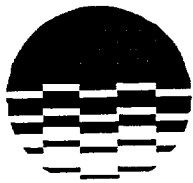


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Indian Point 3

AP-18.2
Revision 10

Attachment 1
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INDIAN POINT 3 TECHNICAL SPECIFICATION BASES

INSTRUCTIONS FOR UPDATE: 07-03/17/03

REMOVE

- a) List of Effective Sections;
3 pages (Rev 6)
- b) Section B 3.3.8; Rev 0
4 pages
- c) Section B 3.7.13; Rev 0
7 pages
- d) Section B 3.9.3; Rev 0
8 pages

INSERT

- a) List of Effective Sections;
3 pages (Rev 6)
- b) Section B 3.3.8; Rev 1
4 pages
- c) Section B 3.7.13; Rev 1
7 pages
- d) Section B 3.9.3; Rev 1
8 pages

**TECHNICAL SPECIFICATION BASES
LIST OF EFFECTIVE SECTIONS**

BASES SECTION	REV	NUMBER OF PAGES	EFFECTIVE DATE
Tbl of Cnt	1	4	05/18/2001
B 2.0 SAFETY LIMITS			
B 2.1.1	0	5	03/19/2001
B 2.1.2	0	4	03/19/2001
B 3.0 LCO AND SR APPLICABILITY			
B 3.0	1	15	09/30/2002
B 3.1 REACTIVITY CONTROL			
B 3.1.1	0	6	03/19/2001
B 3.1.2	0	7	03/19/2001
B 3.1.3	0	7	03/19/2001
B 3.1.4	0	13	03/19/2001
B 3.1.5	0	5	03/19/2001
B 3.1.6	0	6	03/19/2001
B 3.1.7	0	8	03/19/2001
B 3.1.8	0	7	03/19/2001
B 3.2 POWER DISTRIBUTION LIMITS			
B 3.2.1	0	7	03/19/2001
B 3.2.2	0	7	03/19/2001
B 3.2.3	0	9	03/19/2001
B 3.2.4	0	7	03/19/2001
B 3.3 INSTRUMENTATION			
B 3.3.1	1	59	09/30/2002
B 3.3.2	3	45	12/04/2002
B 3.3.3	2	19	09/30/2002
B 3.3.4	0	7	03/19/2001
B 3.3.5	0	6	03/19/2001
B 3.3.6	0	10	03/19/2001
B 3.3.7	0	6	03/19/2001
B 3.3.8	1	4	03/17/2003
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B 3.4.1	0	6	03/19/2001
B 3.4.2	0	3	03/19/2001
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B 3.5 ECCS			
B 3.5.1	0	10	03/19/2001
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BASES SECTION	REV	NUMBER OF PAGES	EFFECTIVE DATE
B 3.5.3	0	4	03/19/2001
B 3.5.4	0	9	03/19/2001
B 3.6 CONTAINMENT			
B 3.6.1	0	5	03/19/2001
B 3.6.2	0	9	03/19/2001
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B 3.6.4	0	3	03/19/2001
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B 3.8.10	0	4	03/19/2001
B 3.9 REFUELING OPERATIONS			
B 3.9.1	0	4	03/19/2001
B 3.9.2	0	4	03/19/2001
B 3.9.3	1	8	03/17/2003
B 3.9.4	0	4	03/19/2001
B 3.9.5	0	4	03/19/2001
B 3.9.6	0	4	03/19/2001

