INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION

RADIATION MONITORING

LIMITING CONDITION FOR OPERATION

3.3.3.1 The radiation monitoring instrumentation channels shown in Table 3.3-6 shall be OPERABLE with their alarm/trip setpoints within the specified limits.

APPLICABILITY: As shown in Table 3.3-6.

ACTION:

a. With a radiation monitoring channel alarm/trip setpoint exceeding the value shown in Table 3.3-6, adjust the setpoint to within the limit within 2 hours or declare the channel inoperable.

b. With one or more radiation monitoring channels inoperable, take the ACTION shown in Table 3.3-6. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.1.1 Each radiation monitoring instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the modes and at the frequencies shown in Table 4.3-3.

4.3.3.1.2 DELETED

4.3.3.1.3 Verify the response time of the control room isolation channel at least once per 18 months.

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
1. AREA MONITORS					
a. Deleted					
b. Control Room Isolation	1	ALL MODES	2 mR/hr	10^{-1} - 10^{4} mR/hr	16
c. Containment High Range	1	1,2,3,&4	100 R/hr	10^{0} - 10^{8} R/hr	17
2. PROCESS MONITORS					
a. Containment Atmosphere-Particulate	1	1, 2, 3, & 4	NA	10 - 10^{+6} cpm	14
b. Containment Atmosphere-Gaseous	1	1, 2, 3, & 4	NA	10 - 10^{+6} cpm	14
c. Noble Gas Effluent Monitor (high range) (Unit 2 stack)	1	1, 2, 3, & 4	2 x 10^{-1} uci/cc	10^{-3} - 10^{5} uci/cc	17

TABLE 3.3-6 (Continued)

TABLE NOTATION

(a) DELETED

ACTION 13 - DELETED

ACTION 14 - With the number of process monitors OPERABLE less than required by the MINIMUM CHANNELS OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.

ACTION 15 - DELETED

ACTION 16 - With the number of OPERABLE channels less than required by the MINIMUM CHANNELS OPERABLE requirement, within 1 hour initiate and maintain operation of the control room emergency ventilation system in the recirculation mode of operation.

ACTION 17 - With the number of OPERABLE channels less than required by the MINIMUM CHANNELS OPERABLE requirements, initiate the preplanned alternate method of monitoring the appropriate parameter(s), within 72 hours, and:

1) either restore the inoperable channel(s) to OPERABLE status within 7 days of the discovery or

2) prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following discovery outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

TABLE 4.3-3
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. AREA MONITORS				
a. Deleted				
b. Control Room Isolation	S	R	M	ALL MODES
c. Containment High Range	S	R*	M	1, 2, 3, & 4
2. PROCESS MONITORS				
a. Containment Atmosphere-Particulate	S	R	M	1, 2, 3, & 4
b. Containment Atmosphere-Gaseous	S	R	M	1, 2, 3, & 4
c. Noble Gas Effluent Monitor (high range) (Unit 2 Stack)	S	R	M	1, 2, 3, & 4

* Calibration of the sensor with a radioactive source need only be performed on the lowest range. Higher ranges may be calibrated electronically.

INSTRUMENTATION

CONTAINMENT PURGE VALVE ISOLATION SIGNAL

LIMITING CONDITION FOR OPERATION

3.3.4 One Containment Purge Valve Isolation Signal containment gaseous radiation monitor channel, one Containment Purge Valve Isolation Signal containment particulate radiation monitor channel, and one Containment Purge Valve Isolation Signal automation logic train shall be OPERABLE.

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

ACTION:

With no OPERABLE containment purge valve isolation signal, containment gaseous radiation monitor channel, containment purge valve isolation signal, containment particulate radiation monitor channel, and containment purge valve isolation signal automatic logic train, enter the applicable conditions and required ACTIONS for the affected valves of Technical Specification 3.6.3.1, "Containment Isolation Valves."

SURVEILLANCE REQUIREMENTS

4.3.4.1 Perform a CHANNEL CHECK on each Containment Purge Valve Isolation Signal containment gaseous and particulate radiation monitor channel at least once per 12 hours.

4.3.4.2 Perform a CHANNEL FUNCTIONAL TEST on each Containment Purge Valve Isolation Signal containment gaseous and particulate radiation monitor channel at least once per 31 days.

