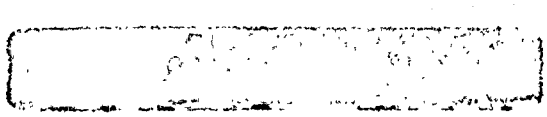
3.0 LIMITING CONDTIONS FOR OPERATION

Applicability

3.0.1 If one of the below listed limiting conditions for operation can not be satisfied because fewer components are operable than are required, the unit shall be placed in hot shutdown within seven hours and cold shutdown within the following 30 hours unless appropriate corrective action is taken before the time expires. This specification applies only to specifications 3.3.1, 3.4.1.b, 3.4.2.b, 3.4.3.b, 3.4.4.b, 3.4.5.b, 3.4.6.b, 3.4.7.b, 3.5, 3.6.d, 3.7.2 and 3.13.3.

3.0.2 For purposes of determining if a component is operable for LCO considerations, the component need not be considered inoperable due to inoperability of its normal or emergency power supply if all of its redundant components are operable with their normal or emergency power supplies operable.



1. ONE emergency containment cooling unit may be out of service for a period of 24 hours. Prior to initiating maintenance the other TWO units shall be tested to demonstrate operability.

2. ONE containment spray pump may be out of service provided it is restored to operable status within 24 hours. The remaining containment spray pump shall be tested to demonstrate operability before initiating maintenance of the inoperable pump.

3. Any valve in the system may be inoperable provided repairs are completed within 24 hours. Prior to initiating repairs, all valves that provide the duplicate function shall be tested to demonstrate operability.

3. EMERGENCY CONTAINMENT FILTERING SYSTEM

a. The reactor shall not be made critical, except for low power physics tests unless:

1. THREE emergency containment filtering units are operable.

2. All valves, interlocks and piping associated with the above components and required for post-accident operation, are operable.

b. During power operation:

1. ONE unit may be inoperable for a period of 7 days if the other TWO are operable.

2. Any valve in the system may be inoperable provided repairs are completed within 7 days. Prior to initiating maintenance, all valves that provide the duplicate function shall be tested to demonstrate operability.

3. If after 7 days the unit is still inoperable Specification 3.0.1 applies to 3.4.3.b.

4. COMPONENT COOLING SYSTEM

a. The reactor shall not be made critical, except for low power physics tests, unless the following conditions are met:

1. THREE component cooling pumps are operable.

2. THREE component cooling heat exchangers are operable.

3. All valves, interlocks and piping associated with the above components are operable.

b. During power operation, the requirements of 3.4.4.a may be modified as stated below. If the system is not restored to meet the conditions of 3.4.4.a within the time period specified, the reactor shall be placed in the hot shutdown condition. If the requirements of 3.4.4.a are not satisfied within an additional 48 hours, the reactor shall be placed in the cold shutdown condition. Specification 3.0.1 applies to 3.4.4.b.

1. ONE pump may be out of service for 7 days.

2. ONE additional pump and ONE heat exchanger may be out of service for period of 24 hours.

5. INTAKE COOLING WATER SYSTEM

a. The reactor shall not be made critical unless the following conditions are met:

1. THREE intake cooling water pumps and TWO headers are operable.

2. All valves, interlocks and piping associated with the operation of these pumps, and required for post accident operation, are operable.

b. During power operation, the requirements of 3.4.5.a., above, may be modified to allow any one of the following components to be inoperable provided the remaining systems are in continuous operation. If the system is not restored to meet the requirements of 3.4.5.a. within the time period specified, the reactor shall be placed in the hot shutdown condition. If the requirements of 3.4.5.a are not satisfied within an additional 48 hours, the reactor shall be placed in the cold shutdown condition. Specification 3.0.1 applies to 3.4.5.b.

1. One of the two headers may be out of service for a period of 24 hours.

2. One intake cooling water pump may be out of service for a period of 24 hours.

6. POST ACCIDENT CONTAINMENT VENT SYSTEM

a. The reactor shall not be made critical, except for low power physics tests unless:

1. The post accident containment vent system is operable.

2. All valves, interlocks, and piping associated with the above components and required for post-accident operation are operable.

b. During power operation:

1. The unit may be inoperable for a period of 7 days.

2. Any valve in the system may be inoperable provided repairs are completed within 7 days. Prior to initiating maintenance, all valves that provide the duplicate function shall be tested to demonstrate operability.