TECHNICAL SPECIFICATION BASES
REVISION HISTORY

REVISION HISTORY FOR BASES

AFFECTED SECTIONS	REV	EFFECTIVE DATE	DESCRIPTION
ALL	0	03/19/01	Initial issue of Bases derived from NUREG-1431, in conjunction with Technical Specification Amendment 205 for conversion of 'Current Technical Specifications' to 'Improved Technical Specifications'.
BASES UPDATE PACKAGE 01-031901			
B 3.4.13 B 3.4.15	1	03/19/01	Changes regarding containment sump flow monitor per NSE 01-3-018 LWD Rev 0. Change issued concurrent with Rev 0.
BASES UPDATE PACKAGE 02-051801			
Table of Contents	1	05/18/01	Title of Section B 3.7.3 revised per Tech Spec Amend 207
B 3.7.3	1	05/18/01	Implementation of Tech Spec Amend 207
BASES UPDATE PACKAGE 03-111901			
B 3.3.2	1	11/19/01	Correction to statement regarding applicability of Function 5, to be consistent with the Technical Specification.
B 3.3.3	1	11/19/01	Changes to reflect reclassification of certain SG narrow range level instruments as QA Category M per NSE 97-3-439, Rev 1.
B 3.4.13 B 3.4.15	2	11/19/01	Changes to reflect installation of a new control room alarm for 'VC Sump Pump Running'. Changes per NSE 01-3-018, Rev 1 and DCP 01-3-023 LWD.
B 3.7.11	1	11/19/01	Clarification of allowable flowrate for CRVS in 'incident mode with outside air makeup.'
BASES UPDATE PACKAGE 04-012202			
B 3.3.2	2	01/22/02	Clarify starting logic of 32 ABFP per EVL-01-3-078 MULTI, Rev 0.
B 3.8.1	1	01/22/02	Provide additional guidance for SR 3.8.1.1 and Condition Statements A.1 and B.1 per EVL-01-3-078 MULTI, Rev 0.
B 3.8.4	1	01/22/02	Revision of battery design description per plant modification and to reflect Tech Spec Amendment 209.
B 3.8.9	1	01/22/02	Provide additional information regarding MCC in Table B 3.8.9-1 per EVL-01-3-078 MULTI, Rev 0.
BASES UPDATE PACKAGE 05-093002			
B 3.0	1	09/30/02	Changes to reflect Tech Spec Amendment 212 regarding delay period for a missed surveillance. Changes adopt TSTF 358, Rev 6.
B 3.3.1	1	09/30/02	Changes regarding description of turbine runback feature per EVAL-99-3-063 NIS.
B 3.3.3	2	09/30/02	Changes to reflect Tech Spec Amendment 211 regarding CETs and other PAM instruments.
B 3.7.9	1	09/30/02	Changes regarding SWN -35-1 and -2 valves per EVAL-00-3-095 SWS, Rev 0.

**TECHNICAL SPECIFICATION BASES
REVISION HISTORY**

AFFECTED SECTIONS	REV	EFFECTIVE DATE	DESCRIPTION
BASES UPDATE PACKAGE 06-120402			
B 3.3.2	3	12/04/02	Changes to reflect Tech Spec Amendment 213 regarding
B 3.6.6	1		
B 3.7.1	1		
B 3.7.6	1		
BASES UPDATE PACKAGE 07-031703			
B 3.3.8	1	03/17/2003	Changes to reflect Tech Spec Amendment 215 regarding
B 3.7.13	1		
B 3.9.3	1		

B 3.3 INSTRUMENTATION

B 3.3.8 Fuel Storage Building Emergency Ventilation System (FSBEVS) Actuation Instrumentation

BASES

BACKGROUND

The FSBEVS ensures that radioactive materials in the fuel building atmosphere following a fuel handling accident involving handling recently irradiated fuel are filtered and adsorbed prior to exhausting to the environment. The system is described in the Bases for LCO 3.7.13, Fuel Storage Building Emergency Ventilation System (FSBEVS). The system initiates filtered ventilation of the fuel storage building automatically following receipt of a high radiation signal from fuel storage building area radiation monitor, R-5.

High radiation levels detected by the fuel storage building area radiation monitor, R-5, initiates fuel storage building isolation and starts the FSBEVS. These actions function to prevent exfiltration of contaminated air by initiating filtered ventilation, which imposes a negative pressure on the fuel storage building. Following an Area Radiation Monitor (R-5) signal or local manual actuation to the emergency mode of operation, the FSBEVS ventilation supply fans stop automatically and the associated ventilation supply dampers close automatically. The charcoal filter face dampers (inlet and outlet dampers) open automatically, if not already open. Additionally, the rolling door closes, if open, and the inflatable seals on the man doors and rolling door are actuated. The FSB exhaust fan continues to operate.