This surveillance shall include verification of the trip value in accordance with the following:

The trip value shall be such that the containment purge effluent shall not result in calculated concentrations of radioactivity offsite in excess of 10 CFR Part 20, Appendix B, Table II. For the purposes of calculating this trip value, a $x/Q = 5.8 \times 10^{-6}$ sec/m^3 shall be used when the system is aligned to purge through the building vent and a $x/Q = 7.5 \times 10^{-8}$ sec/m^3 shall be used when the system is aligned to purge through the Unit 1 stack, the gaseous and particulate (Half Lives greater than 8 days) radioactivity shall be assumed to be Xe-133 and Cs-137, respectively. However, the setpoints shall be no greater than 5×10^5 cpm.

PLANT SYSTEMS

3/4.7.6 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6.1 Two independent Control Room Emergency Ventilation Trains shall be OPERABLE.*

APPLICABILITY: MODES 1, 2, 3, 4, 5 and 6.

During irradiated fuel movement within containment or the spent fuel pool.

ACTION:

MODES 1, 2, 3, and 4:

a. With one Control Room Emergency Ventilation 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 both Control Room Emergency Ventilation Trains inoperable, except as specified in ACTION c., immediately suspend the movement of irradiated fuel assemblies within the spent fuel pool. Restore at least one inoperable train to OPERABLE status within 1 hour, or be in HOT STANDBY within the next 6 hours, and COLD SHUTDOWN within the following 30 hours.

c. With both Control Room Emergency Ventilation Trains inoperable due to an inoperable Control Room boundary, immediately suspend the movement of irradiated fuel assemblies within the spent fuel pool. Restore the Control Room boundary to OPERABLE status within 24 hours or be in HOT STANDBY within the next 6 hours, and COLD SHUTDOWN within the following 30 hours.

* The Control Room boundary may be opened intermittently under administrative control.

3/4.7.6 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

ACTION (continued)

MODES 5 and 6, and during irradiated fuel movement within containment or the spent fuel pool:**

d. With one Control Room Emergency Ventilation Train inoperable, restore the inoperable train to OPERABLE status within 7 days. After 7 days, either initiate and maintain operation of the remaining OPERABLE Control Room Emergency Ventilation Train in the recirculation mode of operation, or immediately suspend CORE ALTERATIONS, and the movement of irradiated fuel assemblies.

e. With both Control Room Emergency Ventilation Trains inoperable, or with the OPERABLE Control Room Emergency Ventilation Train required to be in the recirculation mode by ACTION d. not capable of being powered by an OPERABLE normal and emergency power source, immediately suspend CORE ALTERATIONS, and the movement of irradiated fuel assemblies.

** In MODES 5 and 6, when a Control Room Emergency Ventilation Train is determined to be inoperable solely because its emergency power source is inoperable, or solely because its normal power source is inoperable, it may be considered OPERABLE for the purpose of satisfying the requirements of 3.7.6.1 Limiting Condition for Operation, provided: (1) its corresponding normal or emergency power source is OPERABLE; and (2) all of its redundant system (s), subsystem (s), train (s), component (s) and device(s) are OPERABLE, or likewise satisfy the requirements of the specification. Unless both conditions (1) and (2) are satisfied within 2 hours, then ACTION 3.7.6.1.d or 3.7.6.1.e shall be invoked as applicable.

REFUELING OPERATIONS

CONTAINMENT PENETRATIONS

LIMITING CONDITION FOR OPERATION

3.9.4 The containment penetrations shall be in the following status:

a. The equipment door shall be either:

1. closed and held in place by a minimum of four bolts, or

2. open under administrative control* and capable of being closed and held in place by a minimum of four bolts,

b. The personnel air lock shall be either:

1. closed by one personnel air lock door, or

2. capable of being closed by an OPERABLE personnel air lock door, under administrative control *, and

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:

1. Closed by a manual or automatic isolation valve, blind flange, or equivalent, or

2. Be capable of being closed under administrative control *

APPLICABILITY: During movement of irradiated fuel assemblies within containment.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving movement of irradiated fuel assemblies in the containment.

