

PLANT SYSTEMS

3/4.7.6 CONTROL ROOM AIR CONDITIONING SYSTEM

LIMITING CONDITION FOR OPERATION

---

3.7.6 Two independent control room air conditioning systems shall be OPERABLE.

APPLICABILITY: All MODES.

ACTION:

MODES 1, 2, 3, and 4:

With one control room air conditioning 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.

MODES 5 and 6:

- a. With one control room air conditioning system inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE control room air conditioning system in the recirculation mode.
- b. With both control room air conditioning systems inoperable, or with the OPERABLE control room air conditioning system, required to be in the recirculation mode by ACTION a, not capable of being powered by an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

---

4.7.6 Each control room air conditioning system shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying that the control room air temperature is maintained less than or equal to 110°F, by the operating system(s).
- b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 hours continuous with the heaters on.
- c. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

1. Verifying that the air conditioning system satisfies the in-place testing acceptance criteria and uses the test procedures of 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  $4225 \text{ cfm} \pm 10\%$ .
  2. Verifying within 31 days after removal that a laboratory analysis of a representative 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.
  3. Verifying a system flow rate of  $4225 \text{ cfm} + 10\%$  during system operation when tested in accordance with ANSI N510-1975.
- d. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative 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.
- e. At least once per 18 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 7.8 inches water gauge while operating the system at a flow rate of  $4225 \text{ cfm} \pm 10\%$ .
  2. Verifying that on a safety injection actuation test signal or a high radiation test signal, the system automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks.
  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 the outside atmosphere during system operation.
  4. Verifying that the heaters dissipate  $10 + 0.5, -1.0 \text{ kW}$  when tested in accordance with ANSI N510-1975.
  5. Verifying that on a toxic gas detection signal, the system automatically switches to the isolation mode of operation.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

---

- f. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 4225 cfm  $\pm$  10%.
  
- g. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 4225 cfm  $\pm$  10%.

## PLANT SYSTEMS

### BASES

#### 3/4.7.4 ULTIMATE HEAT SINK

The limitations on the ultimate heat sink level, temperature, and number of fans ensure that sufficient cooling capacity is available to either (1) provide normal cooldown of the facility, or (2) to 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 their design basis temperature and is consistent with the recommendations of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Plants," March 1974.

#### 3/4.7.5 FLOOD PROTECTION

The limitation on flood protection ensures that facility protective actions will be taken in the event of flood conditions. The limit of elevation 27.0 ft Mean Sea Level is based on the maximum elevation at which the levee provides protection, the nuclear plant island structure provides protection to safety-related equipment up to elevation +30 ft Mean Sea Level.

#### 3/4.7.6 CONTROL ROOM AIR CONDITIONING SYSTEM

The OPERABILITY of the control room air conditioning 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. 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 rem of less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A, 10 CFR Part 50.

Operation of the system with the heaters on for at least 10 hours continuous over a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. Obtaining and analyzing charcoal samples after 720 hours of adsorber operation (since the last sample and analysis) ensures that the adsorber maintains the efficiency assumed in the safety analysis and is consistent with Regulatory Guide 1.52.

System design is such that a Control Room Air Handling Unit and Emergency Filtration Unit in opposite trains can be credited for system operability.\* In addition, the function of the heating coils in each Control Room Air Handling train is to provide personnel comfort during normal operation. During emergency conditions low temperatures in the service areas are no concern; therefore, the heaters provide no safety function and are not required for system operability.

#### 3/4.7.7 CONTROLLED VENTILATION AREA SYSTEM

The OPERABILITY of the controlled ventilation area system ensures that radioactive materials leaking from the penetration area or the ECCS equipment within the pump room following a LOCA are filtered prior to reaching the environment. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the safety analyses.

\*Effective for 6 months beginning August 9, 1988

ATTACHMENT B

NPF-38-95

PLANT SYSTEMS

NEW  
(circled items show  
differences from  
old 3/4.7.6)

SURVEILLANCE REQUIREMENTS (Continued)

- b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:
1. Verifying that the filtration train satisfies the in-place testing acceptance criteria and uses the test procedures of 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 4225 cfm  $\pm$  10%.
  2. Verifying within 31 days after removal that a laboratory analysis of a representative 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.
  3. Verifying a system flow rate of 4225 cfm  $\pm$  10% during train operation when tested in accordance with ANSI N510-1975.

c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative 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.

- d. At least once per 18 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 7.8 inches water gauge while operating the train at a flow rate of 4225 cfm  $\pm$  10%.
  2. Verifying that on a safety injection actuation test signal or a high radiation test signal, the train automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks.
  3. Verifying that each train heaters dissipate  $10 + 0.5, -1.0$  kW when tested in accordance with ANSI N510-1975.
  4. Verifying that on a toxic gas detection signal, the train automatically switches to the isolation mode of operation.