APPLICABLE SAFETY ANALYSES

The FSBEVS ensures that radioactive materials in the fuel storage building atmosphere following a fuel handling accident involving handling recently irradiated fuel are filtered and adsorbed prior to being exhausted to the environment when the FSBEVS is aligned and operates as described in the Bases for LCO 3.7.13, Fuel Storage Building Emergency Ventilation

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

System (FSBEVS). This action reduces the radioactive content in the fuel building exhaust following a LOCA or fuel handling accident so that offsite doses remain within the limits specified in 10 CFR 100 (Ref. 1).

The FSBEVS actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36.

LCO

The LCO requirements ensure that instrumentation necessary for local manual and automatic actuation of the FSBEVS is OPERABLE.

Manual and automatic FSBEVS actuation instrumentation consists of one channel of Fuel Storage Building Area Radiation Monitor (R-5) and one channel of manual actuation. Manual actuation from the fan house and automatic FSBEVS actuation instrumentation are Operable when both the Fuel Storage Building Area Radiation Monitor (R-5) signal and manual initiation will cause the realignment of the FSBEVS to the accident mode of operation as described in the Bases for LCO 3.7.13, Fuel Storage Building Emergency Ventilation System (FSBEVS).

The setpoint for Fuel Storage Building Area Radiation Monitor (R-5) is established in accordance with the FSAR (Ref. 2).

APPLICABILITY

The manual FSBEVS initiation must be OPERABLE when moving recently irradiated fuel assemblies in the fuel storage building, to ensure the FSBEVS operates to remove fission products associated with leakage after a fuel handling accident involving handling recently irradiated fuel.

High radiation initiation of the FSBEVS must be OPERABLE in any MODE during movement of recently irradiated fuel assemblies in the fuel storage building to ensure automatic initiation of the FSBEVS when the potential for the limiting fuel handling accident exists. Due to radioactive decay, the FSBEVS instrumentation is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 84 hours).

(continued)

BASES

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by Reference 2. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a COT, when the instrumentation is set up for adjustment to bring it within specification. If the Trip Setpoint is less conservative than the tolerance specified by Reference 2, the channel must be declared inoperable immediately and the appropriate Condition entered.

A.1 and A.2

This condition applies when the manual or automatic FSBEVS initiation capability is inoperable. The Required Action is to immediately place the system in operation as described in the Bases for LCO 3.7.13, FSBEVS. This accomplishes the actuation instrumentation function that may have been lost and places the unit in a accident mode of operation. Alternatively, movement of recently irradiated fuel assemblies in the fuel storage building must be suspended immediately to eliminate the potential for events that could require FSBEVS actuation. The Completion Time of immediately requires that the Required Action be pursued without delay and in a controlled manner.

SURVEILLANCE REQUIREMENTS

SR 3.3.8.1

Performance of the CHANNEL CHECK once every 24 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

A CHANNEL CHECK for a single channel instrument is satisfied by verification that the sensor or the signal processing equipment has not drifted outside its limit.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.8.1 (continued)

The Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal checks of a channel during normal operational use of the displays associated with the LCO required channel.

SR 3.3.8.2

A COT is performed for both the manual and automatic function once every 92 days to ensure the entire channel will perform the intended function. This test verifies the capability of the instrumentation to provide the FSBEVS actuation. The setpoints shall be left consistent with requirements of Reference 2. The Frequency of 92 days is based on the known reliability of the monitoring equipment and has been shown to be acceptable through operating experience. This test is typically performed in conjunction with SR 3.7.13.4 which verifies OPERABILITY of the activated devices.

SR 3.3.8.3

A CHANNEL CALIBRATION is performed every 24 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy. The Frequency is based on operating experience and is consistent with the refueling cycle.

REFERENCES

1. 10 CFR 100.11.
 2. FSAR, Section 1.3.
-

B 3.7 PLANT SYSTEMS

B 3.7.13 Fuel Storage Building Emergency Ventilation System (FSBEVS)

BASES

BACKGROUND

The FSBEVS filters airborne radioactive particulates from the area of the fuel pool following a fuel handling accident. The FSBEVS, in conjunction with other normally operating systems, also provides environmental control of temperature and humidity in the fuel storage building.