* Administrative controls shall ensure that appropriate personnel are aware that the equipment door, personnel air lock door and/or other containment penetrations are open, and that a specific individual(s) is designated and available to close the equipment door, personnel air lock door and/or other containment penetrations within 30 minutes if a fuel handling accident occurs. Any obstructions (e.g., cables and hoses) that could prevent closure of the equipment door, a personnel air lock door and/or other containment penetration must be capable of being quickly removed.

SURVEILLANCE REQUIREMENTS

4.9.4.1 Verify each required containment penetration is in the required status at least once per 7 days.

4.9.4.2 Deleted

SHUTDOWN COOLING AND COOLANT CIRCULATION - HIGH WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.8.1 One shutdown cooling train shall be OPERABLE and in operation.

NOTE

1. The required shutdown cooling train may not be in operation for up to 1 hour per 8 hour period provided no operations are permitted that would cause a reduction in Reactor Coolant System boron concentration.

2. The normal or emergency power source may be inoperable for the required shutdown cooling train.

3. The shutdown cooling pumps may be removed from operation during the time required for local leak rate testing of containment penetration number 10 or to permit maintenance on valves located in the common SDC suction line, provided:

   a. No operations are permitted that would cause reduction of the Reactor Coolant System boron concentration,

   b. CORE ALTERATIONS are suspended, and

   c. Containment penetrations are in the following status:

      1) The equipment door is closed and secured with at least four bolts; and

      2) At least one personnel airlock door is closed; and

      3) Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be closed with a manual or automatic isolation valve, blind flange, or equivalent.

APPLICABILITY: MODE 6 with the water level ≥ 23 feet above the top of the reactor vessel flange.

REFUELING OPERATIONS

SHUTDOWN COOLING AND COOLANT CIRCULATION - HIGH WATER LEVEL

LIMITING CONDITION FOR OPERATION

ACTION:

With no shutdown cooling train OPERABLE or in operation, perform the following actions:

a. Immediately suspend all operations involving a reduction in Reactor Coolant System boron concentration and the loading of irradiated fuel assemblies in the core; and

b. Immediately initiate action to restore one shutdown cooling train to OPERABLE status and operation; and

c. Within 4 hours place the containment penetrations in the following status:

1. Close the equipment door and secure with at least four bolts; and

2. Close at least one personnel airlock door; and

3. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be closed with a manual or automatic isolation valve, blind flange, or equivalent.

SURVEILLANCE REQUIREMENTS

4.9.8.1 One shutdown cooling train shall be verified to be in operation and circulating reactor coolant at a flow rate greater than or equal to 1000 gpm at least once per 12 hours.

REFUELING OPERATIONS

SHUTDOWN COOLING AND COOLANT CIRCULATION - LOW WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.8.2 Two shutdown cooling trains shall be OPERABLE and one shutdown cooling train shall be in operation.

NOTE
The normal or emergency power source may be inoperable for each shutdown cooling train.

APPLICABILITY: MODE 6 with the water level < 23 feet above the top of the reactor vessel flange.

ACTION a. With one shutdown cooling train inoperable, immediately initiate action to restore the shutdown cooling train to OPERABLE status OR immediately initiate action to establish ≥ 23 feet of water above the top of the reactor vessel flange.

b. With no shutdown cooling train OPERABLE or in operation, perform the following actions:

1. Immediately suspend all operations involving a reduction in Reactor Coolant System boron concentration; and

2. Immediately initiate action to restore one shutdown cooling train to OPERABLE status and operation; and

3. Within 4 hours place the containment penetrations in the following status:

a. Closed the equipment door and secure with at least four bolts; and

b. Close at least one personnel airlock door; and

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be closed with a manual or automatic isolation valve, blind flange, or equivalent.

SURVEILLANCE REQUIREMENTS

4.9.8.2.1 One shutdown cooling train shall be verified to be in operation and circulating reactor coolant at a flow rate greater than or equal to 1000 gpm at least once per 12 hours.

4.9.8.2.2 The required shutdown cooling pump, if not in operation, shall be determined OPERABLE once per 7 days by verifying correct breaker alignment and indicated power available.