3. If after 7 days the unit is still inoperable, Specification 3.0.1 applies to 3.4.6.b.

7. CONTROL ROOM VENTILATION

a. The reactor shall not be made critical, except for low power physics tests unless:

1. The control room ventilation system is operable.

2. All valves, interlocks, and piping associated with the above components and required for post-accident operation are operable.

b. During power operation:

1. The unit may be inoperable for a period of 3 1/2 days.

2. Any valve in the system may be inoperable provided repairs are completed within 3 1/2 days. Prior to initiating maintenance, all valves that provide the duplicate function shall be tested to demonstrate operability.

3. If after 3 1/2 days the unit is still inoperable, Specification 3.0.1 applies to 3.4.7.b.

4.7 EMERGENCY CONTAINMENT FILTER SYSTEM, POST ACCIDENT CONTAINMENT VENT SYSTEM, AND CONTROL ROOM VENTILATION SYSTEM.

Applicability: Applies to the Emergency Containment Filter System, the Post Accident Containment Vent System, and the Control Room Ventilation System.

Objectives: To verify that these systems and their components will be able to perform their design functions.

In the event that painting, fire, or chemical release occurs such that the filters are exposed to the effluents of these events, the system will be tested to verify its performance of design features.

Specification: 1. EMERGENCY CONTAINMENT FILTER SYSTEM

1. Operating Tests

System tests shall be performed once per operating cycle or once per 18 months, whichever comes first. The tests shall consist of pressure drop and flow measurements across all filter banks in the plenum. Less than 6" of water pressure drop at design flow (37,500 cfm ± 10%) across the combined HEPA filter and charcoal adsorbers shall constitute acceptable performance. Visual inspection shall include search for any foreign material and gasket deterioration of the HEPA filters and charcoal adsorbers.

Once per operating cycle, each unit of the Emergency Containment Filtering System shall be tested to demonstrate automatic initiation upon receipt of a Safety Injection signal. Each unit of the Emergency Containment Filtering System shall be operated monthly for at least 15 minutes on a staggered basis to demonstrate operability.

2. Performance Tests

a. A visual inspection shall be made before each in-place air flow distribution test, DOP test or halogenated leak test. At least once per 18 months or after every 720 hours of system operation, in-place DOP and halogenated hydrocarbon tests at design flow (37,500 cfm ± 10%) and carbon analysis for each Emergency Containment Filter plenum shall be performed. In addition, carbon analysis and in-place DOP, and halogenated hydrocarbon tests at design flow (37,500 cfm ± 10%) shall be performed after (1) any structural maintenance on system housings, which might have affected filter bank efficiency, (2) after complete or partial replacement of a filter bank, or (3) after operational exposure of the filters to effluents from painting, fire, or chemical release. Removal of ≥ 99% DOP and ≥ 99% halogenated hydrocarbon shall constitute acceptable performance. Fans shall operate at design flow (37,500 cfm ± 10%). The charcoal surveillance specimen from one of the emergency containment filters shall show > 99.9% removal efficiency for elemental iodine. Samples will be taken in accordance with position C.6.b of Regulatory Guide 1.52. Carbon analysis will be performed in accordance with ANSI N510-1975. Analysis shall verify the above removal efficency for elemental iodine within 45 days after removal of the sample. Failing this, the charcoal shall be replaced with charcoal which meets or exceeds the criteria of position C.6.a of Regulatory Guide 1.52 (Revision 2).

b. An air distribution test shall be performed at design flow (37,500 cfm ± 10%) at least once after maintenance affecting flow distribution.

c. Flow rate should be verified following maintenance to HEPA or charcoal housing, or following painting or chemical release in its ventilation zone while the system is operating, or once each 18 months.

2. POST ACCIDENT CONTAINMENT VENT SYSTEM

1. Operating Tests

Operating tests shall be performed during refueling but not longer than 18 months. The tests shall consist of visual inspection of the system, operation of all valves, and pressure drop and air flow measurements. Visual inspection shall include a search for any foreign materials and gasket deterioration in the HEPA filters and charcoal adsorbers. Less than 6" of water pressure drop at 55 cfm flow shall constitute acceptable performance.