The Fuel Storage Building (FSB) ventilation system maintains environmental conditions in the building enclosing the spent fuel pit and consists of the following:

- Two FSB air tempering units with associated ventilation supply fans and ventilation supply isolation dampers;

- One FSB exhaust fan and associated outlet damper;

- One FSB exhaust filtration unit consisting of roughing, HEPA, and charcoal filters which includes the pneumatically operated inlet and outlet dampers for the carbon filter and manually operated dampers that allow the carbon filter to be bypassed;

- Inflatable seals on man doors and truck door,

- Area Radiation Monitor (R-5) consisting of an extended range area monitor used to measure the area radiation fields of the Fuel Storage Building; and,

- Ductwork, dampers, and instrumentation needed to support system operation,

During normal operation, the FSB air tempering units and associated ventilation supply fans and the FSB exhaust fan operate, as necessary, to ventilate and, if necessary, heat the FSB. One or both FSB air tempering units are used to supply outside air to the south end of the FSB and the FSB exhaust fan

(continued)

BASES

BACKGROUND
(continued)

is used to exhaust air from the north end of the FSB through the roughing filters and HEPA filters and is released to the environment via the plant vent. FSB air flow is directed from radiologically clean to less clean areas to prevent the spread of contamination. Additionally, the FSBEVS is designed so that the exhaust fan capacity is greater than the supply fan(s) capacity so that the FSB is normally maintained at a slight negative pressure. This ensures that ventilation air leaving the FSB passes through the filters and HEPA in the exhaust filtration unit and is released to the environment via the plant vent. When not handling irradiated fuel in the FSB, the carbon filter in the exhaust filtration unit is normally bypassed to extend the life of the charcoal. In this configuration, the manually operated charcoal filter bypass dampers are left open and the automatically operated charcoal filter face dampers (inlet and outlet dampers) are closed.

During irradiated fuel handling activities in the FSB, the FSBEVS is operated as described above except that the manually operated charcoal filter bypass dampers are closed and the charcoal filter face dampers (inlet and outlet dampers) are opened. In this configuration, the FSB is still maintained at a slight negative pressure but all FSB ventilation exhaust is directed through the roughing filters, HEPA filters, and charcoal filters and is released to the environment via the plant vent.

Following an Area Radiation Monitor (R-5) signal or manual actuation to the emergency mode of operation, the ventilation supply fans stop automatically and the associated ventilation supply dampers close automatically. The charcoal filter face dampers (inlet and outlet dampers) open automatically, if not already open. Additionally, the rolling truck door closes, if open, and the inflatable seals on the man doors and truck door are actuated. The FSB exhaust fan continues to operate. With the FSB ventilation supply stopped and the FSB boundary secured, the FSB exhaust fan is capable of maintaining the FSB at a pressure ≤ -0.5 inches water gauge with respect to atmospheric pressure with the exhaust flow rate $\leq 20,000$ cfm. Ventilation dampers required to establish the boundary or flow path (e.g., air tempering unit ventilation supply inlet dampers) will fail-

(continued)

BASES

BACKGROUND
(continued)

safe into the required emergency mode position. Note that the inflatable seals on man doors and truck door are not required for maintaining the FSB at these required post accident conditions.

A push button switch adjacent to the 95' elevation door leading to the Fan House allows the Fuel Storage Building Exhaust Fan to be momentarily shut down and air removed from the man door seal to allow the door to be opened for FSB ingress or egress when in the emergency mode of operation. The fan will automatically restart and the door is resealed after a preset time has elapsed (approximately 30 seconds).

The FSBEVS is discussed in the FSAR, Sections 9.5, and 14.2 (Refs. 1 and 2, respectively).