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3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that 1) the radiation levels are continually measured in the areas served by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

The analysis for a Steam Generator Tube Rupture Event and for a Millstone Unit No. 3 Loss of Coolant Accident credits the control room ventilation inlet duct radiation monitors with closure of the Unit 2 control room isolation dampers. In the event of a single failure in either channel (1 per train), the control room isolation dampers automatically close. The response time test for the control room isolation dampers includes signal generation time and damper closure. The response time for the control isolation dampers is maintained within the applicable facility surveillance procedure.

The containment airborne radiation monitors (gaseous and particulate) provide early indication of leakage from the Reactor Coolant System as specified in Technical Specification 3.4.6.1.

3/4.3.3.9 - DELETED

3/4.3.3.10 - DELETED

3/4.3.4 Containment Purge Valve Isolation Signal

A high airborne radioactivity level inside containment will be detected by the containment airborne radiation monitors (gaseous and particulate). The actuation logic for this function is one out of four. High radioactivity inside containment, detected by any one of the four radiation detectors (two gaseous and two particulate), will automatically isolate containment purge.

An OPERABLE system capable of generating a Containment Purge Valve Isolation Signal consists of at least one containment gaseous radiation monitor channel, at least one containment particulate radiation monitor channel, and the associated automatic actuation logic train. An actuation logic train consists of the detectors, sensor channels, and logic circuits up to and including the Engineered Safeguards Actuation System actuation module.

These radiation monitors provide an automatic closure signal to the containment purge valves upon detection of high airborne radioactivity levels inside containment. The maximum allowable trip value for these monitors corresponds to calculated concentrations at the site boundary which would not exceed the concentrations listed in 10 CFR Part 20, Appendix B, Table II. Exposure for a year to the concentrations in 10 CFR Part 20, Appendix B, Table II, corresponds to a total body dose to an individual of 500 mrem, which is well below the guidelines of 10 CFR Part 100 for an individual at any point on the exclusion area boundary for two hours.

Determination of the monitor's trip value in counts per minute, which is the actual instrument response, involves several factors including: 1) the atmospheric dispersion (x/Q), 2) isotopic composition of the sample, 3) sample flow rate, 4) sample collection efficiency, 5) counting efficiency, and 6) the background radiation level at the detector. The x/Q of 5.8×10^{-6} sec/m^3 is the highest annual average x/Q estimated for the site boundary (0.48 miles in the NE sector) for vent releases from the containment and 7.5×10^{-8} sec/m^3 is the highest annual average x/Q estimated for an off-site location (3 miles in the NNE sector) for releases from the Unit 1 stack. This calculation also assumes that the isotopic composition is xenon-133 for gaseous radioactivity and cesium-137 for particulate radioactivity (Half Lives greater than 8 days). The upper limit of 5×10^5 cpm is approximately 90 percent of full instrument scale.

3/4.7.6 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

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. For all postulated design basis accidents except a Fuel Handling Accident, the radiation exposure to personnel occupying the control room shall be 5 rem or less whole body consistent with the requirements of General Design Criteria 19 of Appendix "A," 10 CFR 50. For a Fuel Handling Accident, the radiation exposure to personnel occupying the control room shall be 5 rem TEDE or less consistent with the requirements of 10 CFR 50.67

The LCO is modified by a footnote allowing the control room boundary to be opened intermittently under administrative controls. For entry and exit through doors 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 constant communication with the control room. This individual will have a method to rapidly close the opening when a need for control room isolation is indicated.

The control room radiological dose calculations use the conservative minimum acceptable flow of 2250 cfm based on the flowrate surveillance requirement of 2500 cfm ± 10%.

3/4.7.6 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

Currently there are some situations where the CREV System may not automatically start on an accident signal, without operator action. Under most situations, the emergency filtration fans will start and the CREV System will be in the accident lineup. However, a failure of a supply fan (F21A or B) or an exhaust fan (F31A or B), operator action will be required to return to a full train lineup. Also, if a single emergency bus does not power up for one train of the CREV System, the opposite train filter fan will automatically start, but the required supply and exhaust fans will not automatically start. Therefore, operator action is required to establish the whole train lineup. This action is specified in the Emergency Operating Procedures. The radiological dose calculations do not take credit for CREV System cleanup action until 10 minutes into the accident to allow for operator action.