1/8" check  
moved to  
4.7.6.4.a

DELETE  
moved to 4.7.6.4.b

PLANT SYSTEMS

NEW

(circled items show  
differences from  
old 3/4 7.6)

SURVEILLANCE REQUIREMENTS (Continued)

---

e.

After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the train at a flow rate of 4225 cfm  $\pm$  10%.

f.

After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the train at a flow rate of 4225 cfm  $\pm$  10%.

PLANT SYSTEMS

NEW  
(circled items show  
differences from  
old 3/4.7.6)

3/4.7.6.1 CONTROL ROOM EMERGENCY AIR FILTRATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6.1 Both Control Room emergency air filtration trains (S-8) shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

- a. With one Control Room Emergency Air Filtration train inoperable, either restore the inoperable train 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 both Control Room Emergency Air Filtration trains inoperable restore one train to OPERABLE status in 1 hour, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.6.1 Each control room emergency air filtration train (S-8) shall be demonstrated OPERABLE:

- ~~temperature check moved to 4.7.6.3.1~~
- a. At least one per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters on.

PLANT SYSTEMS

ALL NEW

3/4.7.6.2 CONTROL ROOM EMERGENCY AIR FILTRATION SYSTEM

LIMITING CONDITION FOR OPERATION

---

3.7.6.2 One Control Room emergency air filtration train (S-8) shall be OPERABLE.

APPLICABILITY: MODES 5 and 6

ACTION:

- a. With neither Control Room Emergency Air Filtration train OPERABLE suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

---

4.7.6.2 The Control Room emergency air filtration trains (S-8) shall be demonstrated OPERABLE per the applicable Surveillance Requirements of 4.7.6.1.

PLANT SYSTEMS3/4.7.6.3 CONTROL ROOM AIR TEMPERATURELIMITING CONDITION FOR OPERATION

---

3.7.6.3 The control room air temperature shall be maintained less than or equal to 80°F.

APPLICABILITY: ALL MODES

ACTION:

- a. With the control room air temperature greater than 80°F, reduce the air temperature to less than or equal to 80°F within 30 days or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Specification 3.0.4 does not apply to this action.
- b. If one AH-12 unit did not operate for 12 continuous hours in any month, either: within 6 hours, start and run the "idled" AH-12 unit for 12 continuous hours; or restore the inoperable unit to OPERABLE within 7 days; or after 7 days and 6 hours with one inoperable AH-12 unit, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Specification 3.0.4 does not apply to this action.
- c. If control room air temperature is greater than 110°F and both AH-12 Control Room air conditioning units are inoperable, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

---

4.7.6.3.1 At least once per 12 hours, verify that the average control room air temperature is less than or equal to 80°F.

4.7.6.3.2 At least once per month, verify that each AH-12 unit operated for at least 12 continuous hours.

PLANT SYSTEMS

ALL NEW

3/4.7.6.4 CONTROL ROOM ISOLATION AND PRESSURIZATION

LIMITING CONDITION FOR OPERATION

---

3.7.6.4 The Control Room Envelope isolation and pressurization boundaries shall be OPERABLE.

APPLICABILITY: ALL MODES

ACTION:

- a. With either Control Room Envelope isolation valve in a normal outside air flow path inoperable, either restore the inoperable valve to OPERABLE status within 7 days or isolate the affected flow path within the following 6 hours.
- b. With both Control Room Envelope isolation valves in a normal outside air flow path inoperable, within 1 hour isolate the affected flow path.
- c. With any Control Room Emergency Filter Unit Outside Air Intake valve(s) inoperable, either restore the inoperable valve(s) to OPERABLE status within 7 days or isolate the affected flow path within the following 6 hours.
- d. If the Control Room Envelope cannot be maintained at a positive pressure of greater than or equal to (1/8) inch W. G. during the high-radiation recirculation mode of operation, immediately initiate actions to restore the Control Room Envelope boundaries to OPERABLE status.

SURVEILLANCE REQUIREMENTS

---

- 4.7.6.4 The Control Room Envelope isolation and pressurization boundaries shall be demonstrated OPERABLE at least once per 18 months by:
- a. Verifying that the Control Room Envelope can be maintained at a positive pressure of greater than or equal to (1/8) inch W. G. during the High Radiation recirculation mode of operation.
  - b. Verifying that on a toxic gas detection test signal, system switches to the isolate mode.
  - c. Verifying that on a safety injection actuation test signal or a control room outside air intake high radiation test signal, normal outside air flow paths isolate.

