Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.1:
"Containment"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1 Containment

BASES

BACKGROUND

The containment consists of the concrete reactor building, its steel liner, and the penetrations through this structure. The structure is designed to contain radioactive material that may be released from the reactor core following a Design Basis Accident (DBA), in particular, a Main Steam Line Break (MSLB) inside containment or a Loss of Coolant Accident (LOCA). Additionally, this structure provides shielding from the fission products that may be present in the containment atmosphere following accident conditions.

The containment is a reinforced concrete structure with a cylindrical wall, a flat foundation mat, and a dome roof. The inside surface of the containment is lined with a carbon steel liner to ensure a high degree of leak tightness during operating and accident conditions.

The concrete reactor building is required for structural integrity of the containment under DBA conditions. The steel liner and its penetrations establish the leakage limiting boundary of the containment. Maintaining the containment OPERABLE limits the leakage of fission product radioactivity from the containment to the environment. SR 3.6.1.1 leakage rate requirements comply with 10 CFR 50, Appendix J, Option B, (Ref. 1), as modified by approved exemptions. NRC

The isolation devices for the penetrations in the containment boundary are a part of the containment leak tight barrier. To maintain this leak tight barrier:

a. All penetrations required to be closed during accident conditions are either:

   1. capable of being closed by an OPERABLE automatic containment isolation system, or

(continued)

BASES

BACKGROUND (continued)

2. closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.3, "Containment Isolation Valves";

b. Each air lock is OPERABLE, except as provided in LCO 3.6.2, "Containment Air Locks";

c. The equipment hatch is properly closed; and

d. The Isolation Valve Seal Water (IVSW) system is OPERABLE, except as provided in LCO 3.6.9.

e. The Weld Channel and Penetration Pressurization System is OPERABLE, except as provided in LCO 3.6.10. RA-03

APPLICABLE SAFETY ANALYSES

The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting DBA without exceeding the design leakage rate.

The DBAs that result in a challenge to containment OPERABILITY from high pressures and temperatures are a loss of coolant accident (LOCA) and a steam line break (Ref. 2). In addition, release of significant fission product radioactivity within containment can occur from a LOCA. In the DBA analyses, it is assumed that the containment is OPERABLE such that, for the DBAs involving release of fission product radioactivity, release to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of 0.1% of containment air weight per day assuming the proper functioning of the Isolation Valve Seal Water System but without benefit of the Weld Channel and Penetration Pressurization System (Ref. 3). This leakage rate, used to evaluate offsite doses resulting from accidents, is defined in 10 CFR 50, Appendix J, Option B (Ref. 1), as L_a: the maximum allowable containment leakage rate at the calculated peak containment internal pressure (P_a) resulting from the limiting DBAs (LBLOCA or MSLB). The NRC

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

allowable leakage rate represented by L_a forms the basis for the acceptance criteria imposed on all containment leakage rate testing. L_a is assumed to be 0.1% of containment air weight per day in the safety analysis at P_a which is specified in Specification 5.5.15, Containment Leakage Rate Testing Program.

Satisfactory leakage rate test results are a requirement for the establishment of containment OPERABILITY.

The containment satisfies Criterion 3 of 10 CFR 50.36.

LCO

Containment OPERABILITY is maintained by limiting leakage to $\leq$ 1.0 L_a, except prior to the first startup after performing a required leakage test in accordance with requirements in Specification 5.5.15, Containment Leakage Rate Testing Program. At this time, the applicable leakage limits specified in the Containment Leakage Rate Testing Program must be met. NRC

Compliance with this LCO will ensure a containment configuration, including the equipment hatch, that is structurally sound and that will limit leakage to less than the leakage rates assumed in the safety analysis.

Individual leakage rates specified for the containment air locks (LCO 3.6.2) are not specifically part of the acceptance criteria of 10 CFR 50, Appendix J, Option B. Therefore, leakage rates exceeding these individual limits only result in the containment being inoperable when the leakage results in exceeding the overall acceptance criteria of 1.0 L_a. NRC

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material into containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES.

(continued)

BASES

APPLICABILITY (continued)

Therefore, containment is not required to be OPERABLE in MODE 5 to prevent leakage of radioactive material from containment. The requirements for containment during MODE 6 are addressed in LCO 3.9.3, "Containment Penetrations."

ACTIONS

A.1

In the event containment is inoperable, containment must be restored to OPERABLE status within 1 hour. The 1 hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining containment during MODES 1, 2, 3, and 4. This time period also ensures that the probability of an accident (requiring containment OPERABILITY) occurring during periods when containment is inoperable is minimal.

B.1 and B.2

If containment cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1

Maintaining the containment OPERABLE requires compliance with the visual examinations and leakage rate test requirements of the Containment Leakage Rate Testing Program. Failure to meet air lock leakage limits specified in LCO 3.6.2 does not invalidate the acceptability of these overall leakage determinations unless their contribution to overall Type A, B, and C leakage causes that to exceed limits. As left leakage prior to the first

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

startup after performing the Containment Leakage Rate Testing Program leakage test is required to be ≤ 0.6 L_a for combined Type B and C leakage and ≤ 0.75 L_a for overall Type A leakage. At all other times between required leakage rate tests, the acceptance criteria is based on an overall Type A leakage limit of ≤ 1.0 L_a. At ≤ 1.0 L_a the offsite dose consequences are bounded by the assumptions of the safety analysis. SR Frequencies are as required by the Containment Leakage Rate Testing Program. These periodic testing requirements verify that the containment leakage rate does not exceed the leakage rate assumed in the safety analysis.

NRC

REFERENCES

1. 10 CFR 50, Appendix J, Option B.
2. FSAR, Chapter 14.
3. FSAR, Chapter 6.

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Improved Technical Specifications (ITS)
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Technical Specification 3.6.1:
"CONTAINMENT"

PART 2:

CURRENT TECHNICAL SPECIFICATION PAGES

Annotated to show differences between CTS and ITS

CTS PAGE	AMENDMENT FOR REV O SUBMITTAL	AMENDMENT FOR REV 1 SUBMITTAL	COMMENT
1-4	34;97-070	195	Clarification of Containment Integrity
3.6-1	86;97-070	195	Clarification of Containment Integrity
3.6-3	98;8-30-95;97-070	195	Clarification of Containment Integrity
4.4-1	174	174	
4.4-2	174	174	
4.4-5	174	174	
4.4-7	174;98-043	185	Clarification of Minimum Containment Test Pressure
4.4-10	174;98-043	185	Added NSE for 24 month Cycle Instrument Channel Uncertainties as Reference

SEE ITS 1.0

1.9.2 Instrument Channel Functional Test

Injection of a simulated signal into the channel to verify that it is operable, including alarm and/or trip initiating actions.

1.9.3 Instrument Channel Calibration

Adjustment of channel output such that it responds, with acceptable range and accuracy, to know values of the parameter which the channel measures. Calibration shall encompass the entire channel, including alarm or trip, and shall be deemed to include the channel functional test.

1.9.4 Logic Channel Functional Test

The operation of relays or switch contacts, in all the combinations required, to produce the required output.

~~1.10~~ CONTAINMENT INTEGRITY

LCO 3.6.1 Containment integrity is defined to exist when: A.3

SEE ITS 3.6.3

1.10.1 All non-automatic containment isolation valves which are not required to be open during accident conditions, except those opened under administrative control for normal plant operation or testing, are closed and blind flanges are installed where required. LA.2

1.10.2 The ~~equipment~~ door ~~is~~ properly ~~closed~~. LA.1

SEE ITS 3.6.2

1.10.3 Both doors in each personnel air lock are properly closed unless being used for entry, egress or maintenance, at which time at least one air lock door shall be closed. LA.2

SEE ITS 3.6.3

1.10.4 All automatic containment isolation valves are either operable or in the closed position, or isolated by a closed manual valve or flange that meets the same design criteria as the isolation valve. LA.2

3.6 CONTAINMENT SYSTEM

~~Applicability~~

~~Applies to the integrity of reactor containment.~~

~~Objective~~

~~To define the operating statue of the reactor containment for plant operation.~~

A.2

Specification

A. Containment Integrity

shall be Operable A.3

Mode 1,2,3,4 A.4

1. The containment integrity (as defined in 1.10) shall not be violated unless the reactor is in the cold shutdown condition. However, those non-automatic valves referred to in Specification 1.10.1, may be opened if necessary for plant operation and only as long as necessary to perform the intended function. These non-automatic valves which are opened intermittently are under administrative controls.

SEE ITS 3.6.3

2. The containment integrity shall not be violated when the reactor vessel head is removed unless the boron concentration is sufficient to maintain the shutdown margin equal to or greater than the requirements of specification 3.8.D.

SEE ITS 3.9.1

3. If the containment integrity requirements are not met when the reactor is above cold shutdown, containment integrity shall be restored within one hour or the reactor shall be in the hot shutdown condition within six hours and in cold shutdown condition within the next 30 hours. A.4

Req Act A.1
Req Act B.1
B.2

Mode 3 Mode 5

B. Internal Pressure

If the internal pressure exceeds 2.5 psig or the internal vacuum exceeds 2.0 psig, the condition shall be corrected or the reactor shutdown.

SEE ITS 3.6.4

C. Containment Temperature

1. The reactor shall not be taken above the cold shutdown condition unless the containment ambient temperature is greater than 50°F.

2. Containment ambient temperature shall not exceed 130°F when the reactor is above the cold shutdown condition. If the temperature is greater than 130°F, reduce the temperature to within the limit within 8 hours, or be in hot shutdown within the next 6 hours and in cold shutdown within the following 30 hours.

SEE ITS 3.6.5

Limiting maximum containment ambient temperature will ensure that the peak accident containment pressure does not exceed the design limit of 47 psig during steamline break or loss of coolant accidents. Environmentally and seismically qualified RTDs mounted on the crane wall above the containment fan cooler units inlet are normally used for measuring containment ambient temperature. Portable temperature sensing equipment may also be used, provided the criteria of 3.6.C.3 are met.

During periods of normal plant operations requiring containment integrity[4], some containment isolation valves, which include some locked or sealed closed valves, may be opened either continuously or intermittently depending on requirements of the particular protection, safeguards or essential service systems. Those valves which are opened intermittently are under administrative controls and are open only as long as necessary to perform their intended function. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for containment isolation is indicated. An exception to this is containment isolation valve AC-732. Valve AC-732 is on the RHR Suction Line and is continuously open during RHR shutdown cooling from about 350 degrees F to below 200 degrees F in the RCS. If containment isolation is required valve AC-732 would be shut as part of the administrative controls to realign the RHR system for safety injection. A clarification is for non-automatic, remote manual containment isolation valves operated intermittently from the control room. The administrative controls for these valves consist of the normally stationed control room operator, since this operator is continually available to isolate the valve from the control room. In all cases, however, those containment isolation valves not required to be opened post accident are closed during the post accident period in accordance with plant procedures and consistent with requirements of the related protection, safeguards, or essential service systems. The exception to the application of these administrative controls are the 36 inch containment purge flow paths. Due to the size of these containment purge line penetrations and the fact that these penetrations exhaust directly from the containment atmosphere to the environment, the penetration flow path containing these purge valves may not be opened under administrative controls.

A.1

Indian Point 3
Improved Technical Specifications (ITS)
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Technical Specification 3.6.1:
"Containment"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

REMOVED DETAIL

LA.1 CTS 1.10.2 specifies that the equipment door (hatch) must be properly closed as a condition of containment integrity. LCO 3.6.1 and associated SRs do not specifically address the status of the containment equipment hatch as a requirement for containment Operability; however, the Bases for LCO 3.6.1 specify that the equipment hatch must be closed. Moving this detail of containment Operability to the Bases is acceptable because SR 3.6.1.1, periodic leakage rate testing, includes a specific requirement for visual examination of the containment which will ensure that the equipment hatch is properly closed (i.e., in accordance with design drawings). Additionally, SR 3.6.1.1 acceptance criteria must be assumed not met if the equipment hatch is not properly installed at any time between performances of the SR. Therefore, the requirement to have the equipment hatch properly installed is not changed and is enforced indirectly by SR 3.6.1.1 and the description of requirements for Operability in the ITS Bases. Therefore, this design information can be adequately defined and controlled in the ITS Bases which require change control in accordance with ITS 5.5.13, Bases Control Program. This approach provides an effective level of regulatory control and provides for a more appropriate change control process. The level of safety of facility operation is unaffected by the change because there is no change in the requirement to maintain the equipment hatch closed as a condition of containment Operability. This change is a less restrictive administrative change with no impact on safety.

LA.2 CTS 1.10.1 establishes requirements for non automatic containment isolation valves. Although this requirement is maintained by ITS LCO 3.6.3, the role of non automatic containment isolation valves is included in the Bases of ITS LCO 3.6.1.

CTS 1.10.3 establishes requirements for containment airlocks. Although this requirement is maintained by ITS LCO 3.6.2, the role of containment airlocks is included in the Bases of ITS LCO 3.6.1.

CTS 1.10.4 establishes requirements for automatic containment isolation valves. Although this requirement is maintained by ITS LCO 3.6.3, the role of containment isolation valves is included in the Bases of ITS LCO 3.6.1.

DISCUSSION OF CHANGES
ITS SECTION 3.6.1 - Containment

These changes are acceptable because ITS LCO 3.6.1, 3.6.2 and 3.6.3 collectively maintain all of the containment requirements established by CTS 1.10 except as described and justified in the discussions of change for ITS LCO 3.6.1, 3.6.2 and 3.6.3. Therefore, inclusion of requirements in CTS 1.10.1, CTS 1.10.3 and CTS 1.10.4 in the Bases for ITS LCO 3.6.1 has no impact on safety.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.1:

"Containment"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1 Containment ~~(Atmospheric)~~

BASES

BACKGROUND

The containment consists of the concrete reactor building, its steel liner, and the penetrations through this structure. The structure is designed to contain radioactive material that may be released from the reactor core following a Design Basis Accident (DBA). Additionally, this structure provides shielding from the fission products that may be present in the containment atmosphere following accident conditions.

Insert B3.6-6-01

The containment is a reinforced concrete structure with a cylindrical wall, a flat foundation mat, and a ~~shallow~~ dome roof. The inside surface of the containment is lined with a carbon steel liner to ensure a high degree of leak tightness during operating and accident conditions.

~~For containments with ungrouted tendons, the cylinder wall is prestressed with a post tensioning system in the vertical and horizontal directions, and the dome roof is prestressed utilizing a three way post tensioning system.~~

The concrete reactor building is required for structural integrity of the containment under DBA conditions. The steel liner and its penetrations establish the leakage limiting boundary of the containment. Maintaining the containment OPERABLE limits the leakage of fission product radioactivity from the containment to the environment. SR 3.6.1.1 leakage rate requirements comply with 10 CFR 50, Appendix J, Option B, (Ref. 1), as modified by approved exemptions. T.1 | R1

The isolation devices for the penetrations in the containment boundary are a part of the containment leak tight barrier. To maintain this leak tight barrier:

a. All penetrations required to be closed during accident conditions are either:

   1. capable of being closed by an OPERABLE automatic containment isolation system, or

(continued)

BASES

BACKGROUND (continued)

2. closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.3, "Containment Isolation Valves";

b. Each air lock is OPERABLE, except as provided in LCO 3.6.2, "Containment Air Locks";

The

c. ~~All~~ equipment hatch~~s~~ ~~are~~ closed; and

is properly

Insert B 3.6-7-01

d. ~~The pressurized sealing mechanism associated with a penetration is OPERABLE, except as provided in LCO 3.6.[ ].~~

APPLICABLE SAFETY ANALYSES

The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting DBA without exceeding the design leakage rate.

The DBAs that result in a challenge to containment OPERABILITY from high pressures and temperatures are a loss of coolant accident (LOCA), a steam line break, ~~and a rod ejection accident (REA)~~ (Ref. 2). In addition, release of significant fission product radioactivity within containment can occur from a LOCA ~~or REA~~. In the DBA analyses, it is assumed that the containment is OPERABLE such that, for the DBAs involving release of fission product radioactivity, release to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of ~~[~~0.1~~]~~% of containment air weight per day (Ref. 3). This leakage rate, used to evaluate offsite doses resulting from accidents, is defined in 10 CFR 50, Appendix J (Ref. 1), as L_a: the maximum allowable containment leakage rate at the calculated peak containment internal pressure (P_a) resulting from the limiting DBA. The allowable leakage rate represented by L_a forms the basis for the acceptance criteria imposed on all containment leakage rate testing. L_a is assumed to be ~~[~~0.1~~]~~% per day in the safety analysis at P_a = ~~[~~44.1~~]~~ psig ~~(Ref. 3)~~.

Insert B 3.6-7-02

Option B

LBLOCA or MSLB

of containment air weight

R.1

R.1

Satisfactory leakage rate test results are a requirement for the establishment of containment OPERABILITY.

Insert B 3.6-7-03

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.1 - Containment

INSERT: B 3.6-7-01

d. The Isolation Valve Seal Water (IVSW) system is OPERABLE, except as provided in LCO 3.6.9. DB.1

e. The Weld Channel and Penetration Presurization System is OPERABLE, except as provide in LCO 3.6.10.

INSERT: B 3.6-7-02

assuming the proper functioning of the Isolation Valve Seal Water System but without benefit of the Weld Channel and Penetration Pressurization System DB.1

INSERT: B 3.6-7-03

which is specified in Specification 5.5.15, Containment Leakage Rate Testing Program.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The containment satisfies Criterion 3 of ~~the NRC Policy Statement~~ 10 CFR 50.36.

LCO

Containment OPERABILITY is maintained by limiting leakage to ≤ 1.0 L_a, except prior to the first startup after performing a required ~~10 CFR 50, Appendix J,~~ leakage test. At this time, the combined Type B and C leakage must be < 0.6 L_a, and the overall Type A leakage must be < 0.75 L_a. 1 R.1 T.1

Insert: B 3.6-8-01

Insert: B 3.6-8-02

Compliance with this LCO will ensure a containment configuration, including equipment hatches, that is structurally sound and that will limit leakage to ~~those~~ the leakage rates assumed in the safety analysis.

Individual leakage rates specified for the containment air lock (LCO 3.6.2) ~~[and purge valves with resilient seals (LCO 3.6.3)]~~ are not specifically part of the acceptance criteria of 10 CFR 50, Appendix J. Therefore, leakage rates exceeding these individual limits only result in the containment being inoperable when the leakage results in exceeding the overall acceptance criteria of ~~Appendix J.~~ 1.0 L_a. 1 R.1

less than the

Option B

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material into containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, containment is not required to be OPERABLE in MODE 5 to prevent leakage of radioactive material from containment. The requirements for containment during MODE 6 are addressed in LCO 3.9 ~~4~~ 3, "Containment Penetrations."

ACTIONS

A.1

In the event containment is inoperable, containment must be restored to OPERABLE status within 1 hour. The 1 hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining containment during MODES 1, 2, 3, and 4. This time period

(continued)

BASES

ACTIONS

A.1 (continued)

also ensures that the probability of an accident (requiring containment OPERABILITY) occurring during periods when containment is inoperable is minimal.

B.1 and B.2

If containment cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1

Insert: B 3.6-9-01

Maintaining the containment OPERABLE requires compliance with the visual examinations and leakage rate test requirements of 10 CFR 50, Appendix J (Ref. 1), as modified by approved exemptions. Failure to meet air lock ~~[and purge valve with resilient seal]~~ leakage limits specified in LCO 3.6.2 ~~[and LCO 3.6.3]~~ does not invalidate the acceptability of these overall leakage determinations unless their contribution to overall Type A, B, and C leakage causes that to exceed limits. As left leakage prior to the first startup after performing ~~a required 10 CFR 50, Appendix J~~ leakage test is required to be ≤ 0.6 L_a for combined Type B and C leakage, and ≤ 0.75 L_a for overall Type A leakage. At all other times between required leakage rate tests, the acceptance criteria is based on an overall Type A leakage limit of ≤ 1.0 L_a. At ≤ 1.0 L_a the offsite dose consequences are bounded by the assumptions of the safety analysis. SR Frequencies are as required by Appendix J, as modified by approved exemptions. Thus, SR 3.0.2 (which allows Frequency extensions) does not apply. These periodic testing requirements verify that the containment leakage rate does not exceed the leakage rate assumed in the safety analysis.

T.1

IR1

IR1

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)	SR 3.6.1.2 For ungrouted, post tensioned tendons, this SR ensures that the structural integrity of the containment will be maintained in accordance with the provisions of the Containment Tendon Surveillance Program. Testing and Frequency are consistent with the recommendations of Regulatory Guide 1.35 (Ref. 4).

REFERENCES

1. 10 CFR 50, Appendix J, Option B
2. FSAR, Chapter ~~[15]~~ 14.
3. FSAR, ~~Section [6.2]~~ Chapter 6.
4. ~~Regulatory Guide 1.35, Revision [1]~~.

1 R1

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.2:
"Containment Air Locks"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1	----------NOTES---------- 1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. 2. Results shall be evaluated against acceptance criteria applicable to SR 3.6.1.1. ---------- Perform required air lock leakage rate testing in accordance with the Containment Leakage Rate Testing Program.	RAI-02 In accordance with the Containment Leakage Rate Testing Program
SR 3.6.2.2	Verify only one door in the air lock can be opened at a time.	24 months

B 3.6 CONTAINMENT SYSTEMS

B 3.6.2 Containment Air Locks

BASES

BACKGROUND

Containment air locks form part of the containment pressure boundary and provide a means for personnel access during all MODES of operation.

Each air lock is a cylinder with a door at each end. One of the two air locks is designed as a part of the containment structure and the other is designed as an integral part of the containment equipment hatch but otherwise the two air locks function identically. Each air lock door has been designed and tested to certify its ability to withstand a pressure in excess of the maximum expected pressure following a Design Basis Accident (DBA) in containment. As such, closure of a single door supports containment OPERABILITY.