APPLICABLE SAFETY ANALYSES

The FSBEVCS design basis is established by the consequences of the limiting Design Basis Accident (DBA), which is a fuel handling accident involving handling recently irradiated fuel. The analysis for a fuel handling accident assumes that the FSB exhaust fan can maintain the FSB at a slight negative pressure (i.e., ≤ -0.125 inches water gauge) with respect to atmospheric pressure with the exhaust flow rate $\leq 20,000$ cfm. Under these conditions, all FSB ventilation exhaust is assumed to be directed through the roughing filters, HEPA filters, and charcoal filters and is released to the environment via the plant vent. This ensures that offsite post accident dose rates are within required limits. Due to radioactive decay, FSBEVS is only required to isolate during fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 84 hours). This analysis is described in Reference 2.

The FSBEVS satisfies Criterion 3 of 10 CFR 50.36.

(continued)

BASES

LCO This LCO requires that the Fuel Storage Building Emergency Ventilation System is OPERABLE and the FSB boundary is intact. This ensures that the required negative pressure is maintained in the FSB and FSB ventilation exhaust is directed through the roughing filters, HEPA filters, and charcoal filters and is released to the environment via the plant vent. Failure of the FSBEVS or the FSB boundary could result in the atmospheric release from the fuel storage building exceeding the 10 CFR 100 (Ref. 3) limits in the event of a fuel handling accident involving handling recently irradiated fuel.

The FSBEVS is considered OPERABLE when the individual components necessary to control exposure in the fuel storage building are OPERABLE. FSBEVS is considered OPERABLE when its associated:

- a. Exhaust fan is OPERABLE;
- b. Roughing filter, HEPA filter and charcoal adsorber are not excessively restricting flow, and are capable of performing their filtration function;
- c. Ductwork and dampers are OPERABLE as needed to ensure air circulation can be maintained through the filter;
- d. Ventilation supply fan trip function and ventilation supply isolation dampers closure function are OPERABLE or secured in incident position; and
- e. FSBEVS charcoal filter bypass dampers are closed and leak tested.

The inflatable seals on man doors and truck door are not required for maintaining the FSB at these required post accident conditions. Additionally, the FSBEVS is not rendered inoperable when the FSBEVS exhaust fan is momentarily shut down and air removed from the door seal to allow the door to be opened for FSB ingress or egress when in the emergency mode of operation.

Requirements for the OPERABILITY of the Area Radiation Monitor (R-5) and associated instrumentation that initiates the FSBEVS are addressed in LCO 3.3.8, "Fuel Storage Building Emergency Ventilation System Actuation Instrumentation."

(continued)

BASES

LCO
(continued) Requirements for leak testing the FSBEVS charcoal filter bypass dampers following closure are governed by the IP3 FSAR.

APPLICABILITY During movement of recently irradiated fuel in the fuel storage building, the FSBEVS is required to be OPERABLE to mitigate the consequences of the limiting fuel handling accident.

ACTIONS A.1

When the FSBEVS is inoperable during movement of recently irradiated fuel assemblies in the fuel storage building, action must be taken to place the unit in a condition in which the LCO does not apply. Action must be taken immediately to suspend movement of recently irradiated fuel assemblies in the fuel storage building. This does not preclude the movement of fuel to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.7.13.1

This SR requires periodic verification that the FSBEVS charcoal filter bypass dampers are installed and leak tested. This SR is performed by a visual verification that the bypass dampers are installed and an administrative verification that required leak testing was performed following the last installation of the dampers. Requirements for leak testing the FSBEVS charcoal filter bypass dampers following closure are governed by the IP3 FSAR.

This SR is performed prior to movement of recently irradiated fuel assemblies in the fuel storage building, and once per 92 days thereafter. The 92 day Frequency is appropriate because the bypass dampers are operated under administrative controls which provides a high degree of assurance that the dampers will remain in the required position. This Frequency has been shown to be acceptable through operating experience.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.13.2

Standby systems should be checked periodically to ensure that they function properly. As the environmental and normal operating conditions on this system are not severe, testing the FSBEVS once every 31 days provides an adequate check on this system. Systems are operated for ≥ 15 minutes to demonstrate the function of the system. The 31 day Frequency is based on the known reliability of the equipment.

