

3.15 AIR TREATMENT SYSTEMS

3.15.1 EMERGENCY CONTROL ROOM AIR TREATMENT SYSTEM

Applicability

Applies to the emergency control room air treatment system and its associated filters.

Objective

To specify minimum availability and efficiency for the emergency control room air treatment system and its associated filters.

Specifications

- 3.15.1.1 Except as specified in Specification 3.15.1.3 below, both emergency treatment systems, AH-E18A fan and associated filter AH-F3A and AH-E188 fan and associated filter AH-F3B shall be operable at all times, per the requirements of Specification 3.15.1.2 below; when containment integrity is required and when irradiated fuel handling operations are in progress.
- 3.15.1.2* a. The results of the in-place DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show <0.05% DOP penetration and <0.05% halogenated hydrocarbon penetration, except that the DOP test will be conducted with prefilters installed.
- b. The results of laboratory carbon sample analysis shall show $\geq 90\%$ radioactive methyl iodide decontamination efficiency when tested at 125°F, 95% R.H.
- c. The fans AH-E18A and B shall each be shown to operate within ± 4000 CFM of design flow (40,000 CFM).
- 3.15.1.3 From and after the date that one control room air treatment system is made or found to be inoperable for any reason, reactor operation or irradiated fuel handling operations are permissible only during the succeeding 7 days provided the redundant system is demonstrated to be operable per 4.12.1.1 and 4.12.1.3 within 24 hours and daily thereafter.
- 3.15.1.4 From the date that both control room air treatment systems are made or found to be inoperable or if the inoperable system of 3.15.1.3 cannot be made operable in 7 days, irradiated fuel handling operations shall be terminated in 2 hours and reactor shutdown shall be initiated and the reactor shall be in cold shutdown within 48 hours.

*Not required until criticality for cycle 5 operation.

Applicability

Applies to the reactor building purge air treatment system and its associated filters.

Objective

To specify minimum availability and efficiency for the reactor building purge air treatment system and its associated filters.

Specification

- 3.15.2.1 Except as specified in Specification 3.15.2.3 below, the Reactor Building Purge Air Treatment System filter AH-F1 and fans AH-E7A and B shall be operable as defined by the Specification below at all times when containment integrity is required.
- 3.14.2.2* a. The results of the in-place DOP and halogenated hydrocarbon tests at maximum available flows on HEPA filters and charcoal adsorber banks for AH-F1 shall show <0.05% DOP penetration and <0.05% halogenated hydrocarbon penetration, except that the DOP test will be conducted with prefilters installed.
- b. The results of laboratory carbon sample analysis from the reactor building purge system filter carbon shall show $\geq 90\%$ radioactive methyl iodide decontamination efficiency when tested at 250°F, 95% R.H.
- c. Fans AH-E7[<] and B shall each be shown to operate within $\pm 2,500$ CFM of design flow (25,000 CFM).
- 3.15.2.3 a. From and after the date that the filter AH-F1 in the reactor building purge system is made or found to be inoperable as defined by Specification 3.15.2.2 above, or both fans AH-E7A and B are found to be inoperable, reactor operation is permissible only during the succeeding 30 days, unless such filter and at least one fan is sooner made operable.
- b. If the required conditions for the reactor building purge filter and fan cannot be met after 30 days, operations shall be terminated immediately and the reactor placed in cold shutdown within 48 hours.

*Not required until criticality for cycle 5 operation.

Bases

The Reactor Building Purge Exhaust System filter AH-F1 while normally used to filter all reactor building exhaust air, serves also as the post-accident purge filter when used in conjunction with the Hydrogen Purge System to reduce hydrogen gas concentrations in the reactor building following a LOCA. It is necessary to demonstrate operability of these filters to assure readiness for service is required, approximately thirty (30) days following a hypothetical LOCA.

3.15.3 AUXILIARY AND FUEL HANDLING EXHAUST AIR TREATMENT SYSTEM

Applicability

Applies to the auxiliary and fuel handling exhaust air treatment system.

Objective

To specify the minimum availability and efficiency for the auxiliary and fuel handling exhaust air treatment system.

Specification

3.15.3.1 The auxiliary and fuel handling buildings exhaust air treatment system shall be operable at all times when fuel handling operations are in progress in the Fuel Handling Building and whenever irradiated fuel is in the storage pool. This applies to the exhaust filters AH-F2A, 2B, 2C, and 2D as well as the exhaust fans AH-E14A, 14B, 14C, and 14D.

From and after the date that the auxiliary and fuel handling exhaust air treatment system is made or found to be inoperable, that is the filters AH-F 2A, 2B, 2C, and 2D and/or both sets of fans AH-E 14A and 14C and AH-E 14B and 14D, are inoperable, fuel handling operations shall be terminated immediately until the components are returned to service. Any fuel assembly movement in progress may be completed.

- 3.15.3.2* a. The results of the in-place DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show <0.05% DOP penetration and <0.05% halogenated hydrocarbon penetration, except that the DOP test will be conducted with prefilters installed.
- b. The results of laboratory carbon sample analysis shall show ≥90% radioactive methyl iodide decontamination efficiency when tested at 125°F, 95% R.H.
- c. Each set of fans AH-E14 A & C and AH-E14 B & D shall each be shown to have the capacity of operating within ±11,881 CFM of design flow (118,810 CFM).

3.15.3.3 With one auxiliary and fuel handling exhaust air treatment system inoperable, fuel movement within the storage pool may proceed provided the OPERABLE auxiliary and fuel handling exhaust air treatment system is in operation and discharging through at least one train of HEPA filters and charcoal adsorbers.

* Not required until criticality for cycle 5 operation.

4.12.3 AUXILIARY AND FUEL HANDLING EXHAUST AIR TREATMENT SYSTEM

Applicability

Applies to the auxiliary and fuel handling building exhaust air treatment system and associated components.

Objective

To verify that this system and associated components will be able to perform its design functions.

Specification

- 4.12.3.1 At least once per refueling interval or once per 18 months, whichever comes first, it shall be demonstrated that the pressure drop across the combined HEPA filter and adsorber banks is less than 6 inches of water at system design flow rate ($\pm 10\%$).
- 4.12.3.2* a. The tests and sample analysis required by Specification 3.15.3.2 shall be performed initially, once per refueling interval or 18 months, whichever comes first, or within 30 days prior to the movement of irradiated fuel and following significant painting, steam, fire, or chemical release in any ventilation zone communicating with the system that could contaminate the HEPA filters or charcoal adsorbers.
- b. DOP testing shall be performed after each complete or partial replacement of a HEPA filter bank or after any structural maintenance on the system housing that could affect the HEPA filter bank bypass leakage.
- c. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of a charcoal adsorber bank or after any structural maintenance on the AH-F 2A, B, C, or D housing that could affect charcoal adsorber bank bypass leakage.
- d. The fan combination AH-E 14A and C and AH-E 14B and D shall be operated at least 10 hours every month.
- 4.12.3.3* An air distribution test shall be performed on the HEPA filter bank initially and after any maintenance or testing that could affect the air distribution within the system. The air distribution across the HEPA filter bank shall be uniform within $\pm 20\%$. The test shall be performed at 118,810 cfm ($\pm 10\%$ flow rate).

Bases

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

- * Surveillance to be performed prior to cycle 5 criticality in lieu of once per refueling interval or once per 18 months.