Each air lock door and the equipment hatch is designed with double gasketed seals to permit pressurization between the gaskets. The double gasketed seals are normally continuously pressurized above accident pressure. Finally, to effect a leak tight seal, the air lock design uses pressure seated doors (i.e., an increase in containment internal pressure results in increased sealing force on each door) and local leakage rate testing capability is available to ensure containment integrity is being maintained.

The doors are interlocked to prevent simultaneous opening of the inner and outer door. This interlock is a requirement for OPERABILITY. During periods when containment is not required to be OPERABLE, 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.

Each personnel air lock is provided with limit switches on both doors that provide control room indication when an airlock door is not fully closed.

(continued)

BASES

BACKGROUND (continued)

The containment air locks form part of the containment pressure boundary. As such, air lock integrity and leak tightness is essential for maintaining the containment leakage rate within limit in the event of a DBA. Not maintaining air lock integrity or leak tightness may result in a leakage rate in excess of that assumed in the unit safety analyses.

APPLICABLE SAFETY ANALYSES

The DBAs that result in a release of radioactive material within containment are a loss of coolant accident and a rod ejection accident. In the analysis of each of these accidents, it is assumed that containment is OPERABLE such that release of fission products to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of 0.1% of containment air weight per day (Ref. 2). This leakage rate is defined in 10 CFR 50, Appendix J, Option B (Ref. 1), as L_a = 0.1% of containment air weight per day, the maximum allowable containment leakage rate at the calculated peak containment internal pressure P_a = 42.40 psig following a DBA (LBLOCA or MSLB). This allowable leakage rate forms the basis for the acceptance criteria imposed on the SRs associated with the air locks. NRC

The containment air locks satisfy Criterion 3 of 10 CFR 50.36.

LCO

Each containment air lock forms part of the containment pressure boundary. As part of the containment pressure boundary, the air lock safety function is related to control of the containment leakage rate resulting from a DBA. Thus, each air lock's structural integrity and leak tightness are essential to the successful mitigation of such an event. NYPA

Each air lock is required to be OPERABLE. For the air lock to be considered OPERABLE, the air lock interlock mechanism must be OPERABLE, the air lock must be in compliance with the Type B air lock leakage test, and both air lock doors must be OPERABLE. The interlock allows only one air lock door of an air lock to be opened at one time. This provision ensures that a gross breach

(continued)

BASES

LCO (continued)

of containment does not exist when containment is required to be OPERABLE. Closure of a single door in each air lock is sufficient to provide a leak tight barrier following postulated events. Nevertheless, both doors are kept closed when the air lock is not being used for normal entry into or exit from containment.

The program established by Specification 5.15, "Containment Leakage Rate Test Program," which conforms to NEI 94-01, Section 10.2.2 (Ref. 3) for Containment Air Locks, requires that air lock doors opened during periods when containment integrity is required must be tested within 7 days after being opened. For Indian Point 3, which has air locks with testable seals, this requirement is satisfied in accordance with ANSI/ANS-56.8-1994 "Containment System Leakage Testing Requirements," (Ref. 4) by testing the seals (i.e., verifying that seals re-pressurize to the required pressure after an airlock door is closed). Pressurization of air lock seals is not required for air lock OPERABILITY except as needed to satisfy testing requirements after being opened. RAI-03

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment air locks are not required in MODE 5 to prevent leakage of radioactive material from containment. The requirements for the containment air locks during MODE 6 are addressed in LCO 3.9.3, "Containment Penetrations."

ACTIONS

The ACTIONS are modified by a Note that allows entry and exit to perform repairs on the affected air lock component. If the outer door is inoperable, then it may be easily accessed for most repairs. When the inner door is inoperable, it is preferred that the air lock be accessed from inside primary containment by entering through the other OPERABLE air lock. However, if this is not practicable, or if repairs on either door must be performed from the barrel side of the door then it is permissible to enter the air lock through the OPERABLE door, which means

(continued)

BASES

ACTIONS

C.1, C.2, and C.3 (continued)

Required Action C.2 requires that one door in the affected containment air lock must be verified to be closed within the 1 hour Completion Time. This specified time period is consistent with the ACTIONS of LCO 3.6.1, which requires that containment be restored to OPERABLE status within 1 hour.

Additionally, the affected air lock(s) must be restored to OPERABLE status within the 24 hour Completion Time unless Condition C is exited in accordance with LCO 3.0.2 (i.e., one door is made OPERABLE). The specified time period is considered reasonable for restoring an inoperable air lock to OPERABLE status, assuming that at least one door is maintained closed in each affected air lock. NYPA

D.1 and D.2

If the inoperable containment air lock cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1

Maintaining containment air locks OPERABLE requires compliance with the leakage rate test requirements of 10 CFR 50, Appendix J (Ref. 1), required by Specification 5.5.15, Containment Leakage Rate Testing Program. This SR reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The acceptance criteria were established during NRC

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1 (continued)

initial air lock and containment OPERABILITY testing. The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall containment leakage rate. The Frequency is required by Specification 5.5.15, Containment Leakage Rate Testing Program. WRC

The SR has been modified by two Notes. Note 1 states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is considered reasonable since either air lock door is capable of providing a fission product barrier in the event of a DBA. Note 2 has been added to this SR requiring the results to be evaluated against the acceptance criteria that is applicable to SR 3.6.1.1. This ensures that air lock leakage is properly accounted for in determining the combined Type B and C containment leakage rate.

SR 3.6.2.2

The air lock interlock is designed to prevent simultaneous opening of both doors in a single air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident containment pressure, closure of either door will support containment OPERABILITY. Thus, the door interlock feature supports containment OPERABILITY while the air lock is being used for personnel transit in and out of the containment. Periodic testing of this interlock demonstrates that the interlock will function as designed and that simultaneous opening of the inner and outer doors will not inadvertently occur. Due to the purely mechanical nature of this interlock, and given that the interlock mechanism is not normally challenged when the containment air lock door is used for entry and exit (procedures require strict adherence to single door opening), this test is only required to be performed every 24 months. The 24 month Frequency is based on the need to perform this Surveillance under conditions that apply during a plant RAI-04

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.2.2 (continued)

outage, and the potential for loss of containment OPERABILITY if the Surveillance were performed with the reactor at power. The 24 month Frequency for the interlock is justified based on generic operating experience. The Frequency is based on engineering judgment and is considered adequate given that the interlock is not normally challenged during the use of the airlock.

REFERENCES

1. 10 CFR 50, Appendix J, Option B. NRC

2. FSAR, Section 6.6.

3. NEI 94-01, Section 10.2.2.

4. ANSI/ANS-56.8-1994, "Containment System Leakage Testing Requirements." RAI-03

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.2:
"CONTAINMENT AIR LOCKS"

PART 2:

CURRENT TECHNICAL SPECIFICATION PAGES

Annotated to show differences between CTS and ITS

CTS PAGE	AMENDMENT FOR REV O SUBMITTAL	AMENDMENT FOR REV 1 SUBMITTAL	COMMENT
1-4	34;97-070	195	Clarification of Containment Integrity
3.6-1	86;97-070	195	Clarification of Containment Integrity
3.6-3	98;8-30-95;97-070	195	Clarification of Containment Integrity
4.4-3	174	174	
4.4-8	174;98-043	185	Administrative Change

CTS Amendments 185 & 195 have no impact on proposed ITS Rev 0.

1.9.2 Instrument Channel Functional Test

Injection of a simulated signal into the channel to verify that it is operable, including alarm and/or trip initiating actions.

1.9.3 Instrument Channel Calibration

Adjustment of channel output such that it responds, with acceptable range and accuracy, to know values of the parameter which the channel measures. Calibration shall encompass the entire channel, including alarm or trip, and shall be deemed to include the channel functional test.

1.9.4 Logic Channel Functional Test

The operation of relays or switch contacts, in all the combinations required, to produce the required output.

~~1.10 CONTAINMENT INTEGRITY~~

LCO 3.6.2 Containment integrity is defined to exist when: A.3

1.10.1 All non-automatic containment isolation valves which are not required to be open during accident conditions, except those opened under administrative control for normal plant operation or testing, are closed and blind flanges are installed where required.

SEE ITS 3.6.3

SEE ITS 3.6.1 1.10.2 The equipment door is properly closed.

LCO 3.6.2 1.10.3 Both doors in each personnel air lock are ~~properly~~ closed unless ~~being used for entry, egress or maintenance, at which time at least one air lock door shall be closed~~. A.3 LA.1 R.1

Two Operable

1.10.4 All automatic containment isolation valves are either operable or in the closed position, or isolated by a closed manual valve or flange that meets the same design criteria as the isolation valve.

SEE ITS 3.6.3

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.2:
"Containment Air Locks"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

DISCUSSION OF CHANGES
ITS SECTION 3.6.2 - Containment Air Locks

ADMINISTRATIVE

A.1 In the conversion of the Indian Point Unit 3 Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted which do not result in technical changes (either actual or interpretational). Additionally, editorial changes, reformatting, and revised numbering are adopted to make ITS consistent with the conventions in NUREG-1431, Standard Technical Specifications, Westinghouse Plants, Rev. 1, i.e., the improved Standard Technical Specifications.

The CTS Bases are deleted and replaced with comprehensive ITS Bases designed to support interpretation and implementation of the associated Technical Specifications. The Bases explain, clarify, and document the reasons (i.e., bases) for the associated Technical Specifications, and reflect the IP3 plant specific design, analyses, and licensing basis. In accordance with 10 CFR 50.36(a), the ITS Bases are included with the proposed ITS conversion application; however, deletion of the CTS Bases and the adoption of the ITS Bases is an administrative change with no impact on safety.

A.2 CTS Limiting Conditions for Operation (LCOs) and Surveillance Requirements (SRs) include statements of the objective and the applicability. The CTS statements of objective and applicability are deleted because these statements do not establish any requirements and do not provide any guidance for the application of CTS requirements. Therefore, deletion of these statements has no significant adverse impact on safety.

A.3 CTS 3.6.A.1 specifies that containment integrity (as defined in CTS 1.10) shall not be violated; and, CTS 1.10.3 specifies that both doors in each personnel air lock must be "properly closed." Additionally, CTS 1.10.3 specifies that the air lock may be used for entry, egress or maintenance, at which time at least one air lock door shall be closed.

DISCUSSION OF CHANGES
ITS SECTION 3.6.2 - Containment Air Locks

ITS 3.6.2 maintains the requirements in CTS 1.10.3 and includes the clarification that two (versus the less specific "each" in the CTS) air locks must be operable. Additionally, ITS 3.6.2 clarifies the ambiguous term "properly closed" by requiring that the air lock is Operable with the associated ITS Bases defining air lock Operability to require that the air lock interlock mechanism must be Operable. The air lock must be in compliance with the Type B air lock leakage test, and both air lock doors must be Operable.

The ITS maintains all existing requirements by dividing the containment Operability requirements into four separate LCOs: ITS 3.6.1 which requires that the containment is Operable; ITS 3.6.2 which requires that the containment air locks are Operable; ITS 3.6.3 which requires that each containment isolation valve is Operable; and, ITS LCO 3.6.9 which requires that IVSW is Operable. In conjunction with this change, the CTS definition of Containment Integrity is deleted because it contains information that is more appropriately contained in the ITS LCOs (and SRs) which establish the requirements for containment integrity and the Bases associated with these LCOs and SRs. This reorganization ensures that appropriate LCOs are recognized for any Condition and that appropriate Required Actions are implemented.

This reorganization of requirements is an administrative change with no impact on safety because the ITS requirements are reasonable interpretations of the existing requirements, except for the specific changes identified and justified in the discussion of changes for each LCO addressing containment issues.

A.4 CTS 3.6.A.1 and CTS 3.6.A.3 specify the Applicability for containment integrity as whenever the reactor is above cold shutdown. ITS 3.6.2 maintains this Applicability by requiring that Containment is Operable in Modes 1, 2, 3 and 4 (i.e., whenever the reactor is above cold shutdown). This is an administrative change with no impact on safety because there is no change to the CTS Applicability.

A.5 CTS 3.6.A.3 specifies that if the containment integrity requirements are not met (i.e., an air lock is not Operable which includes one door not

Actions C.1 and C.2 are the appropriate remedial actions if both doors in the same air lock are inoperable and an Operable door is not available to be closed to ensure containment integrity is maintained. However, Note 1 to Required Actions A.1 and B.1 is constructed to be consistent with the ITS convention of entering all LCO Conditions that apply; therefore, the exception provided by Note 1 does not affect tracking the Completion Time from the initial entry into Condition A and/or B; only the requirement to comply with the Required Actions A and/or B when both airlock doors are inoperable. The clarification of the intent of ITS LCO 3.6.2 provided by Note 1 to Actions A.1 and B.1 is an administrative change with no impact on safety because the Notes are consistent with a reasonable interpretation of existing requirements.

A.9 CTS 4.4.D requires that air locks be tested in accordance with the Containment Leakage Rate Testing Program. ITS SR 3.6.2.1 maintains this requirement with additional guidance provided in SR 3.6.2.1, Note 2, (as modified by TSTF-52 (WOG-42)) that results are evaluated against acceptance criteria applicable to SR 3.6.1.1. SR 3.6.2.1 ensures that acceptance criteria for air lock testing, listed in the ITS 5.5.15, Containment Leakage Rate Testing Program, is met. SR 3.6.2.1, Note 2, is added to ensure that air lock leakage is also included in determining the overall containment leakage rate which is determined by ITS SR 3.6.1.1. This is an administrative change with no impact on safety because it is a clarification that ensures proper interpretation of the existing requirements.

A.10 CTS 4.4.D requires that air locks be tested in accordance with the Containment Leakage Rate Testing Program. ITS SR 3.6.2.1 maintains this requirement with additional guidance in ITS SR 3.6.2.1, Note 1. This Note specifies that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This change is acceptable because either air lock door is capable of providing a fission product barrier in the event of a DBA. This is an administrative change with no impact on safety because SR 3.6.2.1, Note 1, is consistent with a reasonable interpretation of the existing requirement.

MORE RESTRICTIVE

M.1 CTS 3.6.A.3 specifies that if the containment integrity requirements are not met (i.e., an air lock is not Operable), then containment integrity shall be restored within one hour. Under the same conditions, ITS 3.6.2, Required Actions A.1 and B.1, maintain this requirement (see ITS 3.6.2, DOC A.5); however, ITS 3.6.2, Required Actions A.2, A.3, B.2, B.3 and associated Notes, is more restrictive by requiring that the Operable door in the affected air lock must be locked shut within 24 hours and verified locked closed every 31 days thereafter unless the air lock door is in a high radiation area, in which case, administrative verification is acceptable.

This change is needed to provide an appropriate level of assurance that containment integrity is maintained when one air lock door and/or the interlock mechanism are inoperable. The allowance permitting air lock doors in high radiation areas to be verified locked closed by administrative means is acceptable because access to these areas is restricted which significantly reduces the probability of misalignment of the door after it has been verified to be locked in the proper position. This more restrictive change is acceptable because having the Operable airlock door locked shut when the other door and/or the interlock mechanism are inoperable provides a very high degree of assurance that containment integrity is maintained with no impact on plant operation or personal safety related to the reduced accessibility to the containment.

M.2 CTS 3.6.A and CTS 1.10 do not establish any explicit requirements for the Operability of the containment air lock interlock mechanism. Consequently, CTS 1.10.3 is interpreted as allowing entry, egress or maintenance without the interlock as long as at least one air lock door remains closed. Under the same conditions, ITS 3.6.2, Condition B, requires compensatory actions for an airlock with an inoperable interlock mechanism equivalent to the compensatory actions for an inoperable airlock door. In conjunction with this change, ITS 3.6.2, Required Action B.1, Note 2, allows entry into and exit from containment via an airlock with an inoperable interlock only if performed under the control of a dedicated individual stationed at the air lock to ensure that only one door is opened at a time (i.e., the individual performs

evaluation lasting no more than 24 hours is acceptable because it is overly conservative to assume that overall containment leakage rate limit is not met even if both doors in an air lock have failed a seal test or if the overall air lock leakage is not within limits. LCO 3.6.2, Required Action C.3, establishes the 24 hour limit for resolution of any uncertainty related to the affect of air lock Operability on overall containment leakage. Finally, Required Action C.2, the requirement that one door in the affected containment air lock be verified closed within 1 hour, is consistent with CTS 3.6.A.3 requirements and LCO 3.6.1, which require that containment be restored to Operable status within 1 hour.

This change does not have a significant impact on safety because a prompt reactor shutdown is still required if it is apparent that the overall containment leakage rate limit is not met. However, in situations where the overall containment leakage rate may still be within limits, an evaluation limited to 24 hours is justified because the probable outcome is that leakage is within limits or exceeded only marginally and the low probability of an event during the 24 hour evaluation period.

REMOVED DETAIL

LA.1 CTS 1.10.3 specifies that both doors in each personnel air lock must be "properly closed." Additionally, CTS 1.10.3 specifies that the air lock may be used for entry, egress or maintenance, at which time at least one air lock door shall be closed. ITS 3.6.2 maintains the requirement that containment air locks must be Operable; however, the statement in CTS 1.10.3 that the air lock may be used for its intended purpose (i.e., entry, egress or maintenance as long as at least one air lock door is closed) is relocated to the ITS 3.6.2 Bases.

This change is acceptable because the air lock safety function is met with one closed door although both doors are kept closed when the air lock is not being used for normal entry into and exit from containment or for maintenance on the doors or the airlock. Additionally, the Technical Specification Bases are subject to change control in accordance with ITS 5.5.12, Bases Control Program. This approach provides an effective level of regulatory control and provides for a

more appropriate change control process. This change is a less restrictive administrative change with no impact on safety.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.2:

"Containment Air Locks"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

SURVEILLANCE REQUIREMENTS

<CTS>	SURVEILLANCE	FREQUENCY
<4.4.D> <DOC A.10>	SR 3.6.2.1 ----------NOTES---------- 1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. 2. Results shall be evaluated against acceptance criteria ~~of~~ applicable to SR 3.6.1.1 ~~in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions.~~ the integrated leak rate test ----------	R.1
<4.4.D> the Containment Leakage Rate Testing Program	Perform required air lock leakage rate testing in accordance with ~~10 CFR 50, Appendix J, as modified by approved exemptions.~~ ~~The acceptance criteria for air lock testing are:~~ ~~a. Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.~~ ~~b. For each door, leakage rate is ≤ [.01 L_a] when tested at ≥ [psig].~~	~~----NOTE---- SR 3.0.2 is not applicable ----------~~ In accordance with ~~10 CFR 50, Appendix J, as modified by approved exemptions~~ CLB.1
<DOC M.3>	SR 3.6.2.2 ~~----------NOTE---------- Only required to be performed upon entry or exit through the containment air lock. ----------~~ Verify only one door in the air lock can be opened at a time.	24 months ~~184 days~~ T.1

BASES (continued)

APPLICABLE SAFETY ANALYSES

The DBAs that result in a release of radioactive material within containment are a loss of coolant accident and a rod ejection accident ~~(Ref. 2)~~. In the analysis of each of these accidents, it is assumed that containment is OPERABLE such that release of fission products to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of ~~[~~0.1~~]~~% of containment air weight per day (Ref. 2). This leakage rate is defined in 10 CFR 50, Appendix J (Ref. 1), Option B as L_a = ~~[~~0.1~~]~~% of containment air weight per day, the maximum allowable containment leakage rate at the calculated peak containment internal pressure P_a = ~~[14.4]~~ 42.40 psig R.1 following a DBA. This allowable leakage rate forms the basis for the acceptance criteria imposed on the SRs associated with the air locks.

LC LOCA or MSLB

The containment air locks satisfy Criterion 3 of ~~the NRC Policy Statement~~ 10 CFR 50.36

LCO

Each containment air lock forms part of the containment pressure boundary. As part of containment, the air lock safety function is related to control of the containment leakage rate resulting from a DBA. Thus, each air lock's structural integrity and leak tightness are essential to the successful mitigation of such an event. R.1

Each air lock is required to be OPERABLE. For the air lock to be considered OPERABLE, the air lock interlock mechanism must be OPERABLE, the air lock must be in compliance with the Type B air lock leakage test, and both air lock doors must be OPERABLE. The interlock allows only one air lock door of an air lock to be opened at one time. This provision ensures that a gross breach of containment does not exist when containment is required to be OPERABLE. Closure of a single door in each air lock is sufficient to provide a leak tight barrier following postulated events. Nevertheless, both doors are kept closed when the air lock is not being used for normal entry into ~~and~~ or exit from containment.

Insert: B3.6-22-02

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the

(continued)

INSERT: B 3.6-22-01

Not used.

INSERT: B 3.6-22-02

The program established by Specification 5.15, "Containment Leakage Rate Test Program," which conforms to NEI 94-01, Section 10.2.2 (Ref. 3) for Containment Air Locks, requires that air lock doors opened during periods when containment integrity is required must be tested within 7 days after being opened. For Indian Point 3, which has air locks with testable seals, this requirement is satisfied in accordance with ANSI/ANS-56.8-1994 "Containment System Leakage Testing Requirements," (Ref. 4) by testing the seals (i.e., verifying that seals re-pressurize to the required pressure after an airlock door is closed). Pressurization of air lock seals is not required for air lock OPERABILITY except as needed to satisfy testing requirements after being opened.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1

Maintaining containment air locks OPERABLE requires compliance with the leakage rate test requirements of 10 CFR 50, Appendix J (Ref. 1), ~~as modified by approved exemptions~~. This SR reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The acceptance criteria were established during initial air lock and containment OPERABILITY testing. The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall containment leakage rate. The Frequency is ~~required by Appendix J (Ref. 1), as modified by approved exemptions. Thus, SR 3.0.2 (which allows Frequency extensions) does not apply.~~

required by Specification 5.5.15, Containment Leakage Rate Testing Program.