SR 3.7.13.3

This SR verifies that the required FSBEVS testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The FSBEVS filter tests are in accordance with the applicable portions of Regulatory Guide 1.52 (Ref. 4) as specified in the VFTP. The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.13.4

This SR verifies that the FSBEVS starts and operates on an actual or simulated actuation signal. The 92 day Frequency ensures that the SR is performed within a short time prior to a potential need for the FSBEVS and allows the SR to be performed only once prior to or during a refueling outage. This SR Frequency is based on the demonstrated reliability of the system.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.13.5

This SR verifies the integrity of the fuel storage building enclosure. The ability of the fuel building to maintain negative pressure with respect to potentially uncontaminated adjacent areas is periodically tested to verify proper function of the FSBEVS. During the normal mode of operation, the FSBEVS is designed to maintain a slight negative pressure in the fuel storage building, to prevent unfiltered LEAKAGE. This test verifies that the FSB exhaust fan can maintain the FSB at a slight negative pressure (i.e., ≤ -0.125 inches water gauge) with respect to atmospheric pressure with the exhaust flow rate $\leq 20,000$ cfm during a fuel handling accident. The Frequency of 24 months is consistent with the guidance provided in NUREG-0800, Section 6.5.1 (Ref. 5).

REFERENCES

1. FSAR, Section 9.5.
 2. FSAR, Section 14.2.
 3. 10 CFR 100.
 4. Regulatory Guide 1.52 (Rev. 2).
 5. NUREG-0800, Section 6.5.1, Rev. 2, July 1981.
-
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B 3.9 REFUELING OPERATIONS

B 3.9.3 Containment Penetrations

BASES

BACKGROUND

During movement of recently irradiated fuel assemblies within containment, a release of fission product radioactivity within containment will be restricted from escaping to the environment when the LCO requirements are met. In MODES 1, 2, 3, and 4, this is accomplished by maintaining containment OPERABLE as described in LCO 3.6.1, "Containment." In MODE 6, the potential for containment pressurization as a result of an accident is not likely; therefore, requirements to isolate the containment from the outside atmosphere can be less stringent. The LCO requirements are referred to as "containment closure" rather than "containment OPERABILITY." Containment closure means that all potential escape paths are closed, except for the OPERABLE Purge System Penetration. Since there is no potential for containment pressurization, the Appendix J leakage criteria and tests are not required.

The containment serves to contain fission product radioactivity that may be released from the reactor core following an accident, such that offsite radiation exposures are maintained well within the requirements of 10 CFR 50.67, Accident Source Term. Additionally, the containment provides radiation shielding from the fission products that may be present in the containment atmosphere following accident conditions.

The containment equipment hatch, which is part of the containment pressure boundary, provides a means for moving large equipment and components into and out of containment. During movement of recently irradiated fuel assemblies within containment, the equipment hatch must be held in place by at least four bolts. Good engineering practice dictates that the bolts required by this LCO be approximately equally spaced.

In lieu of maintaining the equipment hatch in place for containment closure, a temporary closure device may be used to maintain containment closure during

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(continued)

movement of recently irradiated fuel assemblies within containment. The temporary closure device may provide penetrations for temporary services or personnel access. The temporary closure device will be designed to withstand a seismic event and designed to withstand a pressure which ensures containment closure during refueling operations. The closure device will provide the same level of protection as that of the equipment hatch for the fuel handling accident involving handling recently irradiated fuel by restricting direct air flow from the containment to the environment.

The containment air locks, which are also part of the containment pressure boundary, provide a means for personnel access during MODES 1, 2, 3, and 4 unit operation in accordance with LCO 3.6.2, "Containment Air Locks." Each air lock has a door at both ends. The doors are normally interlocked to prevent simultaneous opening when containment OPERABILITY is required. During periods of unit shutdown when containment closure is not required, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment entry is necessary. During movement of recently irradiated fuel assemblies within containment, containment closure is required; therefore, the door interlock mechanism may remain disabled, but one air lock door must always remain capable of being closed.

The requirements for containment penetration closure ensure that a release of fission product radioactivity within containment will be restricted to within regulatory limits.