## PLANT SYSTEMS

### BASES

---

#### 3/4.7.4 ULTIMATE HEAT SINK

The limitations on the ultimate heat sink level, temperature, and number of fans ensure that sufficient cooling capacity is available to either (1) provide normal cooldown of the facility, or (2) to 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 their design basis temperature and is consistent with the recommendations of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Plants," March 1974.

#### 3/4.7.5 FLOOD PROTECTION

The limitation on flood protection ensures that facility protective actions will be taken in the event of flood conditions. The limit of elevation 27.0 ft Mean Sea Level is based on the maximum elevation at which the levee provides protection, the nuclear plant island structure provides protection to safety-related equipment up to elevation +30 ft Mean Sea Level.

ADD

#### 3/4.7.6.1 and 3/4.7.6.2 CONTROL ROOM EMERGENCY AIR FILTRATION SYSTEM

The OPERABILITY of the control room air conditioning 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.

DELETE

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 rem or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A, 10 CFR Part 50.

Operation of the system with the heaters on for at least 10 hours continuous over a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. Obtaining and analyzing charcoal samples after 720 hours of adsorber operation (since the last sample and analysis) ensures that the adsorber maintains the efficiency assumed in the safety analysis and is consistent with Regulatory Guide 1.52.

PLANT SYSTEMSBASES (Continued)3/4.7.6.1 and 3/4.7.6.2 CONTROL ROOM EMERGENCY AIR FILTRATION SYSTEM  
(Continued)

During an emergency, both S-8 units are started to provide filtration and adsorption of outside air and Control Room Envelope recirculated air (re: FSAR 6.4.3.3). Conditions after a LOCA form the bases of the former requirement for two operable S-8 units during all operating modes. Because DBA LOCAs cannot occur during COLD SHUTDOWN and REFUELING, new Specification 3/4.7.6.2 requires only one OPERABLE S-8 unit to guard against fuel handling and radiation waste system accidents. Dosages received in the Control Room after a LOCA were calculated to be orders of magnitude higher than other accidents involving radiation releases to the environment (re FSAR Table 15.6-18, 15.7-2, 15.7-4, 15.7-5, 15.7-7).

3/4.7.6.3 CONTROL ROOM AIR TEMPERATURE

Maintaining the control room air temperature less than or equal to 80°F ensures that (1) the ambient air temperature does not exceed the allowable air temperature for continuous duty rating for the equipment and instrumentation in the control room and (2) the control room will remain habitable for operations personnel during plant operation. The 30 days to return the control room air temperature to less than or equal to 80°F in the Action Statement is consistent with the specification for equipment in the Control Room.

The air conditioning system is designed to cool the outlet air to approximately 55°F. Then, non-safety-related near-room heaters add enough heat to the air stream to keep the rooms between 70 and 75°F. Although 70-75°F is the normal control band, it would be too restrictive as an LCO. Further research revealed that generally Ebasco specified control room equipment for a temperature range of 45-120°F (e.g. LOU 1564.415, LOU 1564.415K, and LOU 1564.422). Also other plants (e.g., St. Lucie, SONGS) were found to use 110-120°F. A provision for the CPC micro-computers, which might be more sensitive to heat is not required here. Specification 4.3.1.6 requires a CPC CHANNEL FUNCTIONAL TEST after a CPC Cabinet High-Temperature Alarm. As a result, a value of 110°F was chosen for the plant shutdown ACTION which provides 10°F margin from the design specifications. Because maximum outside air make-up flow happens in the normal ventilation mode, but comprises only 10% of an AH-12 unit air flow, outside air temperature has little affect on the AH-12's cooling coil heat load. Therefore, an AH-12 unit's ability to maintain Control Room temperature in the normal mode gives adequate assurance of its capability for emergency situations. The specification balances the desire for reasonable Control Room temperatures against the effort required to repair one or both air conditioning trains. An additional restriction implements a plant shutdown when both air conditioning trains are declared inoperable with a coincident high temperature.

PLANT SYSTEMS

BASES (Continued)

---

---

3/4.7.6.4 CONTROL ROOM MINIMUM PRESSURE OVER ATMOSPHERIC

NEW

This specification provides specific ACTION STATEMENTS for inoperable components of the Control Room Ventilation systems, separate from the S-8 and AH-12 units. The operability of the remaining parts of the system can only affect the ability of the Control Room Envelope to pressurize. The ACTION STATEMENTS focus on restoring that ability. This specification does not appear in CE-STS and singles out one surveillance from the general CE-STS specification for Control Room air cleanup.

3/4.7.7 CONTROLLED VENTILATION AREA SYSTEM

The OPERABILITY of the controlled ventilation area system ensures that radioactive materials leaking from the penetration area or the ECCS equipment within the pump room following a LOCA are filtered prior to reaching the environment. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the safety analyses.