R.1 CLB.1

The SR has been modified by two Notes. Note 1 states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is considered reasonable since either air lock door is capable of providing a fission product barrier in the event of a DBA. Note 2 has been added to this SR requiring the results to be evaluated against the acceptance criteria ~~of~~ SR 3.6.1.1. This ensures that air lock leakage is properly accounted for in determining the ~~overall~~ containment leakage rate.

that is [illegible]

Combined Type B and C

SR 3.6.2.2

The air lock interlock is designed to prevent simultaneous opening of both doors in a single air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident containment pressure, closure of either door will support containment OPERABILITY. Thus, the door interlock feature supports containment OPERABILITY while the air lock is being used for personnel transit in and out of the containment. Periodic testing of this interlock demonstrates that the interlock will function as designed and that simultaneous opening of the inner and outer doors will not inadvertently occur. Due to the purely mechanical nature of this interlock, and given that the interlock mechanism is ~~only~~ challenged when the containment air lock door is ~~opened~~, this test is only required to be performed ~~upon entering or exiting a containment air lock but is not required more frequently~~.

not normally

Insert: B 3.6-27-01

Insert B 3.6-27-02

T.1

(continued)

INSERT: B 3.6-27-01

T.1

used for entry and exit (procedures require strict adherence to single door opening)

INSERT: B 3.6-27-02

every 24 months. The 24 month Frequency is based on the need to perform this Surveillance under conditions that apply during a plant outage, and the potential for loss of containment OPERABILITY if the Surveillance were performed with the reactor at power. The 24 month Frequency for the interlock is justified based on generic operating experience.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.2.2 (continued)

~~than every 184 days~~. The ~~184 day~~ Frequency is based on engineering judgment and is considered adequate ~~in view of other indications of door and interlock mechanism status available to operations personnel~~.

Insert: B 3.6-28.01

T.1

REFERENCES

1. 10 CFR 50, Appendix J, Option B.
2. FSAR, Section ~~6.2~~. 6.6

Insert: B 3.6-28.02

R.1

R.1

INSERT: B 3.6-28-01

given that the interlock is not normally challenged during the use of the airlock

INSERT: B 3.6-28-02

3. NEI 94-01, Section 10.2.2.

4. ANSI/ANS-56.8-1994, "Containment System Leakage Testing Requirements."

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.3:
"Containment Isolation Valves"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

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

ACTIONS

----------NOTES----------

1. Penetration flow path(s) except for 36 inch purge valve flow paths may be unisolated intermittently under administrative controls.

2. Separate Condition entry is allowed for each penetration flow path.

3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves.

4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

5. Enter applicable Conditions and Required Actions of LCO 3.6.9, "Isolation Valve Seal Water (IVSW) System," when required IVSW supply to a penetration flowpath is inoperable.

6. Enter applicable Conditions and Required Actions of LCO 3.6.10, "Weld Channel and Penetration Pressurization System (WC&PPS)," when required WC&PPS supply to a penetration flowpath is inoperable. RAI-3.6.10-01

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE--------- Only applicable to penetration flow paths with two or more containment isolation valves. ---------- One or more penetration flow paths with one containment isolation valve inoperable, except for containment bypass leakage not within limit.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.	4 hours
	<u>AND</u>	
	A.2 --------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment <u>AND</u> Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment

RAI-3.6.3-11

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ---------NOTE--------- Only applicable to penetration flow paths with two or more containment isolation valves. ---------- One or more penetration flow paths with two containment isolation valves inoperable, except for containment bypass leakage not within limit.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour
C. ---------NOTE--------- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. ---------- One or more penetration flow paths with one containment isolation valve inoperable.	C.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	72 hours
	AND		
	C.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days

RAI-3.6.3-11

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Containment bypass leakage not within limit.	D.1 Restore leakage within limit.	4 hours
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 5.	6 hours 36 hours

RAI-3.6.3-11

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1	Verify each 36 inch purge supply and exhaust isolation valve is sealed closed.	31 days
SR 3.6.3.2	Verify each 10 inch pressure relief isolation valve is closed, except when these valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.3	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative controls. ---------- Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	31 days
SR 3.6.3.4	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ---------- Verify each containment isolation manual valve and blind flange that is located inside containment and not locked, sealed or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
SR 3.6.3.5	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	In accordance with the Inservice Testing Program	NYPA
SR 3.6.3.6	Verify each automatic containment isolation valve that is not locked, sealed or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	24 months	
SR 3.6.3.7	Verify each 10 inch containment pressure relief line isolation valve is blocked to restrict valve opening to ≤ 60 degrees.	24 months	
SR 3.6.3.8	Perform one complete cycle of each manually operated containment isolation valve on essential lines.	24 months	RAI-3.6.3-18
SR 3.6.3.9	Verify the combined leakage rate for all containment bypass leakage paths is ≤ 0.6 La when pressurized to ≥ 42.42 psig.	In accordance with the Containment Leakage Rate Testing Program	
SR 3.6.3.10	Verify leakage rate of service water lines that penetrate the primary containment is within limits.	In accordance with the Containment Leakage Rate Testing Program	RAI-3.6.0-02

B 3.6 CONTAINMENT SYSTEMS

B 3.6.3 Containment Isolation Valves

BASES

BACKGROUND

The containment isolation valves form part of the containment pressure boundary and provide a means for fluid penetrations not serving accident consequence limiting systems to be provided with two isolation barriers that are closed on a containment isolation signal. These isolation devices are either passive or active (automatic). Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), blind flanges, and closed systems are considered passive devices. Check valves, or other automatic valves designed to close without operator action following an accident, are considered active devices. Two barriers in series are provided for each penetration so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analyses. One of these barriers may be a closed system. These barriers (typically containment isolation valves) make up the Containment Isolation System.

Automatic isolation signals are produced during accident conditions. Containment Phase "A" isolation occurs upon receipt of a safety injection signal. The Phase "A" isolation signal isolates nonessential process lines in order to minimize leakage of fission product radioactivity. Containment Phase "B" isolation occurs upon receipt of a containment pressure High-High signal and isolates the remaining process lines, except systems required for accident mitigation. In addition to the isolation signals listed above, the Containment purge supply and exhaust isolation valves (FCV-1170, FCV-1171, FCV-1172, and FCV-1173) and the containment pressure relief isolation valves (PCV-1190, PCV-1191, and PCV-1192) close when high radiation levels are detected by the Containment Air Particulate Monitor (R-11) or Containment Radioactive Gas Monitor (R-12). Containment purge and containment pressure relief are also isolated when high radiation levels are detected in the plant vent. As a result, the

(continued)

BASES

BACKGROUND (continued)

containment isolation valves (and blind flanges) help ensure that the containment atmosphere will be isolated from the environment in the event of a release of fission product radioactivity to the containment atmosphere as a result of a Design Basis Accident (DBA).

The OPERABILITY requirements for containment isolation valves help ensure that containment is isolated within the time limits assumed in the safety analyses. Therefore, the OPERABILITY requirements provide assurance that the containment function assumed in the safety analyses will be maintained.

Containment Purge System (36 inch purge valves)

The Containment Purge System, consisting of purge supply and exhaust isolation valves FCV-1170, FCV-1171, FCV-1172, and FCV-1173, operates to supply outside air into the containment for ventilation and cooling or heating and may also be used to reduce the concentration of noble gases within containment prior to and during personnel access. The supply and exhaust lines each contain two isolation valves. Because of their large size, the 36 inch purge valves are not qualified for automatic closure from their open position under DBA conditions. Therefore, the 36 inch purge valves must be maintained sealed closed in MODES 1, 2, 3, and 4 to ensure the containment boundary is maintained.

Containment Pressure Relief Line (10 inch valves)

The Containment Pressure Relief Line consisting of pressure relief isolation valves PCV-1190, PCV-1191, and PCV-1192, operates to:

a. Reduce the concentration of noble gases within containment prior to and during personnel access, and

b. Equalize internal and external pressures.

Since the valves used in the Containment Pressure Relief Line are designed to meet the requirements for automatic containment isolation valves, these valves may be opened as needed in MODES 1, 2, 3, and 4. Containment pressure relief line

(continued)

BASES

BACKGROUND (continued)

isolation valve opening is limited by mechanical stops so that opening angle is limited to an angle at which analysis indicates the valve will operate against containment accident pressures. Additionally, pressure relief isolation valve opening must be limited to the time necessary for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open.

The containment pressure relief line is isolated during CORE ALTERATIONS and movement of irradiated fuel inside containment in accordance with requirements established in LCO 3.9.3, Containment Penetrations.

APPLICABLE SAFETY ANALYSES

The containment isolation valve LCO was derived from the assumptions related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during major accidents. As part of the containment boundary, containment isolation valve OPERABILITY supports leak tightness of the containment. Therefore, the safety analyses of any event requiring isolation of containment is applicable to this LCO.

The DBA that results in a release of radioactive material within containment is a loss of coolant accident (LOCA) (Ref. 1). In the analyses for this accident, it is assumed that containment isolation valves are either closed or function to close within the required isolation time following event initiation. This ensures that potential paths to the environment through containment isolation valves are minimized. The safety analyses assume that the 36 inch purge valves are sealed closed at event initiation. NYPA

The DBA analysis assumes that, within 60 seconds after the accident, isolation of the containment is complete and leakage terminated except for the design leakage rate, L_a. The containment isolation total response time of 60 seconds includes signal delay, diesel generator startup (for loss of offsite power), and containment isolation valve stroke times.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

The containment purge supply and exhaust isolation valves (FCV-1170, FCV-1171, FCV-1172, and FCV-1173) may be unable to close in the environment following a LOCA. Therefore, each of the purge valves is required to remain sealed closed during MODES 1, 2, 3, and 4. In this case, the single failure criterion remains applicable to the containment purge valves due to failure in the control circuit associated with each valve. Again, the purge system valve design precludes a single failure from compromising the containment boundary as long as the system is operated in accordance with the subject LCO.

Sealed closed barriers include blind flanges and sealed closed isolation valves including closed manual valves, closed remote-manual valves, and closed automatic valves which remain closed after a loss-of-coolant accident. Sealed closed barriers may be used in place of any automatic isolation valve. The term sealed closed, as applied to containment isolation valves, is not intended to describe leak tightness. Sealed closed isolation valves must be under administrative controls that assure the valve cannot be inadvertently opened. Administrative controls includes mechanical devices to seal or lock the valve closed, or to prevent power from being supplied to the valve operator (Ref. 3). RAI-3.6.3-15

The containment isolation valves satisfy Criterion 3 of 10 CFR 50.36.

LCO

Containment isolation valves form a part of the containment boundary. The containment isolation valves' safety function is related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during a DBA.

The automatic power operated isolation valves are required to have isolation times within limits and to actuate on an automatic isolation signal. The 36 inch purge valves must be maintained sealed closed.

(continued)

BASES

LCO (continued)

The valves covered by this LCO are listed in the FSAR (Ref. 2). The passive isolation devices are shown on drawings in the FSAR. The normally closed isolation valves are considered OPERABLE when manual valves are closed, automatic valves are de-activated and secured in their closed position, blind flanges are in place, and closed systems are intact (Ref. 3). RAI-3.6.3-17

Manually operated containment isolation valves on essential lines that are required to be open, at least for a time, during post accident conditions are OPERABLE if they can be closed in accordance with design assumptions. Essential lines are those lines required to mitigate an accident, or which, if unavailable, could increase the magnitude of the event. Also, those lines which, if available, would be used in the short term (24 to 36 hours) to restore the plant to normal operation following an event which has resulted in containment isolation (Ref. 4).

This LCO provides assurance that the containment isolation valves and purge valves will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the containment boundary during accidents.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment isolation valves are not required to be OPERABLE in MODE 5. The requirements for containment isolation valves during MODE 6 are addressed in LCO 3.9.3, Containment Penetrations.

ACTIONS

The ACTIONS are modified by Note 1 which allows penetration flow paths, except for 36 inch purge valve penetration flow paths, to be unisolated intermittently under administrative controls. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for containment RAI-3.6.3-08

(continued)

BASES

ACTIONS (continued)

isolation is indicated. Due to the size of the containment purge line penetration and the fact that those penetrations exhaust from the containment atmosphere to the environment, the penetration flow path containing these valves may not be opened under administrative controls.

The normally stationed control room operator satisfies the requirement for a dedicated operator for any non-automatic, remotely operated CIV that is opened intermittently from the control room (Ref. 6). Additionally, a dedicated operator is not required for manually operated CIVs required to be open both during normal plant operations and during a LOCA. A dedicated operator is not required at the valve when the RHR Suction isolation valve, AC-732, is open to support operation of the RHR system for shutdown cooling (Ref. 6). Normally open, manual CIVs are used for isolation of closed systems within the containment that are missile protected and are seismic Class I at least up to and including the isolation valves. NYPA

Note 2 has been added to provide clarification that, for this LCO, separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable containment isolation valve. Complying with the Required Actions may allow for continued operation, and subsequent inoperable containment isolation valves are governed by subsequent Condition entry and application of associated Required Actions.

The ACTIONS are further modified by Note 3, which ensures appropriate remedial actions are taken if the affected systems are rendered inoperable by an inoperable containment isolation valve.

In the event containment isolation valve leakage results in exceeding the overall containment leakage rate, Note 4 directs entry into the applicable Conditions and Required Actions of LCO 3.6.1.

The ACTIONS are further modified by Note 5 and Note 6, which ensures appropriate remedial actions are taken if required IVSW RAI-360-01

(continued)

BASES

ACTIONS (continued)

or WC&PPS supply to a penetration flowpath is inoperable. Note 5 and Note 6 direct entry into the applicable Conditions and Required Actions of LCO 3.6.9 and LCO 3.6.10, as appropriate. RAI-3.6.0-01

A.1 and A.2

In the event one containment isolation valve in one or more penetration flow paths is inoperable except for containment bypass leakage not within limit, the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured (Ref. 3). For a penetration flow path isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available one to containment. Required Action A.1 must be completed within 4 hours. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4. RAI-3.6.3-11

For affected penetration flow paths that cannot be restored to OPERABLE status within the 4 hour Completion Time and that have been isolated in accordance with Required Action A.1, the affected penetration flow paths must be verified to be isolated on a periodic basis. This is necessary to ensure that containment penetrations required to be isolated following an accident and no longer capable of being automatically isolated will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation. This action involves verification, through a system walkdown, that isolation devices outside containment and capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate considering the fact that the devices are operated under administrative controls and the probability of their misalignment is low. For the isolation devices inside containment e.g., one of the three containment

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

pressure relief isolation valves, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

Condition A has been modified by a Note indicating that this Condition is only applicable to those penetration flow paths with two or more containment isolation valves. Although most penetrations have two containment isolation valves, the term "two or more" is used so that Condition A includes penetrations such as the pressure relief line penetration which has three valves in series. For penetration flow paths with only one containment isolation valve and a closed system, Condition C provides the appropriate actions. NYPA

Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices once they have been verified to be in the proper position, is small.

B.1

With two containment isolation valves in one or more penetration flow paths inoperable, the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. In the event the affected penetration is isolated in accordance with

(continued)

BASES

ACTIONS

B.1 (continued)

Required Action B.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action A.2, which remains in effect. This periodic verification is necessary to assure leak tightness of containment and that penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative control and the probability of their misalignment is low.

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two containment isolation valves. Although most penetrations have two containment isolation valves, the term "two or more" is used so that Condition B includes penetrations such as the pressure relief line penetration which has three valves in series. Condition A of this LCO addresses the condition of one containment isolation valve inoperable in this type of penetration flow path.

NYPA

C.1 and C.2

With one or more penetration flow paths with one containment isolation valve inoperable, the inoperable valve flow path must be restored to OPERABLE status or the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier, other than the closed system, that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange (Ref. 3). A check valve may not be used to isolate the affected penetration flow path. Required Action C.1 must be completed within the 72 hour Completion Time. The specified time period is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of maintaining containment integrity during MODES 1, 2, 3, and 4. In the event the affected penetration flow path is isolated in accordance with Required Action C.1, the affected penetration

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

flow path must be verified to be isolated on a periodic basis. This periodic verification is necessary to assure leak tightness of containment and that containment penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying that each affected penetration flow path is isolated is appropriate because the valves are operated under administrative controls and the probability of their misalignment is low.

Condition C is modified by a Note indicating that this Condition is only applicable to those penetration flow paths with only one containment isolation valve and a closed system. This Note is necessary since this Condition is written to specifically address those penetration flow paths in a closed system. The closed system must meet the requirements of Reference 3. NYPA

Required Action C.2 is modified by a Note that applies to valves and blind flanges located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is small.

D.1

With the containment bypass leakage rate not within limit of SR 3.6.3.9, the assumptions of the safety analyses are not met. Therefore, the leakage must be restored to within limit within 4 hours. Restoration can be accomplished by isolating the penetration(s) that caused the limit to be exceeded by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. When a penetration is isolated the leakage rate for the isolated penetration is assumed to be the actual pathway leakage through the isolation device. If two isolation devices are used to isolate the penetration, the leakage rate is assumed RAI-3.6.3-11

(continued)

BASES

ACTIONS

D.1 (continued)

to be the lesser actual pathway leakage of the two devices. The 4 hour Completion Time is reasonable considering the time required to restore the leakage by isolating the penetration(s) and the relative importance of containment bypass leakage to the overall containment function. RAI-3.6.3-11

E.1 and E.2

If the Required Actions and associated Completion Times are not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.3.1

Each 36 inch containment purge supply and exhaust isolation valve (FCV-1170, FCV-1171, FCV-1172, and FCV-1173) is required to be verified sealed closed at 31 day intervals. This Surveillance is designed to ensure that a gross breach of containment is not caused by an inadvertent or spurious opening of a containment purge valve. Detailed analysis of the purge valves failed to conclusively demonstrate their ability to close during a LOCA in time to limit offsite doses. Therefore, these valves are required to be in the sealed closed position during MODES 1, 2, 3, and 4. A containment purge valve that is sealed closed must have motive power to the valve operator removed. This can be accomplished by de-energizing the source of electric power or by removing the air supply to the valve operator. In this application, the term "sealed" has no connotation of leak tightness. RAI-3.6.3-15

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.1 (continued)

The Frequency is a result of an NRC initiative, Generic Issue B-24 (Ref. 5), related to containment purge valve use during plant operations.

SR 3.6.3.2

This SR ensures that the containment pressure relief line isolation valves (PCV-1190, PCV-1191, and PCV-1192) are closed as required or, if open, open for an allowable reason. If a containment pressure relief line isolation valve is open in violation of this SR, the valve is considered inoperable. If the inoperable valve is not otherwise known to have excessive leakage when closed, it is not considered to have leakage outside of limits. The SR is not required to be met when the containment pressure relief line isolation valves are open for the reasons stated. The valves may be opened for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open. The containment pressure relief line isolation valves are capable of closing in the environment following a LOCA as long as valve opening angle is limited in accordance with SR 3.6.3.7. Therefore, these valves are allowed to be open for limited periods of time. The 31 day Frequency is consistent with other containment isolation valve requirements discussed in SR 3.6.3.3.

SR 3.6.3.3

This SR requires verification that each containment isolation manual valve and blind flange located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown, that those

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.3 (continued)

containment isolation valves outside containment and capable of being mispositioned are in the correct position. Since verification of valve position for containment isolation valves outside containment is relatively easy, the 31 day Frequency is based on engineering judgment and was chosen to provide added assurance of the correct positions. The SR specifies that containment isolation valves that are open under administrative controls are not required to meet the SR during the time the valves are open. This SR does not apply to valves that are locked, sealed or otherwise secured in the closed position because these valves were verified to be in the correct position when locked, sealed or otherwise secured.

The Note applies to valves and blind flanges located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, 3 and 4 for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in the proper position, is small.

SR 3.6.3.4

This SR requires verification that each containment isolation manual valve and blind flange located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the containment boundary is within design limits. For containment isolation valves inside containment, the Frequency of "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is appropriate since these containment isolation valves are operated under administrative controls and the probability of their misalignment is low. The SR specifies that containment isolation valves that are open under

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.4 (continued)

administrative controls are not required to meet the SR during the time they are open. This SR does not apply to valves that are locked, sealed or otherwise secured in the closed position because these valves were verified to be in the correct position when locked sealed or otherwise secured.

This Note allows valves and blind flanges located in high radiation areas to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, 3, and 4, for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in their proper position, is small.

SR 3.6.3.5

Verifying that the isolation time of each automatic power operated containment isolation valve is within limits is required to demonstrate OPERABILITY. The isolation time test ensures the valve will isolate in a time period less than or equal to that assumed in the safety analyses as specified in the FSAR. The isolation time and Frequency of this SR are in accordance with the Inservice Testing Program.

SR 3.6.3.6

Automatic containment isolation valves close on a containment isolation signal to prevent leakage of radioactive material from containment following a DBA. This SR ensures that each automatic containment isolation valve will actuate to its isolation position on a containment isolation signal. This surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. The 24 month Frequency is based on the NYPA

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.6 (continued)

need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass this Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.6.3.7

Verifying that each containment pressure relief line isolation valve, PCV-1190, PCV-1191, and PCV-1192, is blocked to restrict valve opening to ≤ 60 degrees, is required to ensure that the valves can close under DBA conditions within the times assumed in the analyses of References 1 and 2. If a LOCA occurs, the pressure relief line valves must close to maintain containment leakage within the values assumed in the accident analysis. The 24 month Frequency is appropriate because the blocking devices are typically not removed. NYPA

SR 3.6.3.8

This SR ensures that manually operated containment isolation valve on essential lines are capable of being opened or closed as needed to support any accident mitigation function. Essential lines are those lines required to mitigate an accident, or which, if unavailable, could increase the magnitude of the event. Also, those lines which, if available, would be used in the short term (24 to 36 hours) to restore the plant to normal operation following an event which has resulted in containment isolation (Ref. 4). The 24 month Frequency is based on engineering judgement and plant experience with manually operated valves. RAI 3.6.3-18

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.3.9

RAI - 3.6.3-18

This SR ensures that the combined leakage rate of all containment leakage paths is less than or equal to the specified leakage rate for those paths that are not sealed by the Isolation Valve Seal Water System or sealed by the RHR system or sealed by the service water system. This provides assurance that the assumptions in the safety analysis are met. The leakage rate of each bypass leakage path is assumed to be the maximum pathway leakage (leakage through the worse of the two isolation valves) unless the penetration is isolated by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. In this case, the leakage rate of the isolated bypass leakage path is assumed to be the actual pathway leakage through the isolation device. If both isolation valves in the penetration are closed, the actual leakage rate is the lesser leakage rate of the two valves.