The Containment Purge System consists of the 36-inch containment purge supply and exhaust ducts. The supply system includes roughing filters, heating coils, fan and a containment penetration with two butterfly valves for isolation. The exhaust system includes a containment penetration with two butterfly valves for isolation and can be aligned to discharge to the

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BASES

BACKGROUND
(continued)

atmosphere through the plant vent either directly or through the Containment Purge Filter System (i.e., a filter bank with roughing, HEPA and charcoal filters).

The Containment Purge System must be isolated when in Modes 1, 2, 3 or 4 in accordance with requirements established in LCO 3.6.3, Containment Isolation Valves. In Modes 5 and 6, the Containment Purge System may be used for containment ventilation. When open, the Containment Purge System isolation valves are capable of closing in response to the detection of high radiation levels in accordance with requirements established in LCO 3.3.6, Containment Purge and Pressure Relief Isolation Instrumentation (Ref. 1).

The Containment Pressure Relief Line (i.e., Containment Vent) consists of a single 10-inch containment vent line that is used to handle normal pressure changes in the Containment when in Modes 1, 2, 3 and 4 (Ref. 1). The Containment Pressure Relief Line is equipped with three quick-closing butterfly type isolation valves, one inside and two outside the containment which isolate automatically in accordance with requirements established in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation", and LCO 3.3.6, "Containment Purge System and Pressure Relief Line Isolation Instrumentation." The Containment Pressure Relief Line discharges to the atmosphere via the Containment Auxiliary Charcoal Filter System (i.e., a filter bank with roughing, HEPA and charcoal filters).

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BASES

BACKGROUND
(continued)

The other containment penetrations that provide direct access from containment atmosphere to outside atmosphere must be isolated on at least one side or may be unisolated under administrative control. Isolation may be achieved by an OPERABLE automatic isolation valve, or by a manual isolation valve, blind flange, or equivalent. Equivalent isolation methods must be approved and may include use of a material barrier that can provide a temporary, atmospheric pressure, ventilation barrier for the other containment penetrations during fuel movements.

APPLICABLE SAFETY ANALYSES

During movement of recently irradiated fuel assemblies within containment, the most severe radiological consequences result from a fuel handling accident involving handling recently irradiated fuel. The fuel handling accident is a postulated event that involves damage to irradiated fuel (Ref. 2). Fuel handling accidents, analyzed in Reference 2, include dropping a single irradiated fuel assembly and handling tool or a heavy object onto other irradiated fuel assemblies. The release of radioactivity from the containment following a fuel handling accident is limited by the following:

- a) The requirements of LCO 3.9.6, "Refueling Cavity Water Level;"
- b) The minimum decay time of 84 hours prior to moving irradiated fuel; and,
- c) the use of administrative controls to ensure prompt closure of any containment openings with direct access from the containment atmosphere to the outside atmosphere.

Containment penetrations satisfy Criterion 3 of 10 CFR 50.36.

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BASES

LCO

This LCO limits the consequences of a fuel handling accident involving handling recently irradiated fuel in containment by limiting the potential escape paths for fission product radioactivity released within containment. The LCO requires any penetration providing direct access from the containment atmosphere to the outside atmosphere to be closed except for the OPERABLE containment purge system penetrations. For the OPERABLE containment purge system penetrations, this LCO ensures that these penetrations are isolable by the Containment Purge isolation instrumentation. The containment personnel airlock doors and the personnel access door in the equipment hatch closure plate may be open during movement of irradiated fuel provided that at least one door in each opening is capable of being closed in the event of a fuel handling accident. In addition, the LCO is modified by a Note allowing penetration flow paths with direct access from the containment atmosphere to the outside atmosphere to be unisolated under administrative controls. Administrative controls, consistent with Appendix B of Regulatory Guide 1.183 (Reference 3), are required to assure that, in the event of a fuel handling accident inside containment, at least one door in each personnel access opening will be closed following an evacuation of containment, and penetration flow paths unisolated under administrative control will be promptly closed. The administrative controls assure that:

1. appropriate personnel are aware of the open status of the doors and penetration flow paths during movement of irradiated fuel assemblies within containment, and
2. specified individuals are designated and readily available to direct and perform isolation of affected openings in the event of a fuel handling accident, and
3. any obstructions (e.g., cables and hoses) that would prevent rapid closure of an open flow path can be quickly removed. Any cables or hoses to be disconnected should not be supplying services that support personnel safety (e.g., breathing air), and
4. during fuel handling operations and core alterations, ventilation system and radiation monitor availability should be assessed with the goal of minimizing the potential for radioactive releases, following a potential accident, even further below that provided by the natural decay that occurs following reactor shutdown.

