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3/4.7.5 CONTROL ROOM VENTILATION SYSTEM

CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.5.1 The control room emergency ventilation system (CREVS) shall be OPERABLE with:

a. Two independent pressurization trains, and

b. One charcoal adsorber/HEPA filter unit.

----------NOTE----------
The control room envelope/pressure boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, 4, and during the movement of irradiated fuel assemblies.

ACTION:

MODES 1, 2, 3, and 4:

a. With one pressurization train inoperable, 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 the filter unit inoperable, restore the filter unit to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With two CREVS pressurization trains inoperable due to an inoperable control room envelope/pressure boundary, restore the control room envelope/pressure boundary to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

During the movement of irradiated fuel assemblies:

d With one pressurization train inoperable, restore the inoperable pressurization train to OPERABLE status within 7 days, or initiate and maintain operation of the remaining OPERABLE train in the pressurization/cleanup alignment.

e. With any of the following: (1) both pressurization trains inoperable; (2) the filter unit inoperable; or (3) the control room envelope/pressure boundary inoperable, immediately suspend all operations involving the movement of irradiated fuel assemblies.

SURVEILLANCE REQUIREMENTS

4.7.5.1 The control room emergency ventilation system shall be demonstrated OPERABLE:

a. Deleted

b. At least once per 31 days on a STAGGERED TEST BASIS by initiating flow through the HEPA filter and charcoal adsorber train and verifying that the train operates for at least 15 minutes.

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:

1. Verifying that the charcoal adsorbers remove ≥ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the ventilation system at a flow rate of 6000 cfm ± 10%.

2. Verifying that the HEPA filter banks remove ≥ 99% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the ventilation system at a flow rate of 6000 cfm ± 10%.

3. Verifying within 31 days after removal that a laboratory analysis of a carbon sample from either at least one test canister or at least two carbon samples removed from one of the charcoal adsorbers shows a penetration of less than or equal to 1.0% radioactive methyl iodide when the sample is tested in accordance with ASTM D3803-1989, 30°C, 95% R.H. The carbon samples not obtained from test canisters shall be prepared by either:

a) Emptying one entire bed from a removed adsorber tray, mixing the adsorbent thoroughly, and obtaining samples at least two inches in diameter and with a length equal to the thickness of the bed, or

b) Emptying a longitudinal sample from an adsorber tray, mixing the adsorbent thoroughly, and obtaining samples at least two inches in diameter and with a length equal to the thickness of the bed.

4. Verifying a system flow rate of 6000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975.

SURVEILLANCE REQUIREMENTS (Continued)

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 6 inches Water Gauge while operating the ventilation system at a flow rate of 6000 cfm plus or minus 10%.

2. a. Verifying that on a Safety Injection Signal from Unit 1, the system automatically operates in the pressurization/cleanup mode.

   b. Verifying that on a Safety Injection Signal from Unit 2, the system automatically operates in the pressurization/cleanup mode.

3. Verifying that the system maintains the control room envelope/pressure boundary at a positive pressure of greater than or equal to 1/16 inch W. G. relative to the outside atmosphere at a system flow rate of 6000 cfm plus or minus 10%, with a makeup air flow rate of $\leq$ 1000 cfm.

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% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the ventilation system at a flow rate of 6000 cfm plus or minus 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% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the ventilation system at a flow rate of 6000 cfm plus or minus 10%.

CONTROL ROOM AIR CONDITIONING SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.5.2 The control room air conditioning system (CRACS) shall be OPERABLE with two heating and cooling systems.

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

ACTION:

With one heating and cooling 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

4.7.5.2 The control room air conditioning system shall be demonstrated OPERABLE at least once per 12 hours by verifying that the control room air temperature is less than or equal to 95°F.