When the CREV System is checked to shift to the recirculation mode of operation, this will be performed from the normal mode of operation, and from the smoke purge mode of operation.

With both control room emergency ventilation trains inoperable due to an inoperable control room boundary, the movement of irradiated fuel assemblies within the spent fuel pool must be immediately suspended. The control room boundary must be restored to OPERABLE status within 24 hours, or the unit must be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

If the control room boundary is inoperable in MODES 1, 2, 3, and 4, the control room emergency ventilation trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room 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, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into this condition. The 24 hour allowed outage time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour allowed outage time is a typically reasonable time to diagnose, plan, and possibly repair, and test most problems with the control room boundary.

Surveillance Requirement 4.7.6.1.c.1 dictates the test frequency, methods and acceptance criteria for the Control Room Emergency ventilation System trains (cleanup trains). These criteria all originate in the Regulatory Position sections of Regulatory Guide 1.52, Rev. 2, March 1978 as discussed below.

Section C.5.a requires a visual inspection of the cleanup system be made before the following tests, in accordance with the provisions of section 5 of ANSI N510-1975:

- in-place air flow distribution test
- DOP test
- activated carbon adsorber section leak test

3/4.7.6 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

Section C.5.c requires the in-place Dioctyl phthalate (DOP) test for HEPA filters to conform to section 10 of ANSI N510-1975. The HEPA filters should be tested in place (1) initially, (2) at least once per 18 months thereafter, and (3) following painting, fire, or chemical release in any ventilation zone communicating with the system. The testing is to confirm a penetration of less than 0.05%* at rated flow. A filtration system satisfying this criteria can be considered to warrant a 99% removal efficiency for particulates.

Section C.5.d requires the charcoal adsorber section to be leak tested with a gaseous halogenated hydrocarbon refrigerant, in accordance with section 12 of ANSI N510-1975 to ensure that bypass leakage through the adsorber section is less than 0.05%.** Adsorber leak testing should be conducted (1) initially, (2) at least once per 18 months thereafter, (3) following removal of an adsorber sample for laboratory testing if the integrity of the adsorber section is affected, and (4) following painting, fire, or chemical release in any ventilation zone communicating with the system.

The ACTION requirements to immediately suspend various activities (CORE ALTERATIONS, irradiated fuel movement, etc.) do not preclude completion of the movement of a component to a safe position.

Technical Specification 3.7.6.1 provides the OPERABILITY requirements for the Control Room Emergency Ventilation Trains. If a Control Room Emergency Ventilation Train emergency power source or normal power source becomes inoperable in MODES 1, 2, 3, or 4 the requirements of Technical Specification 3.0.5 apply in determining the OPERABILITY of the affected Control Room Emergency Ventilation Train. If a Control Room Emergency Ventilation Train emergency power source or normal power source becomes inoperable in MODES 5 or 6 the guidance provided by Note "**" of this specification applies in determining the OPERABILITY of the affected Control Room Emergency Ventilation Train. If a Control Room Emergency Ventilation Train emergency power source or normal power source becomes inoperable while not in MODES 1, 2, 3, 4, 5, or 6 the requirements of Technical Specification 3.0.5 apply in determining the OPERABILITY of the affected Control Room Emergency Ventilation Train.

* Means that the HEPA filter will allow passage of less than 0.05% of the test concentration injection at the filter inlet from a standard DOP concentration injection.

** Means that the charcoal adsorber sections will allow passage of less than 0.05% of the injected test concentration around the charcoal adsorber section.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel ensures that sufficient time has elapsed to allow the radioactive decay of the short-lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.4 CONTAINMENT PENETRATIONS

The requirements on containment penetration closure and OPERABILITY ensure that a release of radioactive material within containment to the environment will be minimized. The OPERABILITY, closure restrictions, and administrative controls are sufficient to minimize the release of radioactive material from a fuel element rupture based upon the lack of containment pressurization potential during the movement of irradiated fuel assemblies within containment. The containment purge valves are containment penetrations and must satisfy all requirements specified for a containment penetration.