This testing is performed in accordance with the requirements, Frequency and acceptance criteria required by Specification 5.5.15, Containment Leakage Rate Testing Program. This program was established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by IP3 specific approved exemptions. This program conforms to guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak Test Program, dated September 1995." In the event containment isolation valve leakage results in exceeding the overall containment leakage rate, entry into the applicable Conditions and Required Actions of LCO 3.6.1 is required.

NYPA

SR 3.6.3.10

RAI - 3.6.0.02

The Containment Leakage Rate Testing Program includes verification that inleakage rate from the containment isolation valves sealed with service water is maintained at a level that will prevent flooding the internal recirculation pumps for the full 12-month period of post accident recirculation. This inleakage test has specific acceptance criteria specified in the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.10 (continued)

Containment Leakage Rate Testing Program and the results for this inleakage test are not counted against the acceptance criteria for the Type B and C tests that are also performed as part of the SR.

RAI-3.6D-02

REFERENCES

1. FSAR, Section 14.
2. FSAR, Section 6.
3. Standard Review Plan Section 6.2.4.
4. FSAR, Section 5.2.
5. Generic Issue B-24.
6. Safety Evaluation Report for IP3 Amendment 195.

NYPA

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.3:
"CONTAINMENT ISOLATION VALVES"

PART 2:

CURRENT TECHNICAL SPECIFICATION PAGES

Annotated to show differences between CTS and ITS

CTS PAGE	AMENDMENT FOR REV O SUBMITTAL	AMENDMENT FOR REV 1 SUBMITTAL	COMMENT
1-4	34;97-070	195	Clarification of Containment Integrity
3.6-1	86;97-070	195	Clarification of Containment Integrity
3.6-2	98;3-16-95;97-175	195	Administrative Change
3.6-3	98;8-30-95;97-070	195	Clarification of Containment Integrity
T3.6-1	152;97-070	195	CIV Table Deleted
T4.1-3(1)	178;97-156;98-043	200	City Water Connections to Charging Pumps and Boric Acid Piping Deleted
4.4-4	174	195	Clarified Combined Leakage Rate for Containment Bypass Leakage Paths.
4.4-5	174	174	
4.4-7	174;98-043	185	Clarification of Minimum Containment Test Pressure
4.4-8	174;98-043	185	Administrative Change
4.4-9	174	174	
4.4-10	174;98-043	185	Updated Reference List
T4.4-1(1)	102	195	Deleted CIV Table
T4.4-1(2)	152	195	Deleted CIV Table
T4.4-1(3)	102	195	Deleted CIV Table
T4.4-1(4)	102	195	Deleted CIV Table
T4.4-1(5)	105;97-070	195	Deleted CIV Table
T4.4-1(6)	174	195	Deleted CIV Table
T4.4-1(7)	102	184	Added Note to Clarify Type C testing Requirement
4.13-1	175	175	
4.13-2	131	131	

SEE ITS 1.0

1.9.2 Instrument Channel Functional Test

Injection of a simulated signal into the channel to verify that it is operable, including alarm and/or trip initiating actions.

1.9.3 Instrument Channel Calibration

Adjustment of channel output such that it responds, with acceptable range and accuracy, to know values of the parameter which the channel measures. Calibration shall encompass the entire channel, including alarm or trip, and shall be deemed to include the channel functional test.

1.9.4 Logic Channel Functional Test

The operation of relays or switch contacts, in all the combinations required, to produce the required output.

1.10 CONTAINMENT INTEGRITY (A.3)

LCO 3.6.3 Containment integrity is defined to exist when:

1.10.1 All non-automatic containment isolation valves which are not required to be open during accident conditions, except those opened under administrative control for normal plant operation or testing, ~~are closed and blind flanges are installed where~~ required. (LA.2) (L.2)

R' Reg Act A1,C1

~~1.10.2~~ The equipment door is properly closed.

SEE ITS 3.6.1

1.10.3 Both doors in each personnel air lock are properly closed unless being used for entry, egress or maintenance, at which time at least one air lock door shall be closed. (LA.2) R'

SEE ITS 3.6.2

LCO 3.6.3 ~~1.10.4~~ All automatic containment isolation valves are either operable ~~or~~ in the closed position, or isolated by a closed manual valve or flange that meets the same design criteria as the isolation valve. (L.2) (L.5)

R' Reg Act A1,C1

or check valve with flow secured, (L.4)

deactivated (M5)

Add [illegible] (L.2)

Add Note to Condition A, B, C (A.8)

Add SR 3.6.3.3
Add SR 3.6.3.4 (M.3)

Amendment No. ~~34,~~ 195

3.6 CONTAINMENT SYSTEM

~~Applicability~~

~~Applies to the integrity of reactor containment.~~ A.2

~~Objective~~

~~To define the operating statue of the reactor containment for plant operation.~~

Specification

isolation valves shall be Operable — A.3

A. Containment Integrity

in Mode 1, 2, 3 and 4 — A.4

LCO 3.6.3

1. The containment ~~integrity (as defined in 1.10) shall not be violated unless the reactor is in the cold shutdown condition.~~ However, those non-automatic valves referred to in Specification 1.10.1, may be opened if necessary for plant operation and only as long as necessary to perform the intended function. These non-automatic valves which are opened intermittently are under administrative controls.

Actions Note 1

SEE ITS 3.9.1

2. The containment integrity shall not be violated when the reactor vessel head is removed unless the boron concentration is sufficient to maintain the shutdown margin equal to or greater than the requirements of specification 3.8.D.

Req Act B.1
Req Act D.1, D.2

3. If the containment integrity requirements are not met ~~when the reactor is above cold shutdown~~ — A.4, containment integrity shall be restored within one hour or the reactor shall be in the ~~hot~~ — L.2 shutdown condition within six hours and in cold shutdown — A.10 condition within the next 30 hours.

Mode 3 Mode 5

B. ~~Internal Pressure~~

SEE ITS LCO 3.6.4

If the internal pressure exceeds 2.5 psig or the internal vacuum exceeds 2.0 psig, the condition shall be corrected or the reactor shutdown.

C. Containment Temperature

1. The reactor shall not be taken above the cold shutdown condition unless the containment ambient temperature is greater than 50°F.

SEE ITS LCO 3.6.5

2. Containment ambient temperature shall not exceed 130°F when the reactor is above the cold shutdown condition. If the temperature is greater than 130°F, reduce the temperature to within the limit within 8 hours, or be in hot shutdown within the next 6 hours and in cold shutdown within the following 30 hours.

Add Note 4 to Actions — A.5

Add Note 5 to Actions — A.13 — R.1

Add Note 3 to Actions — A.7

Add Note 2 to Actions — L.3

Add Note 6 to Actions 6 — A.13

Add Req. Act A2, C.2 — M.1

C. Containment Temperature

SEE ITS 3.6.5

1. The reactor shall not be taken above the cold shutdown condition unless the containment ambient temperature is greater than 50°F.

2. Containment ambient temperature shall not exceed 130°F when the reactor is above the cold shutdown condition. If the temperature is greater than 130°F, reduce the temperature to within the limit within 8 hours, or be in hot shutdown within the next 6 hours and in cold shutdown within the following 30 hours.

3. Containment ambient temperature as specified in 3.6.C.1 and 3.6.C.2 shall be the arithmetic average of temperatures measured at no fewer than 4 locations, at least once per 24 hours.

D. Containment Vent and Pressure Relief Purge System (A.11)

SR 3.6.3.7

The reactor shall not be taken above the cold shutdown condition in Mode 1, 2, 3 and 4 (A4) unless the containment vent isolation valves PCV - 1190, - 1191, - 1192 (LA.3) are closed or limited to a maximum valve opening angle of 60° (90° - full open) by mechanical means. R.1

SR 3.6.3.2

The reactor shall not be taken above the cold shutdown condition in Mode 1, 2, 3 and 4 (A.4) unless the containment purge supply and exhaust isolation valves FCV - 1170, - 1171, - 1172, - 1173 (LA.3) are closed. R.1

LCO 3.6.3 Req Act D1, D2

If the above conditions cannot be met within one hour, the reactor shall be in the hot shutdown condition (Mode 3) within six hours and in the cold shutdown condition (Mode 5) within the next 30 hours. (L.2)

Basis

The Reactor Coolant System must be in the cold shutdown condition in order to relax containment integrity. When the Reactor Coolant System is in the cold shutdown condition, the pressurizer may have an internal temperature above 200°F for purposes of drawing and maintaining a steam bubble, provided that the reactor has been subcritical for at least 24 hours. Operation in this manner ensures that, in case of an accidental RCS coolant release under cold shutdown conditions, the ensuing offsite radiation doses will be within the limits of 10 CFR 100.

The shutdown margins are selected on the type of activities that are being carried out. The shutdown margin requirement of specification 3.8.D when the vessel head bolts are less than fully tensioned precludes criticality during refueling. When the reactor head is not to be removed, the specified cold shutdown margin of 1% Δ k/k precludes criticality in any occurrence. (A.1)

Amendment No. ~~00~~, ~~00~~, ~~3/16/95~~, Revised by letter dated 9/22/98

Limiting maximum containment ambient temperature will ensure that the peak accident containment pressure does not exceed the design limit of 47 psig during steamline break or loss of coolant accidents. Environmentally and seismically qualified RTDs mounted on the crane wall above the containment fan cooler units inlet are normally used for measuring containment ambient temperature. Portable temperature sensing equipment may also be used, provided the criteria of 3.6.C.3 are met.

During periods of normal plant operations requiring containment integrity[4], some containment isolation valves, which include some locked or sealed closed valves, may be opened either continuously or intermittently depending on requirements of the particular protection, safeguards or essential service systems. Those valves which are opened intermittently are under administrative controls and are open only as long as necessary to perform their intended function. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for containment isolation is indicated. An exception to this is containment isolation valve AC-732. Valve AC-732 is on the RHR Suction Line and is continuously open during RHR shutdown cooling from about 350 degrees F to below 200 degrees F in the RCS. If containment isolation is required valve AC-732 would be shut as part of the administrative controls to realign the RHR system for safety injection. A clarification is for non-automatic, remote manual containment isolation valves operated intermittently from the control room. The administrative controls for these valves consist of the normally stationed control room operator, since this operator is continually available to isolate the valve from the control room. In all cases, however, those containment isolation valves not required to be opened post accident are closed during the post accident period in accordance with plant procedures and consistent with requirements of the related protection, safeguards, or essential service systems. The exception to the application of these administrative controls are the 36 inch containment purge flow paths. Due to the size of these containment purge line penetrations and the fact that these penetrations exhaust directly from the containment atmosphere to the environment, the penetration flow path containing these purge valves may not be opened under administrative controls.

A1

~~The opening angle of the containment vent isolation valves is being limited as an analysis demonstrates valve operability against accident containment pressures provided the valves are limited to a maximum opening angle of 60°. The containment purge supply and exhaust isolation valves are required to be closed during plant operation above cold shutdown.~~

~~**REFERENCES**~~

~~(1) FSAR - Section 14.3.6~~
~~(2) FSAR - Appendix 5A, Section 3.1.8~~
~~(3) FSAR - Section 5.1.1.1~~
~~(4) FSAR - Section 5.2~~

A.1

ITS 3.6.3

~~Table 3.6-1~~

~~DELETED~~

A.1

Add SR 3.6.3.6

M.4

TABLE 4.1-3 (Sheet 1 of 2)

FREQUENCIES FOR EQUIPMENT TESTS

	Check	Frequency
1. Control Rods	Rod drop times of all control rods	24M
2. Control Rods	Movement of at least 10 steps in any one direction of all control rods	Every 31 days during reactor critical operations
3. Pressurizer Safety Valves	Set Point	24M
4. Main Steam Safety Valves	Set Point	24M
SR 3.6.3.6 5. Containment Isolation System	Automatic actuation (not locked, sealed or otherwise secured)	24M
6. Refueling System Interlocks	Functioning	Each refueling, prior to movement of core components
7. Primary System Leakage	Evaluate	5 days/week
8. Diesel Generators Nos. 31, 32 & 33 Fuel Supply	Fuel Inventory	Weekly
9. Turbine Steam Stop And Control Valves	Closure	Not to exceed 6 months**
10. L.P. Steam Dump System (6 lines)	Closure	Monthly
11. Service Water System	Each pump starts and operates for 15 minutes (unless already operating)	Quarterly
12. City Water Connections to Charging Pumps and Boric Acid Piping	Temporary connections available and valves operable	24M

L.6

R1

See CTS Master Markup

See CTS Master Markup

** The turbine steam stop and control valves shall be tested at a frequency determined by the methodology presented in WCAP-11525, "Probablistic Evaluation of Reduction in Turbine Valve Test Frequency," as updated by Westinghouse Report, WOG-TVTF-93-17, "Update of BB-95/96 Turbine Valve Failure Rates and Effect on Destructive Overspeed Probabilities." The maximum test interval for these valves shall not exceed six months. Surveillance interval extension as per Technical Specification 1.12 is not applicable to the maximum test interval.

TABLE 4.1-3 (Sheet 1 of 2)

FREQUENCIES FOR EQUIPMENT TESTS		
	Check	Frequency
1. Control Rods	Rod drop times of all control rods	24M
2. Control Rods	Movement of at least 10 steps in any one direction of all control rods	Every 31 days during reactor critical operations
3. Pressurizer Safety Valves	Set Point	24M
4. Main Steam Safety Valves	Set Point	24M
5. Containment Isolation System	Automatic actuation	24M
6. Refueling System Interlocks	Functioning	Each refueling, prior to movement of core components
7. Primary System Leakage	Evaluate	5 days/week
8. Diesel Generators Nos. 31, 32 & 33 Fuel Supply	Fuel Inventory	Weekly
9. Turbine Steam Stop Control Valves	Closure	Not to exceed 6 months**
10. L.P. Steam Dump System (6 lines)	Closure	Monthly
11. Service Water System	Each pump starts and operates for 15 minutes (unless already operating)	Quarterly
12. Deleted		

** The turbine steam stop and control valves shall be tested at a frequency determined by the methodology presented in WCAP-11525, "Probablistic Evaluation of Reduction in Turbine Valve Test Frequency," as updated by Westinghouse Report, WOG-TVTF-93-17, "Update of BB-95/96 Turbine Valve Failure Rates and Effect on Destructive Overspeed Probabilities." The maximum test interval for these valves shall not exceed six months. Surveillance interval extension as per Technical Specification 1.12 is not applicable to the maximum test

SEE ITS 5.15, Cont Leak Rate Test Prog

E. Containment Isolation Valves

LA.1

SR 3.6.3.9 1. Verify the combined leakage rate for all containment bypass leakage paths, Table 4.4-1 lists required isolation valves, is ≤ 0.6La when pressurized ≥ Pa, in accordance with the Containment Leakage Rate Testing Program.

R.1

SEE ITS 3.6.9 2. Verify the leakage rate of water from the Isolation Valve Seal Water System is ≤ 14,700 cc/hr when pressurized ≥ 1.1 Pa, in accordance with the Containment Leakage Rate Testing Program.

R.1 SR 3.6.3.10 3. Verify the leakage rate of water into the containment from isolation valves sealed with the service water system is ≤ 0.36 gpm per fan cooler unit when pressurized ≥ 1.1 Pa, in accordance with the Containment Leakage Rate Testing Program.

SEE ITS 5.5.15, Cont Leakage Rate Testing

Add SR 3.6.3.3 and Note

Add SR 3.6.3.4 and Note

M.3

Add SR 3.6.3.5

M.4

Add SR 3.6.3.8

M.6

Superseded by Amendment 135 (see next page)

E. Containment Isolation Valves

1. Verify the combined leakage rate for all containment bypass leakage paths (except those verified by Specifications 4.4.E.2 or 4.4.E.3) is ≤ 0.6La when pressurized ≥ Pa, in accordance with the Containment Leakage Rate Testing Program.

2. Verify the leakage rate of water from the Isolation Valve Seal Water System is ≤ 14,700 cc/hr when pressurized ≥ 1.1 Pa, in accordance with the Containment Leakage Rate Testing Program.

3. Verify the leakage rate of water into the containment from isolation valves sealed with the service water system is ≤ 0.36 gpm per fan cooler unit when pressurized ≥ 1.1 Pa, in accordance with the Containment Leakage Rate Testing Program.

F. DELETED

G. DELETED

H. DELETED

A-1

A.1

Basis

The containment is designed for a pressure of 47 psig. [1] While the reactor is operating, the internal environment of the containment will be air at essentially atmospheric pressure and an average maximum temperature of approximately 130°F. The Design Basis Accidents (DBA) that represent a challenge to the containment structure are a Loss of Coolant Accident (LOCA) and a Main Steam Line Break (MSLB). The limiting calculated peak containment pressure of 42.40 psig is a result of the MSLB [2], which is less than the stated design pressure of 47 psig. In addition, DBA analyses demonstrate that the calculated peak containment temperature will remain less than the Equipment Qualification (EQ) envelope temperature of 290 degrees F.

The containment structure is designed to contain, within established leakage limits, radioactive material that may be released from the reactor core following a DBA. The containment was designed with an allowable leakage rate of 0.1 weight percent of containment air per day. This leakage rate, used to evaluate offsite doses resulting from DBAs is defined in 10CFR 50 Appendix J as L_a; the maximum allowable containment leakage rate at the calculated peak containment internal pressure (P_a) resulting from the limiting DBA. The allowable leakage rate represented by L_a forms the basis for the acceptance criteria imposed on all containment leakage rate testing performed in accordance with the program required by Technical Specification 6.14. The minimum test pressure of 42.42 psig used for this program is based on analyses performed to support an increase of the ultimate heat sink temperature, [4] as incorporated by Technical Specification Amendment 98. The minimum test pressure, 42.42 psig, bounds the current limiting DBA pressure, 42.40 psig.

Prior to initial operation, the containment was strength-tested at 54 psig and was leak-tested. The acceptance criterion for this pre-operational leakage rate test was established as 0.075 W/o (.75 L_a) per 24 hours at 40.6 psig and 263°F, which were the peak accident pressure and temperature conditions at that time. This leakage rate is consistent with the construction of the containment, [2] which is equipped with a Weld Channel and Penetration Pressurization System for continuously pressurizing the containment penetrations and the channels over certain containment liner welds. These channels were independently leak-tested during construction.

The safety analysis has been performed on the basis of a leakage rate of 0.10 W/o per day for 24 hours. With this leakage rate and with minimum containment engineered safeguards operating, the public exposure would be well below 10CFR100 values in the event of the design basis accident. [3]

Maintaining the containment operable requires compliance with the visual examinations and leakage rate test requirements of the Containment Leakage Rate Testing Program. Failure to meet air lock leakage limits specified in surveillance requirement 4.4.D does not invalidate the acceptability of these overall leakage determinations unless their contribution to overall Type A, B, and C leakage causes that to exceed limits. As left leakage

prior to the first startup after performing a required 10 CFR 50, Appendix J, leakage test is required to be <0.6 L_a for combined Type B and C leakage, and < 0.75 L_a for overall Type A leakage. At all other times between required leakage rate tests, the acceptance criteria is based on an overall Type A leakage limit of ≤ 1.0 L_a. At ≤ 1.0 L_a the offsite dose consequences are bounded by the assumptions of the safety analysis. Surveillance requirement frequencies are as required by the Containment Leakage Rate Testing Program. Thus, Specification 1.12 (which allows Frequency extensions) does not apply. These periodic testing requirements verify that the containment leakage rate does not exceed the leakage rate assumed in the safety analysis.

The Weld Channel and Containment Penetration Pressurization System (WCCPPS)[5] is in service continuously to monitor leakage from potential leak paths such as the containment personnel lock seals and weld channels, containment penetrations, containment liner weld channels, double-gasketed seals and spaces between certain containment isolation valves and personnel door locks. A leak would be expected to build up slowly and would, therefore, be noted before design limits are exceeded. Remedial action can be taken before the limit is reached. The sensitive leakage rate test of the WCCPPS demonstrates that pressurized containment penetrations and liner inner weld seams are within a leakage acceptance criteria that will allow the air receivers and the standby source of gas pressure, nitrogen cylinders, to provide a 24 hour supply of gas to the system. The WCCPPS is not credited for limiting containment isolation valve leakage and the sensitivity test is not used for demonstrating compliance with containment isolation valve leakage criteria. The frequency of the sensitive leakage test reflects an extension of 25 percent from the 24 month refueling cycle and, therefore, Specification 1.12 (which allows Frequency extensions) does not apply[10].

Maintaining containment air locks operable requires compliance with the leakage rate test requirements of the Containment Leakage Rate Testing Program. The surveillance requirement reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The acceptance criteria were established during air lock and containment OPERABILITY testing. The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall containment leakage rate. The Frequency is required by the Containment Leakage Rate Testing Program. Thus, Specification 1.12 (which allows Frequency extensions) does not apply. During normal plant operation, containment personnel lock door seals are continuously pressurized after each closure by the WCCPPS. Whenever containment integrity is required, verification is made that seals repressurize properly upon closure of an air lock door. The verification meets the intent of the 10 CFR 50 Appendix J requirements.[8]

A.1

A.1

The containment isolation valve surveillance requirement ensures that the combined leakage rate of all containment bypass leakage paths is less than or equal to the specified leakage rate. This provides assurance that the assumptions in the safety analysis are met. The leakage rate of each bypass leakage path is assumed to be the maximum pathway leakage (leakage through the worse of the two isolation valves, and, when pressurizing between valves, the total leakage of all the valves being tested) unless the penetration is isolated by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. In this case, the leakage rate of the isolated bypass leakage path is assumed to be the actual pathway leakage through the isolation device. If both isolation valves in the penetration are closed, the actual leakage rate is the lesser leakage rate of the two valves. The Frequency is required by the Containment Leakage Rate Testing Program. This surveillance requirement simply imposes additional acceptance criteria. The service water lines to the containment fan cooler units and the lines supplied water by the Isolation Valve Seal Water System (IVSWS)[6] have containment isolation valves that are hydrostatically tested. Surveillance of hydrostatically tested lines provides assurance that the calculation assumptions of offsite doses are met. The Frequency is required by the Containment Leakage Rate Testing Program. Sufficient water is available in the Isolation Valve Seal Water System, Primary Water System, Service Water System, Residual Heat Removal System, and the City Water System to assure a sealing function for at least 30 days. The leakage limit for the Isolation Valve Seal Water System is consistent with the design capacity of the Isolation Valve Seal Water supply tank. The seal water provided by these systems is credited with limiting containment leakage (the measured leakage is not considered part of the allowable containment leakage).