3/4.7.5 CONTROL ROOM EMERGENCY VENTILATION AND CONTROL ROOM AIR CONDITIONING SYSTEMS

The OPERABILITY of the control room emergency ventilation system (CREVS) ensures that the control room will remain habitable for operations personnel during and following all credible accident conditions. In MODES 1-4, the CREVS provides radiological protection to allow operators to take the actions necessary to mitigate the consequences of a design basis accident. The CREVS is also required to be OPERABLE for operations involving the movement of irradiated fuel assemblies to provide protection from a fuel handling accident. The CREVS operation is not credited during the rupture of a waste gas tank or toxic gas release. The CREVS has two pressurization trains with each pressurization train consisting of a pressurization fan, normal intake air damper, and emergency intake air damper available to align and maintain flow to the control room. The charcoal adsorber/HEPA filter unit consists of the prefilter, charcoal adsorbers, HEPA filter, and filter housing. 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 less than or equal to 5 rem Total Effective Dose Equivalent, TEDE. This limitation is consistent with the requirements of General Design Criteria (GDC) 19 of Appendix "A", 10 CFR 50

The control room envelope/pressure boundary consists of the control room, the control room HVAC equipment room, and the plant process computer room. The Limiting Condition for Operation is modified by a Note allowing the control room envelope/pressure boundary to be opened intermittently under administrative controls. For entry and exit through doors to the control room, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for control room envelope/pressure boundary isolation is indicated .

If the control room envelope/pressure boundary is inoperable in MODES 1, 2, 3, and 4, the CREVS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room envelope/pressure boundary within 24 hours. During the period that the control room envelope/pressure boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour completion time is reasonable based on the low probability of a design basis accident occurring during this time period, and the use of compensatory measures The 24 hour completion time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the control room envelope/pressure boundary.

The Unit 1 control room emergency ventilation system aligns and operates automatically on a Safety Injection (SI) signal from either Unit 1 or Unit 2. Both pressurization fans start on the SI signal. Procedures direct realignment of the CREVS to single fan operation within two hours after receiving the SI signal. The automatic start from Unit 2 is normally only available when the Unit 2 ESF actuation system is active in modes 1 through 4 in Unit 2

The Limiting Condition for Operation requires two independent control room heating cooling systems. Each cooling system requires a functional air handling unit and associated cooling water supply. Cooling water is provided from a chilled water unit. At the design maximum essential service water (ESW) supply temperature of 86°F, a chilled water unit will maintain the control room temperature below 95°F. Cooling water may also be supplied directly by ESW when ESW supply temperature is $\leq$ 65°F.

The control room air conditioning system (CRACS) normally maintains the control room at temperatures at which control room equipment is qualified for the life of the plant. Continued operation at the Technical Specification limit is permitted since the portion of time the temperature is likely to be elevated is small in comparison to the qualified life of the equipment at the limit.

Each control room cooling system can maintain control room temperature $\leq$ 102°F during accident conditions with the control room isolated. At control room temperatures of $\leq$ 102°F, vital control room equipment remains within its manufacturer's recommended operating temperature range.

3/4.7.6 ESF VENTILATION SYSTEM

The OPERABILITY of the ESF ventilation system ensures that adequate cooling is provided for ECCS equipment and that radioactive materials leaking from 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 were assumed in the accident analyses.

The 1980 version of ANSI N510 is used as a testing guide. This standard, however, is intended to be rigorously applied only to systems which, unlike the ESF ventilation system, are designed to ANSI N509 standards. For the specific case of the air-aerosol mixing uniformity test required by ANSI N510 as a prerequisite to in-place leak testing of charcoal and HEPA filters, the air-aerosol uniform mixing test acceptance criteria were not rigorously met. For this reason, a statistical correction factor will be applied to applicable surveillance test results where required.

3/4.7.7 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, are based on 10 CFR 70.39(c) limits for plutonium. This limitation will ensure that leakage from byproduct, source, and special nuclear material sources will not exceed allowable intake values.

3/4.7.8 HYDRAULIC 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 excluded from this inspection program are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed, would have no adverse affect on any safety-related system.