Containment penetrations, including the personnel airlock doors and equipment door, can be open during the movement of irradiated fuel provided that sufficient administrative controls are in place such that any of these containment penetrations can be closed within 30 minutes. Following a Fuel Handling Accident, each penetration, including the equipment door, is closed such that a containment atmosphere boundary can be established. However, if it is determined that closure of all containment penetrations would represent a significant radiological hazard to the personnel involved, the decision may be made to forgo the closure of the affected penetration(s). The containment atmosphere boundary is established when any penetration which provides direct access to the outside atmosphere is closed such that at least one barrier between the containment atmosphere and the outside atmosphere is established. Additional actions beyond establishing the containment atmosphere boundary, such as installing flange bolts for the equipment door or a containment penetration, are not necessary.

Administrative controls for opening a containment penetration require that one or more designated persons, as needed, be available for isolation of containment from the outside atmosphere. Procedural controls are also in place to ensure cables or hoses which pass through a containment opening can be quickly removed. The location of each cable and hoses isolation device for those cables and hoses which pass through a containment opening is recorded to ensure timely closure of the containment boundary. Additionally, a closure plan is developed for each containment opening which includes an estimated time to close the containment opening. A log of personnel designated for containment closure is maintained, including identification of which containment openings each person has responsibility for closing. As necessary, equipment will be pre-staged to support timely closure of a containment penetration.

3/4.9.4 CONTAINMENT PENETRATIONS (Continued)

Prior to opening a containment penetration, a review of containment penetrations currently open is performed to verify that sufficient personnel are designated such that all containment penetrations can be closed within 30 minutes. Designated personnel may have other duties, however, they must be available such that their assigned containment openings can be closed within 30 minutes. Additionally, each new work activity inside containment is reviewed to consider its effect on the closure of the equipment door, personnel air lock, and/or other open containment penetrations. The required number of designated personnel are continuously available to perform closure of their assigned containment openings whenever irradiated fuel is being moved within the containment.

Administrative controls are also in place to ensure that the containment atmosphere boundary is established if adverse weather conditions which could present a potential missile hazard threaten the plant. Weather conditions are monitored during irradiated fuel movement whenever a containment penetration, including the equipment door and personnel air lock, is open and a storm center is within the plant monitoring radius of 150 miles.

The administrative controls ensure that the containment atmosphere boundary can be quickly established (i.e., within 30 minutes) upon determining that adverse weather conditions exist which pose a significant threat to the Millstone Site. A significant threat exists when a hurricane warning or tornado warning is issued which applies to the Millstone Site, or if an average wind speed of 60 miles an hour or greater is recorded by plant meteorological equipment at the meteorological tower. If the meteorological equipment is inoperable, information from the National Weather Service can be used as a backup in determining plant wind speeds. Closure of containment penetrations, including the equipment door and personnel air lock door, begin immediately upon determination that a significant threat exists.

When severe weather conditions which could generate a missile are within the plant monitoring radius, containment and spent fuel pool penetrations are closed to establish the containment atmosphere boundary.

3/4.9.5 DELETED

3/4.9.8 SHUTDOWN COOLING AND COOLANT CIRCULATION (Continued)

a refueling outage until after the completion of the fuel shuffle such that approximately one third of the reactor core will contain new fuel. By waiting until the completion of the fuel shuffle, sufficient time (at least 14 days from reactor shutdown) will have elapsed to ensure the limited SDC flow rate specified for this alternate lineup will be adequate for decay heat removal from the reactor core and the spent fuel pool. In addition, CORE ALTERATIONS shall be suspended when using this alternate flow path, and this flow path should only be used for short time periods, approximately 12 hours. If the alternate flow path is expected to be used for greater than 24 hours, or the decay heat load will not be bounded as previously discussed, further evaluation is required to ensure that this alternate flow path is acceptable.

These alternate lineups do not affect the OPERABILITY of the SDC train. In addition, these alternate lineups will satisfy the requirement for a SDC train to be in operation if the minimum required SDC flow through the reactor core is maintained.

In MODE 6, with the refueling cavity filled to ≥ 23 feet above the reactor vessel flange, both SDC trains may not be in operation for up to 1 hour in each 8 hour period, provided no operations are permitted that would cause a reduction in RCS boron concentration. Boron concentration reduction is prohibited because uniform concentration distribution cannot be ensured without forced circulation. This permits operations such as core mapping or alterations in the vicinity of the reactor vessel hot leg nozzles, and RCS to SDC isolation valve testing. During this 1 hour period, decay heat is removed by natural convection to the large mass of water in the refueling pool.