The 350 psig test pressure, achieved either by normal Residual Heat Removal System operation or hydrostatic testing, gives an adequate margin over the highest pressure within the system after a design basis accident. Similarly, the hydrostatic test pressure for the containment sump return line of 100 psig gives an adequate margin over the highest pressure within the line after a design basis accident. A recirculation system leakage of 2 gal./hr. will limit off-site exposures due to leakage to insignificant levels relative to those calculated for leakage directly from the containment in the design basis accident.

The maximum permissible inleakage rate from the containment isolation valves sealed with service water for the full 12-month period of post accident recirculation without flooding the internal recirculation pumps is 0.36 gpm per fan cooler.

REFERENCES

(1) FSAR - Section 5
(2) FSAR - Section 5.1.7
(3) FSAR - 14.3.5
(4) WCAP - 12269 Rev. 1, "Containment Margin Improvement Analysis for IP-3 Unit 3"
(5) FSAR - Section 6.6
(6) FSAR - Section 6.5
(7) Nuclear Safety Evaluation 98-3-013-MULT, "Integrated Safety Evaluation of 24-Month Cycle Instrument Channel Uncertainties," Revision 0, dated March 3, 1998.
(8) SEGL-96-103, Indian Point Unit 3 Safety Evaluation of 24-Month Fuel Cycle Phase I Instrument Channel Uncertainties, June 1996
(9) Indian Point 3 Safety Evaluation Report, Supplement 2, December 1975.
(10) NRC Safety Evaluation Related to Amendment 129 to Operating License DPR-64.

A1

TABLE 4.4-1

DELETED

A1

Add SR 3.6.3.2 M.2 A.1

Pressure Relief A.11

4.13 Containment Vent and Purge System

Applicability

Mode 1, 2, 3 and 4 A4

This specification applies to the surveillance requirements of the containment vent and purge system during normal operations and when reactor fuel is anticipated to be moved before the reactor has been subcritical for at least 421* hours.

SEE ITS 3.9.3

Objective

To verify the operability of the containment vent and purge system. A.2

Specification

The following surveillance shall be performed as stated.

A. Isolation Valves

Mode 1, 2, 3, 4 A.4

SR 3.6.3.2 1. Each month verify that the containment purge supply and exhaust isolation valves are closed during operation above cold shutdown.

SR 3.6.3.7 2. At least once per 24 months verify that the mechanical stops on the containment vent isolation valve (PCV-1190, -1191, -1192) actuator is limited to the valve opening angle to 60° (90° = full open). A.11 LA3 R.1

B. HEPA Filters and Charcoal Absorbers

If fuel movement is to take place before the reactor has been subcritical for at least 421* hours, the containment vent and purge system shall be demonstrated operable as follows:

1. Within 18 months prior to fuel movement and (1) after each complete or partial replacement of a HEPA filter or charcoal adsorber bank within 18 months prior to fuel movement, or (2) after structural maintenance on the HEPA filter or charcoal adsorber housing within 18 months prior to fuel movement, which could effect system operation:

   a. Verify that the charcoal adsorbers remove ≥ 99% of halogenated hydrocarbon refrigerant test gas when they are tested in-place while operating the ventilation system at the operating flow ± 10%.

   b. Verifying that the HEPA filter banks remove ≥ 99% of the DOP when they are tested in-place while operating the ventilation system at the operating flow rate ± 10%.

2. Within 18 months prior to fuel movement and after every 720 hours of system operation, subject a representative sample of carbon from the charcoal adsorbers to a laboratory analysis and verify within 31 days a removal efficiency of ≥ 90% for radioactive methyl iodine at an operating air flow velocity ± 20% per test 5.b in Table 2 of Regulatory Guide 1.52, March 1978.

SEE ITS 5.5.10

* Movement of irradiated VANTAGE + fuel assemblies before the reactor has been subcritical for ≥550 hours requires operation of the Containment Building Vent and Purge System through the HEPA filters and charcoal adsorbers.

SEE ITS 3.9.3

Amendment No. 30, 62, 128, 131, 175

Basis

The containment purge supply and exhaust isolation valves are required to be closed during plant operation above cold shutdown. Containment purge supply or exhaust isolation valve closure may be verified by way of the position indication lights, the weld channel and penetration pressurization system or visual means. The maximum opening angle of the containment vent isolation valves is being limited as an analysis demonstrates valve operability against accident containment pressures provided the valves are limited to an opening angle of 60°. A.1

The operability of the HEPA filter and charcoal absorber system and the resulting iodine removal capacity are consistent with accident analyses. The representative carbon sample will be two inches in diameter with a length equal to the thickness of the bed.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.3:
"Containment Isolation Valves"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

DISCUSSION OF CHANGES
ITS SECTION 3.6.3 - Containment Isolation Valves

ADMINISTRATIVE

A.1 In the conversion of the Indian Point Unit 3 Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted which do not result in technical changes (either actual or interpretational). Additionally, editorial changes, reformatting, and revised numbering are adopted to make ITS consistent with the conventions in NUREG-1431, Standard Technical Specifications, Westinghouse Plants, Rev. 1, i.e., the improved Standard Technical Specifications.

The CTS Bases are deleted and replaced with comprehensive ITS Bases designed to support interpretation and implementation of the associated Technical Specifications. The Bases explain, clarify, and document the reasons (i.e., bases) for the associated Technical Specifications, and reflect the IP3 plant specific design, analyses, and licensing basis. In accordance with 10 CFR 50.36(a), the ITS Bases are included with the proposed ITS conversion application; however, deletion of the CTS Bases and the adoption of the ITS Bases is an administrative change with no impact on safety.

A.2 CTS Limiting Conditions for Operation (LCOs) and Surveillance Requirements (SRs) include statements of the objective and the applicability. The CTS statements of objective and applicability are deleted because these statements do not establish any requirements and do not provide any guidance for the application of CTS requirements. Therefore, deletion of these statements has no significant adverse impact on safety.

A.3 CTS 3.6.A.1 specifies that containment integrity (as defined in CTS 1.10) shall not be violated; and, CTS 1.10.1 and CTS 1.10.4 specify that nonautomatic containment isolation valves not required to be open during accident conditions must be closed and blind flanges installed where required and automatic containment isolation valves are either operable or in the closed position or isolated by a closed manual valve or flange. ITS LCO 3.6.3 maintains the identical requirements by

specifying that each containment isolation valve must be Operable with Operability described in the Bases. In conjunction with this change, the CTS definition of Containment Integrity is deleted because it contains information that is more appropriately contained in the LCOs (and SRs) which establish the requirements for containment integrity and the Bases associated with these LCOs and SRs. This change is needed to improve clarity and ensure requirements are fully understood and consistently applied. This reorganization of requirements is an administrative change with no impact on safety because the ITS requirements are reasonable interpretations of the existing requirements except for the specific changes identified and justified in the discussion of changes for each LCO addressing containment issues.

A.4 CTS 3.6.A.1, CTS 3.6.A.3, CTS 3.6.D, and CTS 4.13 specify the Applicability for containment isolation valves as whenever the reactor is above cold shutdown. ITS 3.6.3 maintains this Applicability by requiring that containment isolation valves are Operable in Modes 1, 2, 3 and 4 (i.e., above cold shutdown). This is an administrative change with no impact on safety because there is no change to the CTS Applicability.

A.5 ITS LCO 3.6.3, Actions Note 4, is added to require entry into applicable Conditions and Required Actions of LCO 3.6.1, Containment, when isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria. This change is needed because in CTS the Actions associated with any LCO not met must be taken. However, ITS LCO 3.0.6 specifically states that it is not necessary to enter into the supported system's (i.e., containment) Conditions and Required Actions unless directed to do so by the support system's (i.e., containment isolation valve) Required Actions. Without this note, ITS 3.6.3 could allow plant operation to continue with containment isolation valves with excessive leakage if ITS 3.6.3 Required Actions are completed even if these Actions did not ensure that the safety function of the valves is met. This is an administrative change with no impact on safety because only with the addition of this note will the ITS maintain the CTS requirement for plant shutdown when excessive valve leakage in one or more containment isolation valve results in exceeding Technical

Specification limits for overall containment leakage.

A.6 Not Used.

A.7 ITS LCO 3.6.3, Actions Note 3, requires entry into applicable Conditions and Required Actions for systems made inoperable by containment isolation valves. This Note is added to eliminate ambiguity concerning the applicability of ITS LCO 3.0.6 when containment isolation valves render another system inoperable. ITS LCO 3.0.6 specifies that the Conditions and Required Actions associated with a supported system are not required to be entered when a supported system LCO is not met. Only the support system LCO Actions are required to be entered. Without the addition of ITS LCO 3.6.3, Actions Note 3, ambiguity could exist as to the need to enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves that must be closed to satisfy containment isolation requirements. This is an administrative change with no impact on safety because it is a reasonable interpretation of the existing requirement and is consistent with current practice.

A.8 ITS 3.6.3, Conditions A, B and C, are preceded by Notes identifying the containment isolation valve configuration for which the Condition is applicable. Specifically, Condition A and B are only applicable to those penetration flow paths with two or more containment isolation valves when one (Condition A) or both (Condition B) valves are inoperable. Although most penetrations have two containment isolation valves, the term "two or more" is used so that Conditions A and B apply to the pressure relief line penetration which has three valves in series. Condition C provides the appropriate actions for penetration flow paths with only one containment isolation valve and a closed system. The addition of these Notes does not eliminate any existing requirements or establish any new requirements and the Notes are intended to provide direction for the proper use of the LCO. This reorganization of requirements is an administrative change with no impact on safety except for the specific changes identified and justified in the discussion of changes for each ITS LCO 3.6.3 Conditions

and Required Action.

A.9 Not Used.

A.10 In accordance with 10 CFR 50, Appendix A, Criterion 56, containment integrity requires one automatic isolation valve inside and one automatic isolation valve outside containment with the option of allowing one closed isolation valve for either or both of the automatic isolation valves such that the design maintains the ability to tolerate a single failure. Criterion 56 also allows other configurations that are acceptable on some other defined basis (e.g., the IP3 design of both isolation valves outside containment). Additionally, ITS LCO 3.6.3 recognizes that one automatic isolation valve and the associated closed system inside containment constitute a single failure tolerant containment isolation boundary (see 3.6.3, DOC L.2). This is acceptable because the closed system acts as a highly reliable penetration isolation boundary. This is an administrative change with no impact on safety because it is explicit recognition in Technical Specifications of a containment isolation configuration used in the IP3 design. Additionally, use of one automatic isolation valve and the associated closed system to constitute a single failure tolerant containment isolation boundary is consistent with industry practice.

A.11 CTS 3.6.D and 4.13 use the term containment vent to describe the containment penetration that includes pressure relief isolation valves PCV-1190, PCV-1191, and PCV-1192 and which is used to handle the normal pressure changes in the Containment during reactor power operation. FSAR 5.3.2.5 and control room labeling identify this system as the Containment Pressure Relief Line. ITS will use the term Containment Pressure Relief Line for this system to be consistent with FSAR 5.3.2.5 and control room labeling. This is an administrative change with no adverse impact on safety because there is no change to the existing requirements.

A.12 Superceded by Amendment 195.

A.13 ITS LCO 3.6.3, Actions Note 5, is added to direct entry into applicable Conditions and Required Actions of LCO 3.6.9, Isolation Valve Seal Water (IVSW) System, when required IVSW supply to a penetration flowpath is isolated. ITS LCO 3.6.3, Actions Note 6, is added to direct entry into applicable Conditions and Required Actions of LCO 3.6.10, Weld Channel & Penetration Pressurization System, when required IVSW supply to a penetration flowpath is isolated.

This change is needed because in CTS the Actions associated with any LCO not met must be taken. However, it is possible to interpret ITS as allowing entry into Conditions and Required Actions for ITS 3.6.3 for inoperable containment isolation valves rather than ITS LCO 3.6.9 for inoperable IVSW or WC&PPS to one or more containment isolation valve. Without this note, ITS 3.6.3 could allow plant operation to continue with if ITS 3.6.3 Required Actions are completed even if the containment isolation valve is not sealed by the IVSW or WC&PPS and has not been leak tested in accordance with ITS SR 3.6.3.9. This is an administrative change with no impact on safety because only with the addition of this note will the ITS maintain the CTS requirement for plant shutdown when excessive valve leakage in one or more containment isolation valve results in exceeding Technical Specification limits for overall containment leakage.

MORE RESTRICTIVE

M.1 CTS 3.6.A.3 and CTS 3.6.D, which apply to inoperable containment isolation valves in accordance with CTS 1.10, require that containment integrity is restored within one hour whenever containment integrity requirements are not met. In accordance with CTS 1.10.4, containment integrity is restored if at least one manual valve or flange is used to isolate the penetration flow path (see 3.6.2, DOC A.9). ITS LCO 3.6.3, Required Actions A.1, B.1 and C.1, maintain this requirement (see 3. 6.2, DOC L.2); however, Required Actions A.2 and C.2, add the additional requirement to verify the affected penetration flow path is isolated once per 31 days for isolation devices outside containment. Additionally, for penetrations with isolation devices inside containment, this verification is also required prior to entering Mode 4

from Mode 5 if not performed within the previous 92 days. In either case, isolation devices in high radiation areas may be verified by use of administrative means.

The change is needed to ensure periodic verification that penetration flow paths no longer capable of being automatically isolated remain isolated by an acceptable substitute. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate considering the fact that the devices are operated under administrative controls and the probability of their misalignment is low. For the isolation devices inside containment, the time period specified as "prior to entering Mode 4 from Mode 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility. Additionally, the new requirement for periodic verification of manual valves used to substitute for inoperable containment isolation valves do not apply to isolation devices located in high radiation areas because the probability of misalignment of these devices is small once they have been verified to be in the proper position.

This more restrictive change is acceptable because it does not introduce any operation which is un-analyzed while requiring periodic verification that isolation devices used to substitute for inoperable containment isolation valves remain in the correct position. Therefore, this change has no adverse impact on safety.

M.2 CTS 3.6.A and CTS 4.13 do not include any limits on the amount of time or the reasons that containment pressure relief (See ITS 3.6.3, DOC A.11) isolation valves (PCV-1190, PCV-1191, and PCV-1192) may be open. This is acceptable because both CTS and ITS limit the opening angle of the containment pressure relief isolation valves to an angle at which analysis indicates the valve will operate against containment accident pressures. However, ITS SR 3.6.3.2 adds an additional restriction that containment pressure relief isolation valves may be opened only as necessary for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be

open. ITS SR 3.6.3.2 requires verification of this status every 31 days. This change is needed because it ensures that containment pressure relief line valves are opened only as necessary to satisfy their intended function. This more restrictive change is acceptable because it does not introduce any operation which is un-analyzed while requiring periodic verification that containment pressure relief isolation valves are opened only as necessary to satisfy their intended function. Therefore, this change has no adverse impact on safety.

M.3 CTS 1.10.1 requires, as a condition of containment integrity, that blind flanges are installed; however, CTS 3.6.A and CTS 4.13 do not include any requirements for the periodic verification that manual isolation valves and blind flanges are positioned or installed as required. ITS SR 3.6.3.3 and ITS SR 3.6.3.4 are added to require periodic verification that isolation valves and blind flanges not locked, sealed or otherwise secured are positioned or installed as required.

ITS SR 3.6.3.3, governing valves and flanges outside containment, has a required Frequency of once per 31 days. This Frequency is acceptable because these devices are operated under administrative controls and the probability of their misalignment is low.

ITS SR 3.6.3.4, governing valves and flanges inside containment, has a required Frequency of prior to entering Mode 4 from Mode 5 if not performed within the previous 92 days. This Frequency is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility. Isolation devices in high radiation areas, both inside and outside containment, may be verified by use of administrative means because the restricted access to these areas provides a high degree of assurance that the valves will not be mispositioned inadvertently.

The new requirement for periodic verification of manual valves does not apply to isolation devices that are locked, sealed or otherwise secured in position because these devices are positioned in accordance with plant administrative programs and the probability of misalignment of

these devices is small once they have been verified to be in the proper position.

This more restrictive change is acceptable because it does not introduce any operation which is un-analyzed while requiring periodic verification that isolation devices remain in the correct position. Therefore, this change has no adverse impact on safety.

M.4 CTS 3.6.A and CTS 4.13 do not include any requirements for the periodic verification that the isolation time of each power operated automatic containment isolation valve is within limits. ITS SR 3.6.3.5 is added to require periodic verification that each automatic containment isolation valve is within limits at a Frequency in accordance with the Inservice Testing Program. This change is needed to provide periodic verification that the containment isolation time is less than or equal to that assumed in the safety analyses. This more restrictive change is acceptable because it does not introduce any operation which is un-analyzed while requiring periodic verification that isolation devices function within the limits assumed in the safety analyses. Therefore, this change has no adverse impact on safety.

M.5 CTS 1.10.4 specifies that the compensatory action for an inoperable containment isolation valve includes isolating a penetration flow path with a closed manual valve or flange that meets the same design criteria as the isolation valve. ITS LCO 3.6.3, Required Actions, allow use of a closed automatic valve in lieu of a closed manual valve but only if the closed automatic valve is "deactivated." This change is needed because the intent of both the CTS and ITS is that the penetration flow path is isolated using at least one isolation barrier that cannot be adversely affected by a single active failure. Therefore, a closed automatic valve must be deactivated to be equivalent to a closed manual valve. This more restrictive change is acceptable because it does not introduce any operation which is un-analyzed while requiring that a closed automatic valve must be "deactivated" to be used as compensatory action for an inoperable automatic containment isolation valve. Therefore, this change has no adverse impact on safety.

M.6 IP3 containment includes manually operated containment isolation valves on essential lines (e.g. service water, component cooling water) that are typically associated with closed systems inside containment and typically open during normal operation and during an accident. These valves are assumed to be available to isolate the system, if necessary, during the post accident period. These valves are Operable if they can be closed in accordance with design assumptions; however, there is no requirement for periodic verification that these valves can be closed.

ITS SR 3.6.3.8 is added to require that one complete cycle of each manually operated containment isolation valve on essential lines every 24 months. This change is needed because it ensures that manually operated containment isolation valve on essential lines are capable of being opened or closed as needed to support any accident mitigation function. This more restrictive change is acceptable because it does not introduce any operation which is un-analyzed while requiring verification that manually operated containment isolation valves can perform their design function. The 24 month Frequency is based on engineering judgement and plant experience with manually operated valves.

LESS RESTRICTIVE

L.1 Superceded by IP3 CTS Amendment 195.

L.2 CTS 3.6.A.3 and CTS 3.6.D, which apply to inoperable containment isolation valves in accordance with CTS 1.10, require that containment integrity is restored within one hour whenever containment integrity requirements are not met. In accordance with 10 CFR 50, Appendix A, Criterion 56, containment integrity requires two automatic isolation valves with the option of allowing one closed isolation valve for either or both of the automatic isolation valves such that the design maintains the ability to tolerate a single failure. Therefore, when one or both containment isolation valves in a penetration flow path are not Operable, CTS 3.6.A.3 and CTS 3.6.D require that a closed manual valve or equivalent be substituted for the inoperable valve within one hour if containment integrity is lost.

ITS LCO 3.6.3 maintains the same requirement but differentiates between loss of single failure tolerance and a loss of function in the determination of an acceptable out of service time (AOT). Specifically, ITS LCO 3.6.3, Required Action A.1, extends the AOT from one hour to 4 hours for loss of single failure tolerance; ITS LCO 3.6.3, Required Action B.1, maintains the AOT at one hour for loss of function; and, ITS LCO 3.6.3, Required Action C.1, extends the AOT from one hour to 72 hours for penetration flow paths with only one containment isolation valve but protecting a closed system.

This change is acceptable for the following reasons: a) for penetrations with two automatic isolation valves, automatic isolation of the penetration will still occur with only one Operable automatic isolation valve; b) for penetrations associated with closed systems and one automatic isolation valve, the closed system acts as a highly reliable penetration isolation boundary with minimal need for redundancy provided by the automatic isolation valve; c) in both cases, the time without single failure tolerance is limited to 4 hours; and, d) there is a low probability of an event requiring containment isolation during the AOT. Therefore, this change has no significant impact on safety.

L.3 CTS 3.6.A and CTS 3.6.D in conjunction with CTS 1.10.4, which allows a containment isolation valve to be operable or closed or isolated, do allow separate condition entry for different containment penetrations as long as only one penetration has a valve that is not Operable and not closed or isolated at one time. If two penetrations are inoperable at the same time, the one hour permitted to close or isolate an inoperable valve in CTS 3.6.A.3 and CTS 3.6.D does not apply and shutdown is initiated immediately.

ITS LCO 3.6.3, Actions Note 2, is added to specify that separate Condition entry is allowed for each penetration flow path. This change is acceptable because ITS provides an allowable out of service time only for a loss of redundancy and not a loss of safety function. Therefore, separate Condition entry provides a short time for restoration of redundant isolation capability only when the safety function is maintained while avoiding the risk of initiating a plant shutdown.

