

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. AREA MONITORS				
a. Deleted				
b. Containment				
i. Purge & Exhaust Isolation (RMVS 104 A & B)	S	R	M	**
ii. Area (RM-RM-219 A & B)	S	R	M	1,2,3,& 4
c. Control Room Isolation (RM-RM-218 A & B)	S	R	M###	1,2,3,4, and ##
2. PROCESS MONITORS				
a. Containment				
i. Gaseous Activity RCS Leakage Detection (RM 215B)	S	R#	M	1,2,3 & 4
ii. Particulate Activity RCS Leakage Detection (RM 215A)	S	R#	M	1,2,3 & 4
b. Deleted				

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- ** During movement of recently irradiated fuel assemblies within the containment and during movement of fuel assemblies over recently irradiated fuel assemblies within the containment.
- # Surveillance interval may be extended to the upcoming refueling outage if the interval between refueling outages is greater than 18 months.
- ## During movement of irradiated fuel assemblies and during movement of fuel assemblies over irradiated fuel assemblies.
- ### Control Room intake and exhaust isolation dampers are not actuated.

PLANT SYSTEMS

3/4.7.7 CONTROL ROOM EMERGENCY HABITABILITY SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.7.1 The control room emergency habitability system is OPERABLE* when:

- a. Two out of three emergency ventilation subsystems, fans, associated filters and dampers are OPERABLE, and
- b. The series normal air intake and exhaust isolation dampers for both units are OPERABLE, and capable of automatic closure on a CIB** and Control Room High Radiation isolation signal, or OPERABLE by being secured in a closed position with power removed.
- c. The control room air temperature is maintained $\leq 88^{\circ}\text{F}$.

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

During movement of irradiated fuel assemblies, and

During movement of fuel assemblies over irradiated fuel assemblies.

ACTION:

- a. With less than two emergency ventilation subsystems, fans, and associated filters OPERABLE, restore at least two subsystems 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.
 - a.1 With an emergency ventilation subsystem inlet isolation damper open and not capable of being closed, the requirements of 3.0.3 are applicable.

* Emergency power for only one train of dampers is required in MODES 5, 6 and with no fuel assemblies in the reactor pressure vessel.

** Automatic actuation on a CIB signal is only required in MODES 1 through 4.

PLANT SYSTEMS

LIMITING CONDITION FOR OPERATION (continued)

- b. With one open series normal air intake or exhaust isolation damper inoperable and not capable of closing, restore all series dampers 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.1 With both series normal air intake or exhaust isolation dampers inoperable and not capable of being closed, the requirements of 3.0.3 are applicable and movement of irradiated fuel assemblies and movement of fuel assemblies over irradiated fuel assemblies shall be suspended.
- c. With the control room air temperature $> 88^{\circ}\text{F}$ but $\leq 105^{\circ}\text{F}$, return the temperature to $\leq 88^{\circ}\text{F}$ in 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c.1 With the control room air temperature $> 105^{\circ}\text{F}$, be in at least HOT STANDBY within the next 4 hours and in COLD SHUTDOWN within the following 30 hours.

PLANT SYSTEMS
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 0.05% 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 mg/m^3 , $\geq 70\%$ 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 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.

PLANT SYSTEMS

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 0.05% when tested in accordance with ANSI N510-1980 while operating the ventilation system at a flow rate of 800-1000 cfm.

PLANT SYSTEMS

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 mg/m^3 , $\geq 70\%$ 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 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 and supplies air to the control room through the HEPA filters and charcoal adsorber banks.
 3. Deleted

PLANT SYSTEMS

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.

PLANT SYSTEMS

3/4.7.7 CONTROL ROOM EMERGENCY AIR CLEANUP AND PRESSURIZATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7 The Control Room Emergency Air Cleanup and Pressurization System comprised of the following shall be OPERABLE:

- a. A pressurization filtration unit comprised of two trains of fans and filters, and flow path control dampers.*
- b. Two isolation dampers in series in each of four normal air flow paths (two intake and two exhaust) with each damper OPERABLE by automatic actuation** or OPERABLE by being secured in a closed position with power removed.

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

During movement of recently irradiated fuel assemblies, and

During movement of fuel assemblies over recently irradiated fuel assemblies.

ACTION:

MODES 1, 2, 3 and 4:

With one train of the pressurization filtration unit or one of two isolation dampers in series inoperable, restore the 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.

* Emergency backup power for only one train of dampers and fans of the pressurization filtration unit is required in MODES 5, 6 and with no fuel assemblies in the reactor pressure vessel.

** Automatic actuation on a CIB signal is only required in MODES 1 through 4.

PLANT SYSTEMS

LIMITING CONDITION FOR OPERATION (continued)

ACTION (Continued)

During movement of recently irradiated fuel assemblies and during movement of fuel assemblies over recently irradiated fuel assemblies:

- a. With one train of the pressurization filtration unit or one of two isolation dampers in series inoperable, restore the inoperable system to OPERABLE status within 7 days or suspend all operations involving movement of recently irradiated fuel assemblies and movement of fuel assemblies over recently irradiated fuel assemblies.
- b. With both trains of the pressurization filtration unit or two of two isolation dampers in series inoperable suspend all operations involving movement of recently irradiated fuel assemblies and movement of fuel assemblies over recently irradiated fuel assemblies.

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 initiating flow through the HEPA filter and charcoal adsorber train and verifying that the train operates for 15 minutes with the heaters in operation.
- 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.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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/m³, $\geq 70\%$ 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 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 and supplies air to the control room through the HEPA filters and charcoal adsorber banks.
 3. Deleted

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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.