2. Performance Tests

a. A visual inspection of the system shall be made before each DOP test, halogenated hydrocarbon leak test, and upon completion of the above tests when the system is installed in its operational status in the auxiliary building. At least once per 18 months or after 720 hours of system operation, in-place DOP and halogenated hydrocarbon tests at design flow (55 cfm $\pm$ 10%) and carbon analysis, or carbon replacement, for the Post Accident Containment Vent filters shall be performed. In addition carbon analysis (or carbon replacement), DOP, and halogenated hydrocarbon tests at design flow (55 cfm $\pm$ 10%) shall be performed after (1) any structural maintenance on system housings. Which might have affected filter bank efficiency, (2) after complete or partial replacement of a filter bank or (3) after exposure of the filters to effluents from painting, fire or chemical release. Removal of $\geq$ 99% DOP and $\geq$ 99% halogenated hydrocarbon shall constitute acceptable performance.

b. Laboratory carbon sample analysis shall show $\geq$ 90% methyl radio-iodine removal or the charcoal shall be replaced with charcoal that meets or exceeds the criteria of position C.6.a of Regulatory Guide 1.52 (Revision 2). The sample shall be taken in accordance with position C.6.b. of Regulatory Guide 1.52. Carbon analysis shall be performed in accordance with ANSI N510-1975. Analysis shall verify the above removal efficiency for radioiodine within 45 days after removal of the sample.

c. The hydrogen concentration measurement instrument shall be calibrated with proper consideration for humidity.

3. CONTROL ROOM VENTILATION (EMERGENCY INTERNAL CLEANUP) SYSTEM

1. A visual inspection shall be made before each in-place DOP test, hydrogenated hydrocarbon leak test, and airflow distribution test. The Control Room Ventilation System shall be operated monthly for at least 15 minutes to demonstrate operability. Auto initiation of the systems operations shall be checked during refueling, but not longer than 18 months. Pressure drop measurements across the filter bank shall be made annually. Less than 6" of water pressure drop at designed flow (1,000 cfm $\pm$ 10%) across the combined HEPA filter and charcoal adsorbers shall constitute acceptable performance. A visual inspection shall include a search for any foreign materials and gasket deterioration in the HEPA filters and charcoal adsorbers.

2. Performance Tests

   a. A visual inspection shall be made before each in-place DOP test, halogenated hydrocarbon leak test, and airflow distribution test. At least once per 18 months or after every 720 hours of system operation, in-place DOP and halogenated hydrocarbon tests at design flow (1,000 cfm $\pm$ 10%) and carbon analysis shall be performed. In addition, carbon analysis (or carbon replacement) in-place DOP, and halogenated hydrocarbon tests at design flow (1,000 cfm $\pm$ 10%) shall be performed after (1) any structural maintenance on system housings, which might have affected filter bank efficiency, (2) after complete or partial replacement of a filter bank, or (3) after operational exposure of the filters to effluents from painting, fire, or chemical release. Removal of $\geq$ 99% DOP and $\geq$ 99% halogenated hydrocarbon shall constitute acceptable performance.

   b. A charcoal surveillance specimen from one of the charcoal adsorbers shall be removed and analyzed for methyl radio-iodine removal capability. The results of the laboratory carbon sample analysis shall show $\geq$ 90% methyl radio-iodine removal efficiency. Samples shall be taken in accordance with position C.6.b of Regulatory Guide 1.52. Carbon analysis shall be performed in accordance with ANSI N510-19/5. Analysis shall verify the above removal efficiency for methyl radio-iodine within 45 days after removal of the sample. Failing this, the charcoal shall be replaced with charcoal which meets or exceeds the criteria of position C.6.a of Regulatory Guide 1.52 (Revision 2)

   c. System flow rate should be verified once each 18 months, following maintenance to HEPA or charcoal housings, or fire, or chemcial release in its ventilation zone while the system is operating.

B4.7 BASES FOR EMERGENCY CONTAINMENT FILTERING SYSTEM, POST ACCIDENT CONTAINMENT VENT SYSTEM, AND CONTROL ROOM VENTILATION SYSTEM.

System components are not subject to rapid deterioration, having lifetimes of many years, even under continuous flow conditions. Visual inspection an operating tests provide assurance of system reliability and will insure early detection of conditions which could cause the system to fail or operate improperly. The performance tests prove conclusively that filters have been properly installed, that no deterioration or damage has occurred, and that all components and subsystems operate properly. The tests are performed in accordance with the methodology and intent of ANSI N510 (1975) and provide assurance that filter performance has not deteriorated below required specification values due to aging, contamination, or other effects.