

SURVEILLANCE REQUIREMENTS

4.7.7.1.1 The BV-1 emergency ventilation subsystem shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying that the control room air temperature is  $\leq 88^{\circ}\text{F}$ .
- b. At least once per 31 days by initiating flow through the HEPA filter and charcoal adsorber train and verifying that the train operates for 15 minutes.
- c. At least once per 18 months or after every 720 hours of system operation or (1) after each complete or partial replacement of a HEPA filter or charcoal adsorber bank, or (2) after any structural maintenance on the HEPA filter or charcoal adsorber housing or (3) following painting, fire or chemical release in any ventilation zone communicating with the system by:
  1. Verifying that the filtration system satisfies the in-place penetration and by-pass leakage testing acceptance criteria of less than 1% when tested in accordance with ANSI N510-1980 while operating the ventilation system at a flow rate of 800 - 1000 cfm.
  2. Within 31 days after removal, subjecting the carbon contained in at least one test canister or at least two carbon samples removed from one of the charcoal adsorbers to a laboratory carbon sample analysis and verifying a removal efficiency of  $\geq 99\%$  for radioactive methyl iodine at an air flow velocity of .68 ft/sec with an inlet methyl iodide concentration of  $1.75 \text{ mg/m}^3$ ,  $\geq 70\%$  relative humidity, and  $30^{\circ}\text{C}$ ; other test conditions including test parameter tolerances shall be in accordance with ASTM D3803-1989. 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 a sample volume equivalent to at least two inches in diameter and with a length equal to the thickness of the bed, or
    - b) Removing a longitudinal sample from an adsorber tray using a slotted-tube sampler, mixing the adsorbent thoroughly, and obtaining a sample volume equivalent to at least two inches in diameter and with length equal to the thickness of the bed.

SURVEILLANCE REQUIREMENTS (continued)

3. Verifying a system flow rate of 800 - 1000 cfm during system operation.
- d. At least once per 18 months by:
  1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is < 6 inches Water Gauge while operating the ventilation system at a flow rate of 800 - 1000 cfm.
  2. Verifying that on a control room high radiation/containment phase B isolation test signal from either Unit, the system automatically closes all the series isolation ventilation system dampers which isolate the combined control room from the outside atmosphere.
  3. Verifying that one emergency ventilation subsystem maintains the combined control room at a positive pressure of  $\geq 1/8$  inch Water Gauge relative to the outside atmosphere during system operation.
  4. Verifying that the heaters dissipate at least 3.87 kw and not exceeding 5.50 kw when tested in accordance with ANSI N510-1980.

4.7.7.1.2 The BV-2 emergency ventilation subsystems shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying that the control room air temperature is  $\leq 88^{\circ}\text{F}$ .
- b. At least once per 31 days by initiating flow through each HEPA filter and charcoal adsorber train and by verifying that each train operates for 15 minutes.
- c. At least once per 18 months, or after every 720 hours of system operation and (1) after each complete or partial replacement of a HEPA filter or charcoal adsorber bank, or (2) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (3) following painting, fire or chemical release in any ventilation zone communicating with the system by:
  1. Verifying that the filtration system satisfies the in-place penetration and by-pass leakage testing acceptance criteria of less than 1% when tested in accordance with ANSI N510-1980 while operating the ventilation system at a flow rate of 800-1000 cfm.

SURVEILLANCE REQUIREMENTS (continued)

2. Within 31 days after removal, subjecting the carbon contained in at least one test canister or at least two carbon samples removed from one of the charcoal adsorbers to a laboratory carbon sample analysis and verifying a removal efficiency of  $\geq 99\%$  for radioactive methyl iodine at an air flow velocity of 0.70 ft/sec with an inlet methyl iodine concentration of  $1.75 \text{ mg/m}^3$ ,  $\geq 70\%$  relative humidity, and  $30^\circ\text{C}$ ; other test conditions including test parameter tolerances shall be in accordance with ASTM D3803-1989. 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 a sample volume equivalent to at least two inches in diameter and with a length equal to the thickness of the bed, or
  - b) Removing a longitudinal sample from an adsorber tray using a slotted-tube sampler, mixing the adsorbent thoroughly, and obtaining a sample volume equivalent to at least two inches in diameter and with a length equal to the thickness of the bed.
3. Verifying a system flow rate of 800 to 1000 cfm during system operation.
- d. At least once per 18 months by:
  1. Verifying that the pressure drop for the combined HEPA filters and charcoal adsorber banks is less than 5.6 inches Water Gauge while operating the ventilation system at a flow rate of 800 to 1000 cfm.
  2. Verifying that on a Containment Isolation Phase B/ Control Room High Radiation test signal from either Unit, the system automatically closes all the series isolation ventilation system dampers which isolate the combined control room from the outside atmosphere and the system automatically starts 60 minutes later and supplies air to the control room through the HEPA filters and charcoal adsorber banks.
  3. Deleted

SURVEILLANCE REQUIREMENTS (continued)

4. Verifying that one emergency ventilation subsystem maintains the control room at a positive pressure of  $\geq 1/8$  inch Water Gauge relative to the outside atmosphere during system operation.
5. Verifying that the heaters dissipate at least 3.87 kw and not exceeding 5.50 kw when tested in accordance with ANSI N510-1980.