L.4 CTS 1.10.4 specifies that the compensatory action for an inoperable containment isolation valve includes isolating a penetration flow path with a closed manual valve or flange that meets the same design criteria as the isolation valve. ITS LCO 3.6.3, Required Actions, also allows isolating a penetration flow path with a check valve with flow secured. This change is acceptable because the intent of both the CTS and ITS is that the penetration flow path is isolated using at least one isolation barrier that cannot be adversely affected by a single active failure. A check valve with flow secured is considered a passive device and is equivalent to a closed manual valve. Therefore, this change has no adverse impact on safety.

L.5 CTS 1.10.4 specifies that the compensatory action for an inoperable containment isolation valve includes isolating a penetration flow path with a closed manual valve or flange that meets the same design criteria as the isolation valve. ITS LCO 3.6.3, Required Actions, do not specifically require that the device used to isolate a containment penetration "meets the same design criteria as the isolation valve." However, there is an implied requirement that the device is capable of satisfying the containment isolation function. This change is needed because a containment isolation valve design criteria may be needed to support the valves operational function which may far exceed the design requirements needed to satisfy the design requirements of a passive containment isolation function. This change is acceptable because the valve is closed and does not have to operate, the valve or blind flange satisfied design and code requirements at the time of installation, and that peak containment pressures are relatively low. Additionally, the closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured must capable of satisfying the containment isolation function. Therefore, this change has no impact on safety.

L.6 CTS Table 4.1-3, Item 5, requires a check of the automatic actuation of the containment isolation system every 24 months. ITS SR 3.6.3.6 maintains this with the statement a requirement to verify each automatic containment isolation valve "that is not locked, sealed or otherwise secured in position," actuates to the isolation position on an actual or

simulated actuation signal. Exempting valves that are "locked, sealed or otherwise secured in position" from an automatic test of automatic actuation is a less restrictive change. This change is acceptable because valves that are "locked, sealed, or otherwise secured in position" do not change position as a result of an automatic actuation signal actuation signal. Additionally, ITS SR 3.0.2 specifies a valve that is "locked, sealed, or otherwise secured in position" as a result of a required action would automatically be exempt from this SR 3.6.3.6 but that this SR would have to be met before the valve could be made Operable. Therefore, this change has no impact on safety.

REMOVED DETAIL

LA.1 Superceded by CTS Amendment 195.

LA.2 CTS 1.10.1 and CTS 1.10.4 establish requirements for containment isolation valves. Although this requirement is maintained by ITS LCO 3.6.3, the role of containment isolation valves in containment integrity is also included in the Bases of ITS LCO 3.6.1.

These changes are acceptable because ITS LCO 3.6.1, 3.6.2 and 3.6.3 collectively maintain all of the containment requirements established by CTS 1.10 except as described and justified in the discussions of change for ITS LCO 3.6.1, 3.6.2 and 3.6.3. Therefore, inclusion of requirements in CTS 1.10.1 and CTS 1.10.4 in the Bases for ITS LCO 3.6.1 has no impact on safety.

LA.3 CTS 3.6.D and CTS 4.13.A.2 include valve numbers when identifying the containment pressure relief (See DOC A.11) isolation valves (i.e., PCV-1190, PCV-1191, and PCV-1192) and the containment purge supply and exhaust isolation valves (i.e., FCV-1170, FCV-1171, FCV-1172 and FCV-1173). ITS LCO 3.6.3 establishes requirements for the containment pressure relief isolation valves and the containment purge supply and exhaust isolation valves but does not identify the specific valve numbers which are relocated to the Bases and FSAR. This change is acceptable because the descriptive names, in conjunction with the FSAR

and Bases descriptions, clearly identify the valves and provide adequate assurance that LCO 3.6.3 requirements will be applied to all of the valves for which they apply. Additionally, the ITS Bases which require change control in accordance with ITS 5.5.12, Bases Control Program. This approach provides an effective level of regulatory control and provides for a more appropriate change control process. The level of safety of facility operation is unaffected by the change because there is no change in the requirement to perform SRs supporting containment purge valve and containment pressure relief line valve Operability. This change is a less restrictive administrative change with no impact on safety.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.3:
"Containment Isolation Valves"

PART 4:

No Significant Hazards Considerations for Changes between CTS and ITS that are Less Restrictive

No Significant Hazard Considerations for Changes that are Administrative, More Restrictive, and Removed Details are the same for all Packages. A Copy is included at the end of the Package.

NO SIGNIFICANT HAZARDS EVALUATION
ITS SECTION 3.6.3 - Containment Isolation Valves

LESS RESTRICTIVE
("L.1" Labeled Comments/Discussions)

Superceded by IP3 CTS Amendment 195.

LESS RESTRICTIVE
("L.2" Labeled Comments/Discussions)

New York Power Authority has evaluated the proposed Technical Specification change identified as "Less Restrictive" in accordance with the criteria set forth in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The bases for the determination that the proposed change does not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   This change differentiates between those failures of containment isolation valves that result in a breach of containment and those failures that result only in a loss of isolation redundancy. This change then extends that allowable out of service time (AOT) for a loss of redundancy from 1 hour to 4 hours and extends the AOT from one hour to 72 hours for penetration flow paths with only one containment isolation valve but protecting a closed system.

   This change will not result in a significant increase in the probability of an accident previously evaluated, nor result in a significant increase in the consequences of an accident previously evaluated because of the following reasons: a) for penetrations with two automatic isolation valves, automatic isolation of the penetration will still occur with only one Operable automatic isolation valve; b) for penetrations associated with closed systems and one automatic isolation valve, the closed system acts as a highly reliable penetration isolation boundary with minimal need for redundancy provided by the automatic

isolation valve; c) in both cases, the time without single failure tolerance is limited to 72 hours; and, d) there is a low probability of an event requiring containment isolation during the limited AOT.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

The proposed change will not involve any physical changes to systems, structures, or components, or involve a change in normal plant operation. Therefore, it will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

This change does not involve a significant reduction in a margin of safety because of the following reasons: a) for penetrations with two automatic isolation valves, automatic isolation of the penetration will still occur with only one Operable automatic isolation valve; b) for penetrations associated with closed systems and one automatic isolation valve, the closed system acts as a highly reliable penetration isolation boundary with minimal need for redundancy provided by the automatic isolation valve; c) in both cases, the time without single failure tolerance is limited to 72 hours; and, d) there is a low probability of an event requiring containment isolation during the limited AOT.

NO SIGNIFICANT HAZARDS EVALUATION
ITS SECTION 3.6.3 - Containment Isolation Valves

LESS RESTRICTIVE
("L.3" Labeled Comments/Discussions)

New York Power Authority has evaluated the proposed Technical Specification change identified as "Less Restrictive" in accordance with the criteria set forth in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The bases for the determination that the proposed change does not involve a significant hazards consideration, are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   ITS LCO 3.6.3, Actions Note 2, is added to specify that separate Condition entry is allowed for each penetration flow path.

   This change will not result in a significant increase in the probability or consequences of an accident previously evaluated because the ITS provides an allowable out of service time only for a loss of redundancy and not a loss of safety function. Therefore, separate Condition entry provides a short time for restoration of redundant isolation capability only when the safety function is maintained while avoiding the risk of initiating a plant shutdown.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change will not involve any physical changes to systems, structures, or components, or involve a change in normal plant operation. Therefore, it will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

   This change does not involve a significant reduction in a margin of safety because the ITS provides an allowable out of service time only

for a loss of redundancy and not a loss of safety function. Therefore, separate Condition entry provides a short time for restoration of redundant isolation capability only when the safety function is maintained while avoiding the risk of initiating a plant shutdown.

LESS RESTRICTIVE
("L.4" Labeled Comments/Discussions)

New York Power Authority has evaluated the proposed Technical Specification change identified as "Less Restrictive" in accordance with the criteria set forth in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The bases for the determination that the proposed change does not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   CTS 1.10.4 specifies that the compensatory action for an inoperable containment isolation valve includes isolating a penetration flow path with a closed manual valve or flange that meets the same design criteria as the isolation valve. ITS LCO 3.6.3, Required Actions, also allows isolating a penetration flow path with a check valve with flow secured. This change will not result in a significant increase in the probability or consequences of an accident previously evaluated because the intent of both the CTS and ITS is that the penetration flow path is isolated using at least one isolation barrier that cannot be adversely affected by a single active failure. A check valve with flow secured is considered a passive device and is equivalent to a closed manual valve.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change will not involve any physical changes to systems, structures, or components, or involve a change in normal plant operation. Therefore, it will not create the possibility of a new or

different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

This change does not involve a significant reduction in a margin of safety because the intent of both the CTS and ITS is that the penetration flow path is isolated using at least one isolation barrier that cannot be adversely affected by a single active failure. A check valve with flow secured is considered a passive device and is equivalent to a closed manual valve.

LESS RESTRICTIVE
("L.5" Labeled Comments/Discussions)

New York Power Authority has evaluated the proposed Technical Specification change identified as "Less Restrictive" in accordance with the criteria set forth in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The bases for the determination that the proposed change does not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

CTS 1.10.4 specifies that the compensatory action for an inoperable containment isolation valve includes isolating a penetration flow path with a closed manual valve or flange that meets the same design criteria as the isolation valve. ITS LCO 3.6.3, Required Actions, do not specifically require that the device used to isolate a containment penetration "meets the same design criteria as the isolation valve." However, there is an implied requirement that the device is capable of satisfying the containment isolation function. This change is needed because a containment isolation valve design criteria may be needed to support the valves operational function which may far exceed the design requirements needed to satisfy the design requirements of a passive containment isolation function. This change will not result in a significant increase in the probability or consequences of an

accident previously evaluated because the valve is closed and does not have to operate, the valve or blind flange satisfied design and code requirements at the time of installation, and that peak containment pressures are relatively low. Additionally, the closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured must capable of satisfying the containment isolation function. Therefore, this change has no impact on safety.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change will not involve any physical changes to systems, structures, or components, or involve a change in normal plant operation. Therefore, it will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

   This change does not involve a significant reduction in a margin of safety because the valve is closed and does not have to operate, the valve or blind flange satisfied design and code requirements at the time of installation, and that peak containment pressures are relatively low. Additionally, the closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured must capable of satisfying the containment isolation function. Therefore, this change has no impact on safety.

NO SIGNIFICANT HAZARDS EVALUATION
ITS SECTION 3.6.3 - Containment Isolation Valves

LESS RESTRICTIVE
("L.6" Labeled Comments/Discussions)

New York Power Authority has evaluated the proposed Technical Specification change identified as "Less Restrictive" in accordance with the criteria set forth in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The bases for the determination that the proposed change does not involve a significant hazards consideration, are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   CTS Table 4.1-3, Item 5, requires a check of the automatic actuation of the containment isolation system every 24 months. ITS SR 3.6.3.6 maintains this with the statement a requirement to verify each automatic containment isolation valve "that is not locked, sealed or otherwise secured in position," actuates to the isolation position on an actual or simulated actuation signal. Exempting valves that are "locked, sealed or otherwise secured in position" from an automatic test of automatic actuation is a less restrictive change.

   This change will not result in a significant increase in the probability or consequences of an accident previously evaluated because valves that are "locked, sealed, or otherwise secured in position" do not change position as a result of an automatic actuation signal actuation signal. Additionally, ITS SR 3.0.2 specifies a valve that is "locked, sealed, or otherwise secured in position" as a result of a required action would automatically be exempt from this SR 3.6.3.6 but that this SR would have to be met before the valve could be made Operable.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change will not involve any physical changes to systems, structures, or components, or involve a change in normal plant operation. Therefore, it will not create the possibility of a new or

different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

This change does not involve a significant reduction in a margin of safety because valves that are "locked, sealed, or otherwise secured in position" do not change position as a result of an automatic actuation signal actuation signal. Additionally, ITS SR 3.0.2 specifies a valve that is "locked, sealed, or otherwise secured in position" as a result of a required action would automatically be exempt from this SR 3.6.3.6 but that this SR would have to be met before the valve could be made Operable.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.3:
"Containment Isolation Valves"

PART 5:

NUREG-1431
Annotated to show differences between NUREG-1431 and ITS

3.6 CONTAINMENT SYSTEMS

<CTS> 3.6.3 Containment Isolation Valves ~~(Atmospheric, Subatmospheric, Ice Condenser, and Dual)~~

<3.6.A.1>
<1.10.4>
<DOC A.3>

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

<3.6.A.1>
<DOC A.4>

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

Insert: 3.6-8-01

ACTIONS

36

----------NOTES----------

<1.10.1>
<3.6.A.1>

1. Penetration flow path(s) except for 42 inch purge valve flow paths may be unisolated intermittently under administrative controls.

<DOC L.3>

2. Separate Condition entry is allowed for each penetration flow path.

<DOC A.7>

3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves.

<DOC A.5>

4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<DOC A.8> A. ---------NOTE--------- Only applicable to penetration flow paths with two or more containment isolation valves. ---------- <1.10.4> <DOC L.2> <DOC L.4> <DOC M.5> One or more penetration flow paths with one containment isolation valve inoperable except for ~~purge valve or shield building~~ containment bypass leakage not within limit.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. AND	4 hours

(continued)

R.1

DB.1

INSERT: 3.6-8-01

5. Enter applicable Conditions and Required Actions of LCO 3.6.9, "Isolation Valve Seal Water (IVSW) System," when required IVSW supply to
<DOC A.13> a penetration flow path is inoperable.

R.1

6. Enter applicable Conditions and Required Actions of LCO 3.6.10, "Weld Channel and Penetration Pressurization System (WC&PPS)," when required
<DOC A.13> WC&PPS supply to a penetration flow path is inoperable.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 --------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment **AND** Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
B. ---------NOTE--------- Only applicable to penetration flow paths with two containment isolation valves. ---------- One or more penetration flow paths with two containment isolation valves inoperable ~~except for purge valve or shield building bypass~~ leakage not within limit~~s~~.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ---------NOTE--------- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. ---------- One or more penetration flow paths with one containment isolation valve inoperable.	C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. AND C.2 --------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	~~[1]~~ 72 hours Once per 31 days
D. ~~Shield building~~ Containment bypass leakage not within limit.	D.1 Restore leakage within limit.	4 hours
~~E. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.~~	~~E.1 Isolate the affected penetration flow path by use of at least one [closed and de-activated automatic valve, closed manual valve, or blind flange].~~ ~~AND~~	~~24 hours~~

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. (continued)	E.2 -------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
	AND E.3 Perform SR 3.6.3.7 for the resilient seal purge valves closed to comply with Required Action E.1.	Once per [92] days
~~F~~ E. Required Action and associated Completion Time not met.	~~F~~ E.1 Be in MODE 3.	6 hours
	AND ~~F~~ E.2 Be in MODE 5.	36 hours

(3.6.A.3)
(3.6.D)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
<4.13.A.1> <3.6.D>	SR 3.6.3.1 Verify each [42] inch purge valve is sealed closed, except for one purge valve in a penetration flow path while in Condition E of this LCO. (36) Insert: 3.6-12-01	31 days
<DOC M.2>	SR 3.6.3.2 Verify each [8] inch purge valve is closed, except when the [8] inch containment purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open. (10) Insert: 3.6-12-02	31 days
<DOC M.3> <1.10.1>	SR 3.6.3.3 ----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative controls. ---------- Verify each containment isolation manual valve and blind flange that is located outside containment and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	31 days

and not locked, sealed, or otherwise secured

(continued)

T.1

NUREG-1431 Markup Inserts
ITS SECTION 3.6.3 - Containment Isolation Valves

INSERT: 3.6-12-01

purge supply and exhaust isolation valve is sealed closed.

INSERT: 3.6-12-02

pressure relief isolation valve is closed, except when these

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY
SR 3.6.3.4	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ----------		
SR 3.6.3.4	Verify each containment isolation manual valve and blind flange that is located inside containment and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.		Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days
SR 3.6.3.5	Verify the isolation time of ~~each power operated and~~ each automatic containment isolation valve is within limits.		In accordance with the Inservice Testing Program or 92 days
~~SR 3.6.3.6~~	~~Cycle each weight or spring loaded check valve testable during operation through one complete cycle of full travel, and verify each check valve remains closed when the differential pressure in the direction of flow is ≤ [1.2] psid and opens when the differential pressure in the direction of flow is ≥ [1.2] psid and < [5.0] psid.~~		~~92 days~~

<CTS>
<DOC M.3>
<1.10.1>
and not locked, sealed, or otherwise secured
<DOC M.4>
power operated
T.1
T.2

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.6.3.7~~	~~Perform leakage rate testing for containment purge valves with resilient seals.~~	~~184 days AND Within 92 days after opening the valve~~
SR 3.6.3.~~8~~ 6	Verify each automatic containment isolation valve that is not locked, sealed or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	~~18~~ 24 months
~~SR 3.6.3.9~~	~~Cycle each weight or spring loaded check valve not testable during operation through one complete cycle of full travel, and verify each check valve remains closed when the differential pressure in the direction of flow is ≤ [1.2] psid and opens when the differential pressure in the direction of flow is ≥ [1.2] psid and ≤ [5.0] psid.~~	~~18 months~~
SR 3.6.3.~~10~~ 7	Verify each ~~[7]~~ 10 inch containment purge valve is blocked to restrict the valve from opening > [50]%	~~[18]~~ 24 months

<Table 4.1-3, Item 5>
<DOC L.6>

<4.13.A.2>
<3.6.D>
<DOC A.11>

Insert: 3.6-14-01

R.1

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.3 - Containment Isolation Valves

INSERT 3.6-14-01:

containment pressure relief line isolation valve is blocked to restrict valve opening to ≤ 60 degrees.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.11	Verify the combined leakage rate for all shield building bypass leakage paths is ≤ [L_a] when pressurized to ≥ [psig].	-----NOTE----- SR 3.0.2 is not applicable ---------- In accordance with 10 CFR 50, Appendix J, as modified by approved exemptions

Insert: 3.6-15-01

Insert 3.6-15-02

Insert 3.6-15-03

NUREG-1431 Markup Inserts
ITS SECTION 3.6.3 - Containment Isolation Valves

INSERT 3.6-15-01:

SR 3.6.3.8 <DOC M.6>	Perform one complete cycle of each manually operated containment isolation valve on essential lines.	24 months

INSERT 3.6-15-02:

SR 3.6.3.9 <4.4.E.1>	Verify the combined leakage rate for all containment bypass leakage paths is ≤0.6 L_a when pressurized to ≥42.42 psig.	In accordance with the Containment Leakage Rate Testing Program

R.1

Insert 3.6-15-03:

SR 3.6.3.10 <4.4.E.3>	Verify leakage rate of service water lines that penetrate the primary containment is within limits.	In accordance with the Containment Leakage Rate Testing Program

R.1

B 3.6 CONTAINMENT SYSTEMS

B 3.6.3 Containment Isolation Valves ~~(Atmospheric, Subatmospheric, Ice Condenser, and Dual)~~

BASES

BACKGROUND

The containment isolation valves form part of the containment pressure boundary and provide a means for fluid penetrations not serving accident consequence limiting systems to be provided with two isolation barriers that are closed on a containment isolation signal. These isolation devices are either passive or active (automatic). Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), blind flanges, and closed systems are considered passive devices. Check valves, or other automatic valves designed to close without operator action following an accident, are considered active devices. Two barriers in series are provided for each penetration so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analyses. One of these barriers may be a closed system. These barriers (typically containment isolation valves) make up the Containment Isolation System.

Automatic isolation signals are produced during accident conditions. Containment Phase "A" isolation occurs upon receipt of a safety injection signal. The Phase "A" isolation signal isolates nonessential process lines in order to minimize leakage of fission product radioactivity. Containment Phase "B" isolation occurs upon receipt of a containment pressure High-High signal and isolates the remaining process lines, except systems required for accident mitigation. In addition to the isolation signals listed above, ~~the purge and exhaust valves receive an isolation signal on a containment high radiation condition.~~ As a result, the containment isolation valves (and blind flanges) help ensure that the containment atmosphere will be isolated from the environment in the event of a release of fission product radioactivity to the containment atmosphere as a result of a Design Basis Accident (DBA).

Insert: B 3.6-29-01

The OPERABILITY requirements for containment isolation valves help ensure that containment is isolated within the

(continued)

INSERT: B 3.6-29-01

the Containment purge supply and exhaust isolation valves (FCV-1170, FCV-1171, FCV-1172, and FCV-1173) and the containment pressure relief isolation valves (PCV-1190, PCV-1191, and PCV-1192) close when high radiation levels are detected by the Containment Air Particulate Monitor (R-11) or Containment Radioactive Gas Monitor (R-12). Containment purge and containment pressure relief are also isolated when high radiation levels are detected in the plant vent.

BASES

BACKGROUND (continued)

time limits assumed in the safety analyses. Therefore, the OPERABILITY requirements provide assurance that the containment function assumed in the safety analyses will be maintained.

Containment

~~Shutdown~~ Purge System ([42] inch purge valves) 36

Insert: B3.6-30-01

The ~~Shutdown~~ Purge System operates to supply outside air into the containment for ventilation and cooling or heating and may also be used to reduce the concentration of noble gases within containment prior to and during personnel access. The supply and exhaust lines each contain two isolation valves. Because of their large size, the [42] inch purge valves ~~in some units~~ are not qualified for automatic closure from their open position under DBA conditions. Therefore, the [42] inch purge valves ~~are~~ must be ~~normally~~ maintained closed in MODES 1, 2, 3, and 4 to ensure the containment boundary is maintained.

36

sealed

Containment Pressure Relief Line

~~Minipurge System~~ ([8] inch ~~purge~~ valves) 10

Insert: B 3.6-30-02

The ~~Minipurge System~~ operates to:

a. Reduce the concentration of noble gases within containment prior to and during personnel access, and

b. Equalize internal and external pressures.

Since the valves used in the ~~Minipurge System~~ are designed to meet the requirements for automatic containment isolation valves, these valves may be opened as needed in MODES 1, 2, 3, and 4.

Insert: B 3.6-30-03

APPLICABLE SAFETY ANALYSES

The containment isolation valve LCO was derived from the assumptions related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during major accidents. As part of the containment boundary, containment isolation valve OPERABILITY supports leak tightness of the containment. Therefore, the safety analyses of any event requiring isolation of containment is applicable to this LCO.