In MODE 6, with the refueling cavity filled to ≥ 23 feet above the reactor vessel flange, both SDC trains may also not be in operation for local leak rate testing of the SDC cooling suction line (containment penetration number 10) or to permit maintenance on valves located in the common SDC suction line. This will allow the performance of required maintenance and testing that otherwise may require a full core offload. In addition to the requirement prohibiting operations that would cause a reduction in RCS boron concentration, CORE ALTERATIONS are suspended and all containment penetrations providing direct access from the containment atmosphere to outside atmosphere must be closed. The containment purge valves are containment penetrations and must satisfy all requirements specified for a containment penetration. No time limit is specified to operate in this configuration. However, factors such as scope of the work, decay heat load/heatup rate, and RCS temperature should be considered to determine if it is feasible to perform the work. Prior to using this provision, a review and approval of the evolution by the SORC is required. This review will evaluate current plant conditions and the proposed work to determine if this provision should be used, and to establish the termination criteria and appropriate contingency plans. During this period, decay heat is removed by natural convection to the large mass of water in the refueling pool.

The requirement that at least one shutdown cooling loop be in operation at ≥ 1000 gpm ensures that (1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor pressure vessel below 140°F as required during the REFUELING MODE, (2) sufficient coolant circulation is maintained through the reactor core to minimize the effects of a boron dilution incident and prevent boron stratification, and (3) is consistent with boron

3/4.9.13 DELETED

3/4.9.14 DELETED

3/4.9.15 DELETED

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3/4.9.16 SHIELDED CASK

The limitations of this specification and 3/4.9.15 ensure that in the event of a shielded cask drop accident the doses from ruptured fuel assemblies will be within the assumptions of the safety analyses.

3/4.9.17 SPENT FUEL POOL BORON CONCENTRATION

The limitations of this specification ensures that sufficient boron is present to maintain spent fuel pool $K_{eff} \leq 0.95$ under accident conditions.

Postulated accident conditions which could cause an increase in spent fuel pool reactivity are: a single dropped or mis-loaded fuel assembly, a single dropped or mis-loaded Consolidated Fuel Storage Box, or a shielded cask drop onto the storage racks. A spent fuel pool soluble boron concentration of 1400 ppm is sufficient to ensure $K_{eff} \leq 0.95$ under these postulated accident conditions. The required spent fuel pool soluble boron concentration of $\geq$ 1720 ppm conservatively bounds the required 1400 ppm. The ACTION statement ensure that if the soluble boron concentration falls below the required amount, that fuel movement or shielded cask movement is stopped, until the boron concentration is restored to within limits.

An additional basis of this LCO is to establish 1720 ppm as the minimum spent fuel pool soluble boron concentration which is sufficient to ensure that the design basis value of 600 ppm soluble boron is not reached due to a postulated spent fuel pool boron dilution event. As part of the spent fuel pool criticality design, a spent fuel soluble boron concentration of 600 ppm is sufficient to ensure $K_{eff} \leq 0.95$, provided all fuel is stored consistent with LCO requirements. By maintaining the spent fuel pool soluble boron concentration $\geq$ 1720 ppm, sufficient time is provided to allow the operators to detect a boron dilution event, and terminate the event, prior to the spent fuel pool being diluted below 600 ppm. In the unlikely event that the spent fuel pool soluble boron concentration is decreased to 0 ppm, K_{eff} will be maintained <1.00, provided all fuel is stored consistent with LCO requirements. The ACTION statement ensures that if the soluble boron concentration falls below the required amount, that immediate action is taken to restore the soluble boron concentration to within limits, and that fuel movement or shielded cask movement is stopped. Fuel movement and shielded cask movement is stopped to prevent the possibility of creating an accident condition at the same time that the minimum soluble boron is below limits for a potential boron dilution event.

The surveillance of the spent fuel pool boron concentration within 24 hours of fuel movement, consolidated fuel movement, or cask movement over the cask layout area, verifies that the boron concentration is within limits just prior to the movement. The 7 day surveillance interval frequency is sufficient since no deliberate major replenishment of pool water is expected to take place over this short period of time.