Factor of 95% that is assumed in the existing Catawba FSAR, Dose Analysis for the Annulus Ventilation System, is met. Using the laboratory test method outlined in ASTM D3803-86, Test Method "A" adds further conservatism. For the reasons described above, this change will conservatively ensure that calculated offsite and onsite doses are not adversely affected while allowing the 9000 cfm $\pm$10% Annulus Ventilation flow rate.

Changing the TS Surveillance 4.6.1.8.d.2 is needed to correct the starting signal for the system. The Annulus Ventilation System does not start in response to a Phase "A" Isolation. The system is started by the D/G Load Sequencer in response to a Safety Injection signal. The Annulus Ventilation System will not start on a Manual Phase "A" Isolation. Technical Specification Table 3.3-3 correctly identifies Safety Injection as the initiating signal.

No Significant Hazards Analysis

10 CFR 50.92 states that a proposed amendment involves no significant hazards considerations if operation accordance with the proposed amendment would not:

1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

3) Involve a significant reduction in the margin of safety.

This proposed TS amendment will not increase the probability or consequences of an accident which has been previously evaluated. Offsite and onsite doses will remain the same because of the added conservatism in the laboratory test method and the penetration factor. This change will be in accordance with the decontamination factor which is assumed in the FSAR Chapter 15 Analysis. This change will also make the TS correctly reflect the initiating signal for an automatic start of the Annulus Ventilation System.

This proposed TS amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated. This change makes no physical changes to the plant or operating procedures, because of this no new or different accidents are created.

This proposed TS amendment does not involve a significant decrease in the margin of safety. This change makes no physical changes to the plant or operating procedures. Changing the allowable penetration of the carbon beds to 0.71% raises the safety factor of the annulus ventilation system. This ensures that the current FSAR Chapter 15 analysis for the Annulus Ventilation System is not affected, and that the existing decontamination factor, 95%, can be used. Because the decontamination factor is the same no revision to the On or Offsite Dose analysis is required and therefore the margin between the current dose analysis and 10 CFR 100 is not affected.

This proposed amendment also corrects the TS to reflect that a Safety Injection Signal is the initiating signal for an automatic start of the Annulus Ventilation System.

Environmental Impact Statement

The proposed Technical Specification change has been reviewed against the criteria of 10 CFR 51.22 for environmental considerations. As shown above, the proposed change does not involve significant hazards considerations, nor increase individual or cumulative occupational radiation exposure. Based on this, the proposed amendment meets the criteria given in 10 CFR 51.22(c)(9) for categorical exclusion from the requirements for an Environmental Impact Statement.