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.3 - Containment Isolation Valves

INSERT: B 3.6-30-01

, consisting of purge supply and exhaust isolation valves FCV-1170, FCV-1171, FCV-1172, and FCV-1173,

INSERT: B 3.6-30-02

consisting of pressure relief isolation valves PCV-1190, PCV-1191, and PCV-1192,

INSERT: B 3.6-30-03

Containment pressure relief line isolation valve opening is limited by mechanical stops so that opening angle is limited to an angle at which analysis indicates the valve will operate against containment accident pressures. Additionally, pressure relief isolation valve opening must be limited to the time necessary for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open.

The containment pressure relief line is isolated during CORE ALTERATIONS and movement of irradiated fuel inside containment in accordance with requirements established in LCO 3.9.3, Containment Penetrations.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The DBAs that result in a release of radioactive material within containment are a loss of coolant accident (LOCA) ~~and a rod ejection accident~~ (Ref. 1). In the analyses for ~~each of these~~ this accidents, it is assumed that containment isolation valves are either closed or function to close within the required isolation time following event initiation. This ensures that potential paths to the environment through containment isolation valves ~~(including containment purge valves)~~ are minimized. The safety analyses assume that the 36 ~~42~~ inch purge valves are sealed closed at event initiation.

R.1 PA.1

The DBA analysis assumes that, within 60 seconds after the accident, isolation of the containment is complete and leakage terminated except for the design leakage rate, L_a. The containment isolation total response time of 60 seconds includes signal delay, diesel generator startup (for loss of offsite power), and containment isolation valve stroke times.

~~[The single failure criterion required to be imposed in the conduct of plant safety analyses was considered in the original design of the containment purge valves. Two valves in series on each purge line provide assurance that both the supply and exhaust lines could be isolated even if a single failure occurred. The inboard and outboard isolation valves on each line are provided with diverse power sources, motor operated and pneumatically operated spring closed, respectively. This arrangement was designed to preclude common mode failures from disabling both valves on a purge line.]~~

Insert B 3.6-31-01

~~[~~The purge valves may be unable to close in the environment following a LOCA. Therefore, each of the purge valves is required to remain sealed closed during MODES 1, 2, 3, and 4. In this case, the single failure criterion remains applicable to the containment purge valves due to failure in the control circuit associated with each valve. Again, the purge system valve design precludes a single failure from compromising the containment boundary as long as the system is operated in accordance with the subject LCO.~~]~~

Insert B 3.6-31-02

The containment isolation valves satisfy Criterion 3 of the ~~NRC Policy Statement~~ 10 CFR 50.36.

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.3 - Containment Isolation Valves

INSERT: B 3.6-31-01

Containment Purge supply and exhaust isolation valves (FCV-1170, FCV-1171, FCV-1172, and FCV-1173)

INSERT: B 3.6-31-02

Sealed closed barriers include blind flanges and sealed closed isolation valves including closed manual valves, closed remote-manual valves, and closed automatic valves which remain closed after a loss-of-coolant accident. Sealed closed barriers may be used in place of any automatic isolation valve. The term sealed closed, as applied to containment isolation valves, is not intended to describe leak tightness. Sealed closed isolation valves must be under administrative controls that assure the valve cannot be inadvertently opened. Administrative controls includes mechanical devices to seal or lock the valve closed, or to prevent power from being supplied to the valve operator (Ref. 3). R.1

BASES (continued)

LCO

Containment isolation valves form a part of the containment boundary. The containment isolation valves' safety function is related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during a DBA.

The automatic power operated isolation valves are required to have isolation times within limits and to actuate on an automatic isolation signal. The [12] inch purge valves must be maintained sealed closed ~~[or have blocks installed to prevent full opening]. [Blocked purge valves also actuate on an automatic signal.]~~ The valves covered by this LCO are listed ~~along with their associated stroke times~~ in the FSAR (Ref. 2).

The normally closed isolation valves are considered OPERABLE when manual valves are closed, automatic valves are de-activated and secured in their closed position, blind flanges are in place, and closed systems are intact. These passive isolation ~~valves/~~devices are ~~those listed in Reference 1~~ shown on drawings in the FSAR (Ref. 3)

Purge valves with resilient seals [and secondary containment bypass valves] must meet additional leakage rate requirements. The other containment isolation valve leakage rates are addressed by LCO 3.6.1, "Containment," as Type C testing.

Insert: B3.6-32-01

This LCO provides assurance that the containment isolation valves and purge valves will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the containment boundary during accidents.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment isolation valves are not required to be OPERABLE in MODE 5. The requirements for containment isolation valves during MODE 6 are addressed in LCO 3.9.4, "Containment Penetrations."

R.1

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.3 - Containment Isolation Valves

INSERT: B 3.6-32-01

Manually operated containment isolation valves on essential lines that are required to be open, at least for a time, during post accident conditions are OPERABLE if they can be closed in accordance with design assumptions. Essential lines are those lines required to mitigate an accident, or which, if unavailable, could increase the magnitude of the event. Also, those lines which, if available, would be used in the short term (24 to 36 hours) to restore the plant to normal operation following an event which has resulted in containment isolation (Ref. 4).

BASES (continued)

ACTIONS

The ACTIONS are modified by a Note allowing penetration flow paths, except for 42 inch purge valve penetration flow paths, to be unisolated intermittently under administrative controls. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for containment isolation is indicated. Due to the size of the containment purge line penetration and the fact that those penetrations exhaust ~~directly~~ from the containment atmosphere to the environment, the penetration flow path containing these valves may not be opened under administrative controls. ~~A single purge valve in a penetration flow path may be opened to effect repairs to an inoperable valve, as allowed by SR 3.6.3.1.~~

A ~~Second~~ Note has been added to provide clarification that, for this LCO, separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable containment isolation valve. Complying with the Required Actions may allow for continued operation, and subsequent inoperable containment isolation valves are governed by subsequent Condition entry and application of associated Required Actions.

The ACTIONS are further modified by ~~a third~~ Note, which ensures appropriate remedial actions are taken, ~~if necessary,~~ if the affected systems are rendered inoperable by an inoperable containment isolation valve.

In the event the ~~air lock~~ leakage results in exceeding the overall containment leakage rate, Note 4 directs entry into the applicable Conditions and Required Actions of LCO 3.6.1.

A.1 and A.2

In the event one containment isolation valve in one or more penetration flow paths is inoperable ~~[~~except for ~~purge valve or shield building~~ bypass leakage not within limit~~]~~, the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.3 - Containment Isolation Valves

INSERT: B 3.6-33-01

The ACTIONS are further modified by Note 5 and Note 6, which ensures appropriate remedial actions are taken if required IVSW or WC&PPS supply to a penetration flowpath is inoperable. Note 5 and Note 6 direct entry into the applicable Conditions and Required Actions of LCO 3.6.9 and LCO 3.6.10, as appropriate.

INSERT: B 3.6-33-02

The normally stationed control room operator satisfies the requirement for a dedicated operator for any non-automatic, remotely operated CIV that is opened intermittently from the control room (Ref. 6). Additionally, a dedicated operator is not required for manually operated CIVs required to be open both during normal plant operations and during a LOCA. A dedicated operator is not required at the valve when the RHR Suction isolation valve, AC-732, is open to support operation of the RHR system for shutdown cooling (Ref. 6). Normally open, manual CIVs are used for isolation of closed systems within the containment that are missile protected and are seismic Class I at least up to and including the isolation valves.

BASES

ACTIONS

A.1 and A.2 (continued)

failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. For a penetration flow path isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available one to containment. Required Action A.1 must be completed within 4 hours. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4.

(Ref. 3)

For affected penetration flow paths that cannot be restored to OPERABLE status within the 4 hour Completion Time and that have been isolated in accordance with Required Action A.1, the affected penetration flow paths must be verified to be isolated on a periodic basis. This is necessary to ensure that containment penetrations required to be isolated following an accident and no longer capable of being automatically isolated will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation. ~~Rather, it~~ This Action involves verification, through a system walkdown, that ~~these~~ isolation devices outside containment and capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate considering the fact that the devices are operated under administrative controls and the probability of their misalignment is low. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

e.g., one of the three containment pressure relief isolation valves

Condition A has been modified by a Note indicating that this Condition is only applicable to those penetration flow paths with two containment isolation valves. For penetration flow paths with only one containment isolation valve and a closed system, Condition C provides the appropriate actions.

or more

Insert B 3.6-34-01

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.3 - Containment Isolation Valves

INSERT: B 3.6-34-01

Although most penetrations have two containment isolation valves, the term "two or more" is used so that Condition A includes penetrations such as the containment pressure relief line which has three valves in series.

BASES

ACTIONS

A.1 and A.2 (continued)

Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices once they have been verified to be in the proper position, is small.

B.1

With two containment isolation valves in one or more penetration flow paths inoperable, the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. In the event the affected penetration is isolated in accordance with Required Action B.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action A.2, which remains in effect. This periodic verification is necessary to assure leak tightness of containment and that penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative control and the probability of their misalignment is low.

Insert. B3.6-35-01

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two containment isolation valves. Condition A of this LCO addresses the condition of one containment isolation valve inoperable in this type of penetration flow path.

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.3 - Containment Isolation Valves

INSERT: B 3.6-35-01

Although most penetrations have two containment isolation valves, the term "two or more" is used so that Condition B includes penetrations such as the containment pressure relief line which has three valves in series.

BASES

ACTIONS (continued)

C.1 and C.2

With one or more penetration flow paths with one containment isolation valve inoperable, the inoperable valve flow path must be restored to OPERABLE status or the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier, other than the closed system, that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. A check valve may not be used to isolate the affected penetration flow path. Required Action C.1 must be completed within the # hour Completion Time. The specified time period is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of maintaining containment integrity during MODES 1, 2, 3, and 4. In the event the affected penetration flow path is isolated in accordance with Required Action C.1, the affected penetration flow path must be verified to be isolated on a periodic basis. This periodic verification is necessary to assure leak tightness of containment and that containment penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying that each affected penetration flow path is isolated is appropriate because the valves are operated under administrative controls and the probability of their misalignment is low.

(Ref. 3)

72

PA.1 R.1

Condition C is modified by a Note indicating that this Condition is only applicable to those penetration flow paths with only one containment isolation valve and a closed system. This Note is necessary since this Condition is written to specifically address those penetration flow paths in a closed system. The closed system must meet the requirements of Reference 3.

T.3 R.1

Required Action C.2 is modified by a Note that applies to valves and blind flanges located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is small.

(continued)

BASES

ACTIONS (continued)

D.1

of SR 3.6.3.9

Containment

With the ~~shield building~~ bypass leakage rate not within limit, the assumptions of the safety analyses are not met. Therefore, the leakage must be restored to within limit within 4 hours. Restoration can be accomplished by isolating the penetration(s) that caused the limit to be exceeded by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. When a penetration is isolated the leakage rate for the isolated penetration is assumed to be the actual pathway leakage through the isolation device. If two isolation devices are used to isolate the penetration, the leakage rate is assumed to be the lesser actual pathway leakage of the two devices. The 4 hour Completion Time is reasonable considering the time required to restore the leakage by isolating the penetration(s) and the relative importance of secondary containment bypass leakage to the overall containment function.

R.1

~~E.1, E.2, and E.3~~

~~In the event one or more containment purge valves in one or more penetration flow paths are not within the purge valve leakage limits, purge valve leakage must be restored to within limits, or the affected penetration flow path must be isolated. The method of isolation must be by the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a [closed and de-activated automatic valve, closed manual valve, or blind flange]. A purge valve with resilient seals utilized to satisfy Required Action E.1 must have been demonstrated to meet the leakage requirements of SR 3.6.3.7. The specified Completion Time is reasonable, considering that one containment purge valve remains closed so that a gross breach of containment does not exist.~~

~~In accordance with Required Action E.2, this penetration flow path must be verified to be isolated on a periodic basis. The periodic verification is necessary to ensure that containment penetrations required to be isolated following an accident, which are no longer capable of being~~

(continued)

BASES

ACTIONS

E.1, E.2, and E.3 (continued)

automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown, that those isolation devices outside containment capable of being mispositioned are in the correct position. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

For the containment purge valve with resilient seal that is isolated in accordance with Required Action E.1, SR 3.6.3.7 must be performed at least once every [92] days. This assures that degradation of the resilient seal is detected and confirms that the leakage rate of the containment purge valve does not increase during the time the penetration is isolated. The normal Frequency for SR 3.6.3.7, 184 days, is based on an NRC initiative, Generic Issue B-20 (Ref. 3). Since more reliance is placed on a single valve while in this condition, it is prudent to perform the SR more often. Therefore, a Frequency of once per [92] days was chosen and has been shown to be acceptable based on operating experience.

E.1 and E.2 R.1

If the Required Actions and associated Completion Times are not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.3.1

Insert B3.6-39-01

Each 42 inch containment purge valve is required to be verified sealed closed at 31 day intervals. This Surveillance is designed to ensure that a gross breach of containment is not caused by an inadvertent or spurious opening of a containment purge valve. Detailed analysis of the purge valves failed to conclusively demonstrate their ability to close during a LOCA in time to limit offsite doses. Therefore, these valves are required to be in the sealed closed position during MODES 1, 2, 3, and 4. A containment purge valve that is sealed closed must have motive power to the valve operator removed. This can be accomplished by de-energizing the source of electric power or by removing the air supply to the valve operator. In this application, the term "sealed" has no connotation of leak tightness. The Frequency is a result of an NRC initiative, Generic Issue B-24 (Ref. 4), related to containment purge valve use during plant operations. ~~In the event purge valve leakage requires entry into Condition E, the Surveillance permits opening one purge valve in a penetration flow path to perform repairs.~~

R.1

SR 3.6.3.2

Insert B3.6-39-02

This SR ensures that the mini-purge valves are closed as required or, if open, open for an allowable reason. If a purge valve is open in violation of this SR, the valve is considered inoperable. If the inoperable valve is not otherwise known to have excessive leakage when closed, it is not considered to have leakage outside of limits. The SR is not required to be met when the mini-purge valves are open for the reasons stated. The valves may be opened for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open. The mini-purge valves are capable of closing in the environment following a LOCA. Therefore, these valves are allowed to be open for limited periods of time. The 31 day Frequency is consistent with other containment isolation valve requirements discussed in SR 3.6.3.3.

Containment pressure relief line isolation

As long as valve opening angle is limited in accordance with SR 3.~~6.3.7~~.

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.3 - Containment Isolation Valves

INSERT: B 3.6-39-01

purge supply and exhaust isolation valve (FCV-1170, FCV-1171, FCV-1172, and FCV-1173)

INSERT: B 3.6-39-02

(PCV-1190, PCV-1191, and PCV-1192)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.3.3

This SR requires verification that each containment isolation manual valve and blind flange located outside containment, and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown, that those containment isolation valves outside containment and capable of being mispositioned are in the correct position. Since verification of valve position for containment isolation valves outside containment is relatively easy, the 31 day Frequency is based on engineering judgment and was chosen to provide added assurance of the correct positions. The SR specifies that containment isolation valves that are open under administrative controls are not required to meet the SR during the time the valves are open.

Insert: B 3.6-40-01

Insert: B 3.6-40-02

The Note applies to valves and blind flanges located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, 3 and 4 for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in the proper position, is small.

SR 3.6.3.4

This SR requires verification that each containment isolation manual valve and blind flange located inside containment, and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the containment boundary is within design limits. For containment isolation valves inside containment, the Frequency of "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is appropriate since these containment isolation valves are operated under

Insert: B 3.6-40-01

T.1

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.2 - Containment Isolation Valves

INSERT: B 3.6-40-01

and not locked, sealed, or otherwise secured

INSERT: B 3.6-40-02

This SR does not apply to valves that are locked, sealed or otherwise secured in the closed position because these valves were verified to be in the correct position when locked, sealed or otherwise secured. PA.1 R.1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.4 (continued)

administrative controls and the probability of their misalignment is low. The SR specifies that containment isolation valves that are open under administrative controls are not required to meet the SR during the time they are open.

Insert: B3.6-41-01

T.1

This Note allows valves and blind flanges located in high radiation areas to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, 3, and 4, for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in their proper position, is small.

SR 3.6.3.5

T.2

Verifying that the isolation time of each ~~power operated and~~ power operated automatic containment isolation valve is within limits is required to demonstrate OPERABILITY. The isolation time test ensures the valve will isolate in a time period less than or equal to that assumed in the safety analyses. ~~[~~The isolation time and Frequency of this SR are in accordance with the Inservice Testing Program ~~or 92 days.]~~ as specified in the FSAR.

SR 3.6.3.6

In subatmospheric containments, the check valves that serve a containment isolation function are weight or spring loaded to provide positive closure in the direction of flow. This ensures that these check valves will remain closed when the inside containment atmosphere returns to subatmospheric conditions following a DBA. SR 3.6.3.6 requires verification of the operation of the check valves that are testable during unit operation. The Frequency of 92 days is consistent with the Inservice Testing Program requirement for valve testing on a 92 day frequency.

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.2 - Containment Isolation Valves

INSERT: B 3.6-41-01

This SR does not apply to valves that are locked, sealed or otherwise secured in the closed position because these valves were verified to be in the correct position when locked, sealed or otherwise secured. PA.1 R.1

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~SR 3.6.3.7~~

~~For containment purge valves with resilient seals, additional leakage rate testing beyond the test requirements of 10 CFR 50, Appendix J, is required to ensure OPERABILITY. Operating experience has demonstrated that this type of seal has the potential to degrade in a shorter time period than do other seal types. Based on this observation and the importance of maintaining this penetration leak tight (due to the direct path between containment and the environment), a Frequency of 184 days was established as part of the NRC resolution of Generic Issue B-20, "Containment Leakage Due to Seal Deterioration" (Ref. 3).~~

~~Additionally, this SR must be performed within 92 days after opening the valve. The 92 day Frequency was chosen recognizing that cycling the valve could introduce additional seal degradation (beyond that occurring to a valve that has not been opened). Thus, decreasing the interval (from 184 days) is a prudent measure after a valve has been opened.~~

SR 3.6.3.~~8~~ 6

Automatic containment isolation valves close on a containment isolation signal to prevent leakage of radioactive material from containment following a DBA. This SR ensures that each automatic containment isolation valve will actuate to its isolation position on a containment isolation signal. This surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass this Surveillance when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

24

24

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~SR 3.6.3.9~~

~~In subatmospheric containments, the check valves that serve a containment isolation function are weight or spring loaded to provide positive closure in the direction of flow. This ensures that these check valves will remain closed when the inside containment atmosphere returns to subatmospheric conditions following a DBA. SR 3.6.3.9 verifies the operation of the check valves that are not testable during unit operation. The Frequency of 18 months is based on such factors as the inaccessibility of these valves, the fact that the unit must be shut down to perform the tests, and the successful results of the tests on an 18 month basis during past unit operation.~~

SR 3.6.3.10 7

~~Reviewer's Note: This SR is only required for those units with resilient seal purge valves allowed to be open during [MODE 1, 2, 3, or 4] and having blocking devices on the valves that are not permanently installed.~~

Insert B3.6-43-01

Verifying that each ~~[42] inch containment purge valve is blocked to restrict opening to < [50]%~~ is required to ensure that the valves can close under DBA conditions within the times assumed in the analyses of References 1 and 2. If a LOCA occurs, the purge valves must close to maintain containment leakage within the values assumed in the accident analysis. ~~At other times when purge valves are required to be capable of closing (e.g., during movement of irradiated fuel assemblies), pressurization concerns are not present, thus the purge valves can be fully open.~~ The 18 month Frequency is appropriate because the blocking devices are typically removed ~~only during a refueling outage~~.

pressure relief line

24

not

R,1

SR 3.6.3.11 9

Insert B3.6-43-02

This SR ensures that the combined leakage rate of all ~~shield building bypass~~ leakage paths is less than or equal to the specified leakage rate. This provides assurance that the assumptions in the safety analysis are met. The leakage rate of each bypass leakage path is assumed to be the

Containment

Insert B3.6-43-03

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.3 - Containment Isolation Valves

INSERT: B 3.6-43-01

containment pressure relief line isolation valve, PCV-1190, PCV-1191, and PCV-1192, is blocked to restrict valve opening to ≤ 60 degrees. This verification

Insert: B 3.6-43-02

SR 3.6.3.8

This SR ensures that manually operated containment isolation valves on essential lines are capable of being opened or closed as needed to support any accident mitigation function. Essential lines are those lines required to mitigate an accident, or which, if unavailable, could increase the magnitude of the event. Also, those lines which, if available, would be used in the short term (24 to 36 hours) to restore the plant to normal operation following an event which has resulted in containment isolation (Ref. 4). The 24 month Frequency is based on engineering judgement and plant experience with manually operated valves.

INSERT: B 3.6-43-03

for those paths that are not sealed by the Isolation Valve Seal Water System or sealed by the RHR system or sealed by the service water system.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.~~11~~ 9 (continued)

maximum pathway leakage (leakage through the worse of the two isolation valves) unless the penetration is isolated by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. In this case, the leakage rate of the isolated bypass leakage path is assumed to be the actual pathway leakage through the isolation device. If both isolation valves in the penetration are closed, the actual leakage rate is the lesser leakage rate of the two valves. ~~This method of quantifying maximum pathway leakage is only to be used for this SR (i.e., Appendix J maximum pathway leakage limits are to be quantified in accordance with Appendix J). The frequency is required by 10 CFR 50, Appendix J, as modified by approved exemptions (and therefore, the frequency extensions of SR 3.0.2 may not be applied), since the testing is an Appendix J, Type C test. This SR simply imposes additional acceptance criteria.~~

~~[By pass leakage is considered part of L_a. [Reviewer's Note: Unless specifically exempted].]~~

Insert B3.6-44-01

Insert B3.6-44-02

R.1

REFERENCES

1. FSAR, Section ~~15~~. 14
2. FSAR, Section ~~6.2~~. 6
3. ~~Generic Issue B-20, "Containment Leakage Due to Seal Deterioration."~~
4. ~~3~~. Generic Issue B-24.