4.7.7.2 The bottled air pressurization system shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that the system contains a minimum of 10 bottles of air each pressurized to at least 1825 psig and by verifying that the system solenoid operated valves are powered from an operable emergency bus.
- b. At least once per 18 months by verifying that:
  1. A control room high radiation/containment phase B isolation test signal from either Unit will initiate system operation.
  2. Upon a partial discharge test using four out of five bottled air subsystems the system will supply  $\leq 1000$  cfm of air and pressurize the control room to  $\geq 1/8$  inch Water Gauge relative to the outside atmosphere during system operation.

3/4.7.8 SUPPLEMENTAL LEAK COLLECTION AND RELEASE SYSTEM (SLCRS)

LIMITING CONDITION FOR OPERATION

3.7.8.1 Two SLCRS exhaust air filter trains shall be OPERABLE.

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

ACTION:

With one SLCRS exhaust air filter 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.

SURVEILLANCE REQUIREMENTS

4.7.8.1 Each SLCRS exhaust air filter train shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by:
  1. Initiating, from the control room, flow through the HEPA filter and charcoal adsorber train and verifying that the train operates for at least 15 minutes.
- b. At least once per 18 months or after every 720 hours of system operation or (1) after each complete or partial replacement of a HEPA filter or charcoal adsorber bank, or (2) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (3) following painting, fire or chemical release in any ventilation zone communicating with the system by:
  1. Verifying that the charcoal adsorbers remove  $\geq 99\%$  of a halogenated hydrocarbon refrigerant test gas when they are testing in-place in accordance with ANSI N510-1975 while operating the ventilation system at a flow rate of 36,000 cfm  $\pm 10\%$ .

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying that the HEPA filter banks remove  $\geq 99\%$  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 36,000 cfm  $\pm 10\%$ .
  3. Subjecting the carbon contained in at least one test canister or at least two carbon samples removed from one of the charcoal adsorbers to a laboratory carbon sample analysis and verifying a removal efficiency of  $\geq 90\%$  for radioactive methyl iodide at an air flow velocity of 0.9 ft/sec with an inlet methyl iodide concentration of 1.75 mg/m<sup>3</sup>,  $\geq 95\%$  relative humidity, and 30°C; other test conditions including test parameter tolerances shall be in accordance with ASTM D3803-1989. 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 36,000 cfm  $\pm 10\%$  during system operation.
- c. At least once per 18 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is  $< 6$  inches Water Gauge while operating the ventilation system at a flow rate of 36,000 cfm  $\pm 10\%$ .
  2. Verifying that the SLCRS flow is diverted through the filter train on a Containment Isolation - Phase "A" signal.

SURVEILLANCE REQUIREMENTS (Continued)

- d. Verifying that the air flow distribution to each HEPA filter and charcoal adsorber is within  $\pm 20\%$  of the averaged flow per unit after initial installation and after any maintenance affecting the flow distribution.

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PLANT SYSTEMS

3/4.7.7 CONTROL ROOM EMERGENCY AIR CLEANUP AND PRESSURIZATION SYSTEM

SURVEILLANCE REQUIREMENTS

4.7.7.1 The Control Room Emergency Air Cleanup and Pressurization System shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying that the control room air temperature is  $\leq 88^{\circ}\text{F}$ .
- b. At least once per 31 days by:
  1. Initiating flow through the HEPA filter and charcoal adsorber train and verifying that the train operates for 15 minutes with the heaters in operation.
  2. Verifying that the bottled air pressurization system contains a minimum of 10 bottles of air each pressurized to at least 1825 psig and that each solenoid operated valve is powered from an operable emergency bus.
- c. At least once per 18 months or (1) after each complete or partial replacement of a HEPA filter or charcoal adsorber bank, or (2) after any structural maintenance on the HEPA filter or charcoal adsorber housings by:
  1. Verifying that the charcoal adsorbers remove  $\geq 99.95\%$  of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1980 while operating the pressurization filtration system at a flow rate of 800 to 1000 cfm.
  2. Verifying that the HEPA filter banks remove  $\geq 99.95\%$  of the DOP when they are tested in-place in accordance with ANSI N510-1980 while operating the pressurization filtration system at a flow rate of 800 to 1000 cfm.
  3. Verifying a system flow rate of 800 to 1000 cfm during system operation.
- d. At least once per 18 months or (1) after 720 hours of system operation, or (2) following painting, fire or chemical release in the vicinity of control room outside air intakes while the system is operating, within 31 days after removal, subjecting the carbon contained in at least one test canister or at least two carbon samples removed from one of the charcoal adsorbers to a laboratory carbon sample analysis and verifying a removal efficiency of  $\geq 99\%$  for radioactive methyl iodide at an air flow velocity of 0.7 ft/sec with an inlet methyl iodide concentration of 1.75 mg/m<sup>3</sup>,  $\geq 70\%$  relative humidity, and 30°C; other test conditions including test parameter tolerances shall be in