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BASES

LCO (continued)

The administrative controls must also be consistent with any pertinent assumptions in the dose analysis for the fuel handling accident. Note that the Indian Point 3 Final Safety Analysis Report (Reference 2) specifies: "No movement of irradiated fuel in the reactor is made until the reactor has been subcritical for at least 84 hours." Therefore, the FSAR prohibits movement of any fuel that can be classified as "recently irradiated."

APPLICABILITY

The containment penetration requirements are applicable during movement of recently irradiated fuel assemblies within containment because this is when there is a potential for the limiting fuel handling accident. In MODES 1, 2, 3, and 4, containment penetration requirements are addressed by LCO 3.6.1. In MODES 5 and 6, when movement of recently irradiated fuel assemblies within containment is not being conducted, the potential for the limiting fuel handling accident does not exist. Therefore, under these conditions no Technical Specification requirements are placed on containment penetration status.

However, if personnel access doors or containment penetration flow paths are unisolated during any movement of irradiated fuel assemblies in containment, administrative controls are established to ensure prompt closure of these openings in the event of a fuel handling accident.

ACTIONS

A.1

If the containment equipment hatch, air locks, or any containment penetration that provides direct access from the containment atmosphere to the outside atmosphere is not in the required status, including the Containment Purge system isolation instrumentation not capable of automatic actuation when the purge and exhaust valves are open, the unit must be placed in a condition where the isolation function is not needed. This is accomplished by immediately suspending the movement of recently irradiated fuel assemblies within containment. Performance of these actions shall not preclude completion of movement of a component to a safe position.

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SURVEILLANCE REQUIREMENTS

SR 3.9.3.1

This Surveillance demonstrates that each of the containment penetrations is either closed or capable of being closed under administrative control. The Surveillance on the open purge and exhaust valves will demonstrate that the valves are not blocked from closing. Also the Surveillance will demonstrate that each valve operator has motive power, which will ensure that each valve is capable of being closed by an OPERABLE automatic containment purge and exhaust isolation signal.

The Surveillance is performed within 7 days of movement of recently irradiated fuel assemblies within containment. The Surveillance interval is selected to be commensurate with the 84-hour decay time that defines recently irradiated fuel. A surveillance before the start of refueling operations will not have to be repeated during the applicable period for this LCO. As such, this Surveillance ensures that a postulated fuel handling accident that releases fission product radioactivity within the containment will not result in a release of fission product radioactivity to the environment.

SR 3.9.3.2

This Surveillance demonstrates that each containment purge and exhaust valve actuates to its isolation position on an actual or simulated high radiation signal. The 92 day Frequency ensures that this SR is performed prior to this function being required and periodically thereafter. In LCO 3.3.6, the Containment Purge system isolation instrumentation requires a CHANNEL CHECK every 12 hours and a COT every 92 days to ensure the channel OPERABILITY during refueling operations. Every 24 months a CHANNEL CALIBRATION is performed. SR 3.6.3.5 demonstrates that the isolation time of each valve is in accordance with the Inservice Testing Program requirements.

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SURVEILLANCE REQUIREMENTS

SR 3.9.3.2 (continued)

These Surveillances performed during MODE 6 will ensure that the valves are capable of closing after a postulated fuel handling accident to limit a release of fission product radioactivity from the containment.

REFERENCES

1. FSAR, Section 5.3.
 2. FSAR, Section 14.2.
 3. Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors", July 2000.
 4. 10 CFR 50 Appendix A, "General Design Criteria", Criterion 19, Control Room.
 5. NRC Safety Evaluation dated March 17, 2003; regarding License Amendment 215.
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