SURVEILLANCE REQUIREMENTS (Continued)

accordance with ASTM D3803-1989. 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.
- e. At least once per 18 months by:
1. Verifying that the pressure drop for the combined HEPA filters and charcoal adsorber banks is less than 5.6 inches Water Gauge while operating the pressurization filtration system at a flow rate of 800 to 1000 cfm.
  2. Verifying that on a Containment Isolation Phase B/ Control Room High Radiation test signal, the system automatically closes all the series isolation ventilation system dampers which isolate the control room from the outside atmosphere and the system automatically starts 60 minutes later and supplies air to the control room through the HEPA filters and charcoal adsorber banks.
  3. Deleted
  4. Verifying that the pressurization filtration system maintains the control room at a positive pressure of  $\geq 1/8$  inch Water Gauge relative to the outside atmosphere during system operation.
  5. Verifying that the heaters dissipate at least 3.87 kw and not exceeding 5.50 kw when tested in accordance with ANSI N510-1980.
  6. Verifying that a control room high radiation/ containment phase B isolation signal will initiate operation of the bottled air pressurization system.
  7. Verifying by a partial discharge test from four out of five sub-systems of the bottled air pressurization system at a discharge flow of less than 1000 cfm that the bottled air pressurization system will pressurize the control room to  $\geq 1/8$  inch Water Gauge relative to the outside atmosphere during system operation.

3/4.7.8 SUPPLEMENTAL LEAK COLLECTION AND RELEASE SYSTEM (SLCRS)

LIMITING CONDITION FOR OPERATION

3.7.8.1 Two SLCRS exhaust air filter trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one SLCRS exhaust air filter 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.

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4.7.8.1 Each SLCRS exhaust air filter train shall be demonstrated OPERABLE:

- a. At least once per 31 days by initiating, from the control room, flow through the "standby" HEPA filter and charcoal adsorber train and verifying that the train operates for at least 15 minutes with the heater controls operational.
- b. At least once per 18 months or (1) after each complete or partial replacement of a HEPA filter or charcoal adsorber bank, or (2) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (3) following painting, fire or chemical release in any ventilation zone communicating with the system by:
  1. Verifying that the charcoal adsorbers remove  $\geq 99.95\%$  of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1980 while operating the ventilation system at a flow rate of 57,000 cfm  $\pm 10\%$ .
  2. Verifying that the HEPA filter banks remove  $\geq 99.95\%$  of the DOP when they are tested in-place in accordance with ANSI N510-1980 while operating the ventilation system at a flow rate of 57,000 cfm  $\pm 10\%$ .
  3. Within 31 days after removal, subjecting the carbon contained in at least one test canister or at least two carbon samples removed from one of the charcoal adsorbers to a laboratory carbon sample analysis and

SURVEILLANCE REQUIREMENTS

verifying a removal efficiency of  $\geq 99\%$  for radioactive methyl iodide at an air flow velocity of 0.7 ft/sec with an inlet methyl iodide concentration of 1.75 mg/m<sup>3</sup>,  $\geq 70\%$  relative humidity, and 30°C; other test conditions including test parameter tolerances shall be in accordance with ASTM D3803-1989. The carbon samples not obtained from test canisters shall be taken with a slotted tube sampler in accordance with ANSI N509-1980.

4. Verifying a system flow rate of 57,000 cfm  $\pm 10\%$  during system operation.
- c. 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 6.8 inches Water Gauge while operating the ventilation system at a flow rate of 57,000 cfm  $\pm 10\%$ .
  2. Verifying that the exhaust from the contiguous area is diverted through the SLCRS filter train on a Containment Isolation - Phase "A" signal in less than 5 minutes.
- d. Verifying that the air flow distribution to each HEPA filter and charcoal adsorber is within  $\pm 20\%$  of the averaged flow per unit after initial installation and after any maintenance affecting the flow distribution.
- e. At least once per 4 months of system operation, perform the surveillance requirement of 4.7.8.1.b.3.