Insert B3.6-44-03

NUREG-1431 Markup Inserts
ITS SECTION 3.6.3 - Containment Isolation Valves

INSERT: B 3.6-44-01

This testing is performed in accordance with the requirements, Frequency and acceptance criteria required by Specification 5.5.15, Containment Leakage Rate Testing Program. This program was established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by IP3 specific approved exemptions. This program conforms to guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak Test Program, dated September 1995." In the event containment isolation valve leakage results in exceeding the overall containment leakage rate, entry into the applicable Conditions and Required Actions of LCO 3.6.1 is required.

INSERT: B 3.6-44-02

SR 3.6.3.10
The Containment Leakage Rate Testing Program includes verification that inleakage rate from the containment isolation valves sealed with service water is maintained at a level that will prevent flooding the internal recirculation pumps for the full 12-month period of post accident recirculation. Although this inleakage rate is not containment bypass leakage, the acceptance criteria is part of the Containment Leakage Rate Testing Program and failure to meet the specified limits requires entry into Condition D.

INSERT: B 3.6-44-03

3. Standard Review Plan Section 6.2.4.

4. FSAR, Section 5.2.

6. Safety Evaluation Report for IP3 Amendment 195.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.3:
"Containment Isolation Valves"

PART 6:

Justification of Differences between

NUREG-1431 and IP3 ITS

JUSTIFICATION OF DIFFERENCES FROM NUREG-1431
ITS SECTION 3.6.3 - Containment Isolation Valves

RETENTION OF EXISTING REQUIREMENT (CURRENT LICENSING BASIS)

CLB.1 This change maintains IP3 current licensing basis related to the use of 10 CFR 50, Appendix J, Option B, for containment leak rate testing which was approved on June 17, 1997 as part of Amendment 174. This change is based on Generic Change TSTF-52 (WOG-42), Revision 0, which is currently being reviewed by the NRC.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT

PA.1 Corrected typographical error or made a minor editorial improvement to improve clarity and ensure requirements are fully understood and consistently applied. There are no technical changes to requirements as specified in NUREG 1431, Rev. 1; therefore, this change is not a significant or generic deviation from NUREG 1431, Rev 1.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN OR DESIGN BASIS

DB.1 Design or implementation details are incorporated or revised as necessary to more precisely describe IP3 current design or practice. These changes are intended to describe the design, improve clarity, or ensure requirements are fully understood and consistently applied. Unless identified and described blow, these changes are self-explanatory. A detailed description of the design, accident analysis assumptions, and Operability requirements are incorporated into the IP3 ITS Bases. These changes maintain the IP3 current licensing basis except as identified and justified in the CTS/ITS discussion of changes.

DIFFERENCE BASED ON A GENERIC CHANGE TRAVELER FOR NUREG-1431

T.1 This change incorporates Generic Change TSTF-45 (WOG-39), Rev 1, which revises SR 3.6.3.4 and SR 3.6.6.5 to specify that only containment isolation valves that are not locked, sealed, or otherwise secured are required to be verified closed. This change is acceptable because it makes containment isolation valve requirements consistent with requirements in ECCS (SR 3.5.2.2), AFW (SR 3.7.5.1.), and SW (SR 3.7.9.1).

T.2 This change incorporates Generic Change TSTF-46 (WOG-40), Rev 1, which revises SR 3.6.3.6 to delete reference to verifying the isolation time of "each power operated" containment isolation valve and only require verification of each "automatic isolation valve." This change is needed because the Bases for this SR state that the "isolation time test ensures the valve will isolate in a time period less than or equal to that assumed in the safety analysis." There may be valves credited as containment isolation valves which are power operated (i.e., can be remotely operated) that do not receive a containment isolation signal (e.g., a GDC 57 penetration). These power operated valves do not have an isolation time as assumed in the accident analyses since they require operator action. Therefore, deleting reference to power operated isolation valve time testing reduces the potential for misinterpreting the requirements of this SR while maintaining the assumptions of the accident analysis.

T.3 This change incorporates Generic Change TSTF-30 (WOG-34), Rev.3, which extends the Completion Time for a closed system flow path with an inoperable isolation valve to 72 hours. This change is needed to allow the necessary time to perform repairs on a failed containment isolation valve while relying on an intact closed system. These closed systems are subjected to Type A containment leakage testing, are missile protected and seismic category I. In addition a closed system typically has flow through it during normal operation such that any loss of integrity could be continually observed through leakage detection system within containment and system walkdowns for closed systems outside containment. A Completion Time of 72 hours is considered appropriate given that certain valves may be located in containment, the reliability of the closed system, and that 72 hours is typically provided for losing one train of redundancy throughout the NUREGs. If the closed system and the associated containment isolation valve were both inoperable, the plant would be in LCO 3.0.3 since there is no specific Condition specified.

DIFFERENCE FOR ANY REASON OTHER THAN ABOVE

None

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.4:
"CONTAINMENT PRESSURE"

PART 2:

CURRENT TECHNICAL SPECIFICATION PAGES

Annotated to show differences between CTS and ITS

CTS PAGE	AMENDMENT FOR REV O SUBMITTAL	AMENDMENT FOR REV 1 SUBMITTAL	COMMENT
3.6-1	86;97-070	195	Clarification Of Containment Integrity No impact on 3.6.4
3.6-3	98;8-30-95;97-070	195	Clarification Of Containment Integrity No impact on 3.6.4

3.6 CONTAINMENT SYSTEM

~~Applicability~~

~~Applies to the integrity of reactor containment.~~

~~Objective~~

~~To define the operating statue of the reactor containment for plant operation.~~

A.2

Specification

A. Containment Integrity

1. The containment integrity (as defined in 1.10) shall not be violated unless the reactor is in the cold shutdown condition. However, those non-automatic valves referred to in Specification 1.10.1, may be opened if necessary for plant operation and only as long as necessary to perform the intended function. These non-automatic valves which are opened intermittently are under administrative controls.

SEE ITS Section 3.6

2. The containment integrity shall not be violated when the reactor vessel head is removed unless the boron concentration is sufficient to maintain the shutdown margin equal to or greater than the requirements of specification 3.8.D.

SEE ITS 3.9.1

3. If the containment integrity requirements are not met when the reactor is above cold shutdown, containment integrity shall be restored within one hour or the reactor shall be in the hot shutdown condition within six hours and in cold shutdown condition within the next 30 hours.

SEE ITS SECTION 3.6

B. Internal Pressure

L.1 | R1

If the internal pressure exceeds 2.5 psig or the internal vacuum exceeds 2.0 psig, the condition shall be corrected within 1 hour or the ~~reactor shutdown~~ Mode 3 in 6 hours and Mode 5 in 36 hours.

M.1

C. Containment Temperature

1. The reactor shall not be taken above the cold shutdown condition unless the containment ambient temperature is greater than 50°F.

SEE ITS 3.6.5

2. Containment ambient temperature shall not exceed 130°F when the reactor is above the cold shutdown condition. If the temperature is greater than 130°F, reduce the temperature to within the limit within 8 hours, or be in hot shutdown within the next 6 hours and in cold shutdown within the following 30 hours.

Amendment No. ~~34, 86,~~ 195

Add SR 3.6.4.1 — M.2

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.4:
"Containment Pressure"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

DISCUSSION OF CHANGES
ITS SECTION 3.6.4 - Containment Pressure

ADMINISTRATIVE

A.1 In the conversion of the Indian Point Unit 3 Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted which do not result in technical changes (either actual or interpretational). Additionally, editorial changes, reformatting, and revised numbering are adopted to make ITS consistent with the conventions in NUREG-1431, Standard Technical Specifications, Westinghouse Plants, Rev. 1, i.e., the improved Standard Technical Specifications.

The CTS Bases are deleted and replaced with comprehensive ITS Bases designed to support interpretation and implementation of the associated Technical Specifications. The Bases explain, clarify, and document the reasons (i.e., bases) for the associated Technical Specifications, and reflect the IP3 plant specific design, analyses, and licensing basis. In accordance with 10 CFR 50.36(a), the ITS Bases are included with the proposed ITS conversion application; however, deletion of the CTS Bases and the adoption of the ITS Bases is an administrative change with no impact on safety.

A.2 CTS Limiting Conditions for Operation (LCOs) and Surveillance Requirements (SRs) include statements of the objective and the applicability. The CTS statements of objective and applicability are deleted because these statements do not establish any requirements and do not provide any guidance for the application of CTS requirements. Therefore, deletion of these statements has no significant adverse impact on safety.

A.3 Not Used.

MORE RESTRICTIVE

M.1 CTS 3.6.B does not specify an Applicability for the limits on containment pressure; however, CTS 3.6.B establishes an implied Applicability of Modes 1 and 2 by requiring only that the reactor be

shutdown if containment pressure limits are not met. "In conjunction with this change, LCO 3.6.4, Required Actions B.1 and B.2 (i.e., be in Mode 3 within 6 hours and Mode 5 within 36 hours), are added to require that the plant be promptly placed outside this expanded Applicability whenever requirements for containment pressure are not met." ITS 3.6.4 maintains the requirement for the limits on containment pressure; however, ITS 3.6.4 expands the Applicability to Modes 1, 2, 3 and 4. This change is needed because a DBA could cause a release of radioactive material to containment if reactor coolant temperature is greater than 200°F. ITS LCO 3.6.4 is applicable in Modes 1, 2, 3 and 4 because containment pressure within limits is essential to ensure initial conditions assumed in the accident analyses are maintained. This change has no adverse impact on safety.

M.2 CTS 3.6.B specifies that containment internal pressure must be maintained between +2.5 psig and -2.0 psig; however, there is no explicit requirement for periodic verification that this requirement is met. ITS SR 3.6.4.1 is added to verify every 12 hours that containment pressure is within required limits. This more restrictive requirement is acceptable because it ensures that unit operation remains within the limits assumed in the accident analysis. The 12 hour frequency was developed based on operating experience related to the trending of containment pressure variations during the applicable modes. The Frequency is considered adequate because of other indications available in the control room, including alarms, to alert the operator to an abnormal containment pressure condition. This change has no adverse impact on safety.

LESS RESTRICTIVE

L.1 CTS 3.6.B requires that if the containment internal pressure exceeds specified limits, then the condition must be corrected or the reactor shutdown; however, no Completion Time is specified. Therefore, in accordance with CTS 3.0, the time is assumed to be zero and action is initiated without delay. Under the same conditions, ITS LCO 3.6.4 Required Action A.1, allows one hour for restoration of containment pressure before a reactor shutdown is required. The 1 hour allowed for restoration is needed and is acceptable because it minimizes risk while

allowing time for restoration before subjecting the unit to transients associated with shutdown. In addition, the 1 hour allows time to prepare for an orderly shutdown before initiating a change in unit operation. This includes time to permit the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid. Therefore, this change has no significant impact on safety.

- REMOVED DETAIL

None

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.4:
"Containment Pressure"

PART 4:

No Significant Hazards Considerations
for
Changes between CTS and ITS
that are
Less Restrictive

No Significant Hazard Considerations for Changes that are Administrative, More Restrictive, and Removed Details are the same for all Packages. A Copy is included at the end of the Package.

NO SIGNIFICANT HAZARDS EVALUATION
ITS SECTION 3.6.4 - Containment Pressure

LESS RESTRICTIVE
("L.1" Labeled Comments/Discussions)

New York Power Authority has evaluated the proposed Technical Specification change identified as "Less Restrictive" in accordance with the criteria set forth in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The bases for the determination that the proposed change does not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   CTS 3.6.B requires that if the containment internal pressure exceeds specified limits, then the condition must be corrected or the reactor shutdown; however, no Completion Time is specified. Therefore, in accordance with CTS 3.0, the time is assumed to be zero and action is initiated without delay. Under the same conditions, ITS LCO 3.6.4 Required Action A.1, allows one hour for restoration of containment pressure before a reactor shutdown is required.

   This change will not result in an increase in the probability or consequences of an accident previously evaluated because the 1 hour allowed for restoration minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown. In addition, the 1 hour allows time to prepare for an orderly shutdown before initiating a change in unit operation. This includes time to permit the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change will not involve any physical changes to systems, structures, or components, or involve a change in normal plant operation. Therefore, it will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

This change does not involve a significant reduction in a margin of safety because the 1 hour allowed for restoration minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown. In addition, the 1 hour allows time to prepare for an orderly shutdown before initiating a change in unit operation. This includes time to permit the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.5:
"Containment Air Temperature"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

3.6 CONTAINMENT SYSTEMS

3.6.5 Containment Air Temperature

LCO 3.6.5 Containment average air temperature shall be > 50°F and ≤ 130°F. RAI-0

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment average air temperature ≤50 °F.	A.1 Restore containment average air temperature to >50 °F.	Immediately
B. Containment average air temperature >130 °F.	B.1 Restore containment average air temperature to within ≤130 °F.	8 hours
C. Required Action and associated Completion Time Condition A or B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

RAI-01

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.1	Verify containment average air temperature is within limits.	24 hours

B 3.6 CONTAINMENT SYSTEMS

B 3.6.5 Containment Air Temperature

BASES

BACKGROUND

The containment structure serves to contain radioactive material that may be released from the reactor core following a Design Basis Accident (DBA). The containment average air temperature is limited during normal operation to preserve the initial conditions assumed in the accident analyses for a loss of coolant accident (LOCA) or a steam line break (SLB).

The containment average air temperature limit is derived from the input conditions used in the containment functional analyses and the containment structure external pressure analyses. This LCO ensures that initial conditions assumed in the analysis of containment response to a DBA are not violated during unit operations. The total amount of energy to be removed from containment by the Containment Spray and Cooling systems during post accident conditions is dependent upon the energy released to the containment due to the event, as well as the initial containment temperature and pressure. The higher the initial temperature, the more energy that must be removed, resulting in higher peak containment pressure and temperature. Exceeding containment design pressure may result in leakage greater than that assumed in the accident analysis. Operation with containment temperature in excess of the LCO limits violates an initial condition assumed in the accident analysis. RAI 01

APPLICABLE SAFETY ANALYSES

Containment average air temperature is an initial condition used in the DBA analyses that establishes the containment environmental qualification operating envelope for both pressure and temperature. The upper limit for containment average air temperature ensures that operation is maintained within the assumptions used in the DBA analyses for containment (Ref. 1). RAI -01

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

RAI -01

The lower limit is to assure that the minimum service metal temperature of the containment liner is well above the NDT + 30°F criterion for the liner material (Ref. 3).

The limiting DBAs considered relative to containment OPERABILITY are the LOCA and SLB. The DBA LOCA and SLB are analyzed using computer codes designed to predict the resultant containment pressure transients. No two DBAs are assumed to occur simultaneously or consecutively. The postulated DBAs are analyzed with regard to Engineered Safety Feature (ESF) systems, assuming the loss of one ESF bus, which is the worst case single active failure, resulting in one train each of the Containment Spray System, Residual Heat Removal System, and Containment Cooling System being rendered inoperable.

The limiting DBA for the maximum peak containment air temperature may be either a LOCA or a SLB. The initial containment average air temperature is assumed in the design basis analyses. The maximum containment air temperature and the design temperature are specified in (Ref. 1). The temperature limit is used to establish the environmental qualification operating envelope for containment. The maximum peak containment air temperature was calculated to exceed the containment design temperature for only a few seconds during the transient. The basis of the containment design temperature, however, is to ensure the performance of safety related equipment inside containment (Ref. 2). Thermal analyses showed that the time interval during which the containment air temperature exceeded the containment design temperature was short enough that the equipment surface temperatures remained below the design temperature. Therefore, it is concluded that the calculated transient containment air temperature is acceptable for the DBA LOCA or SLB.

The containment pressure transient is sensitive to the initial air mass in containment and, therefore, to the initial containment air temperature. The limiting DBA for establishing the maximum peak containment internal pressure may be either a

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

LOCA or a SLB. The upper temperature limit is used in this analysis to ensure that in the event of an accident the maximum containment internal pressure will not be exceeded. RAI-01

Containment average air temperature satisfies Criterion 2 of 10 CFR 50.36.

LCO

During a DBA, with an initial containment average air temperature less than or equal to the LCO temperature upper limit, the resultant peak accident temperature is maintained below the containment design temperature. As a result, the ability of containment to perform its design function is ensured. RAI-01

The lower limit for containment average air temperature is to assure that the minimum service metal temperature of the containment liner. RAI-01

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, maintaining containment average air temperature within the limits is not required in MODE 5 or 6. RAI-01

ACTIONS

A.1

When containment average air temperature is ≤50 °F, it must be restored within limits immediately. This required action is necessary to ensure that a sufficient margin of safety is maintained so the NDT limit is not compromised. The completion time of immediately ensures that containment temperature is restored to within limits without delay. RAI-01

(continued)

BASES

ACTIONS (continued)

B.1

When containment average air temperature is greater than 130 °F, it must be restored to within limits within 8 hours. This Required Action is necessary to return operation to within the bounds of the containment analysis. The 8 hour Completion Time is acceptable considering the sensitivity of the analysis to variations in this parameter and provides sufficient time to correct minor problems. RAI -01

C.1 and C.2

If the containment average air temperature cannot be restored to within its limits within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.5.1

Verifying that containment average air temperature is within the LCO limits ensures that containment operation remains within the limits assumed for the containment analyses. In order to determine the containment average air temperature, an arithmetic average is calculated using measurements taken at locations within the containment selected to provide a representative sample of the overall containment atmosphere. RAI -01

A representative measurement of containment air temperature requires an arithmetic average of temperatures measured at no fewer than 4 locations. Environmentally and seismically qualified RTDs mounted on the crane wall above the containment fan cooler units inlet are normally used for measuring containment ambient temperature. Portable temperature sensing equipment may also be used.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.5.1 (continued)

The 24 hour Frequency of this SR is considered acceptable based on observed slow rates of temperature increase within containment as a result of environmental heat sources (due to the large volume of containment). Furthermore, the 24 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal containment temperature condition.

REFERENCES

1. FSAR, Section 14.3.
2. 10 CFR 50.49.
3. FSAR, Section 5.1.

NYPA

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.5:
"Containment Air Temperature"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

DISCUSSION OF CHANGES
ITS SECTION 3.6.5 - Containment Air Temperature

ADMINISTRATIVE

A.1 In the conversion of the Indian Point Unit 3 Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted which do not result in technical changes (either actual or interpretational). Additionally, editorial changes, reformatting, and revised numbering are adopted to make ITS consistent with the conventions in NUREG-1431, Standard Technical Specifications, Westinghouse Plants, Rev. 1, i.e., the improved Standard Technical Specifications.

The CTS Bases are deleted and replaced with comprehensive ITS Bases designed to support interpretation and implementation of the associated Technical Specifications. The Bases explain, clarify, and document the reasons (i.e., bases) for the associated Technical Specifications, and reflect the IP3 plant specific design, analyses, and licensing basis. In accordance with 10 CFR 50.36(a), the ITS Bases are included with the proposed ITS conversion application; however, deletion of the CTS Bases and the adoption of the ITS Bases is an administrative change with no impact on safety.

A.2 CTS Limiting Conditions for Operation (LCOs) and Surveillance Requirements (SRs) include statements of the objective and the applicability. The CTS statements of objective and applicability are deleted because these statements do not establish any requirements and do not provide any guidance for the application of CTS requirements. Therefore, deletion of these statements has no significant adverse impact on safety.

A.3 CTS 3.6.C.1 and CTS 3.6.C.2 specify the Applicability for containment temperature limits as whenever the reactor is above cold shutdown. ITS 3.6.5 maintains this Applicability by requiring that Containment temperature is within specified limits in Modes 1, 2, 3 and 4 (i.e., above the cold shutdown). This is an administrative change with no impact on safety because there is no change to the Applicability.

DISCUSSION OF CHANGES
ITS SECTION 3.6.5 - Containment Air Temperature

MORE RESTRICTIVE

None

LESS RESTRICTIVE

None

REMOVED DETAIL

LA.1 CTS 3.6.C.3 requires that containment ambient temperature be the arithmetic average of temperatures measured at no fewer than 4 locations, at least once per 24 hours. ITS SR 3.6.5.1 maintains the requirement to verify every 24 hours that containment temperature is within required limits. However, the implementation details regarding the number and location of temperature detectors and the requirement to use an arithmetic average to calculate the temperature are not included in the ITS and are relocated to the ITS SR 3.6.5.1 Bases.

This change is acceptable because the requirement to maintain containment air temperature within specified limits and the requirements for periodic verification of these limits is maintained in the Technical Specifications. The design information that a representative measurement of containment air temperature requires an arithmetic average of temperatures measured at no fewer than 4 locations can be maintained in the Bases because there is no exemption from the Technical Specification requirement that containment air temperature must be maintained within specified limits.

Additionally, the Technical Specification Bases are subject to change control in accordance with ITS 5.5.12, Bases Control Program. This approach provides an effective level of regulatory control and provides for a more appropriate change control process. This change is a less restrictive administrative change with no impact on safety.

LA.2 Not Used. See RAI 3.6.5-01 and 3.6.5-02.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.6.5:
"Containment Air Temperature"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

3.6 CONTAINMENT SYSTEMS

<CTS> 3.6.5A Containment Air Temperature ~~(Atmospheric and Dual)~~

<3.6.C.1>
<3.6.C.2> LCO 3.6.5A Containment average air temperature shall be ≤ ~~120~~ 130 °F. (>50°F) R.1

<3.6.C.2> APPLICABILITY: MODES 1, 2, 3, and 4.

<Doc A.3> ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<3.6.C.2> A. (B) Containment average air temperature not within limit. (>130°F)	A.1 (B) Restore containment average air temperature to within limit. (≤ 130°F)	8 hours
<3.6.C.2> B. (C) Required Action and associated Completion Time not met. (of Condition A or B)	B.1 (C) Be in MODE 3.	6 hours
	AND	
	B.2 (C) Be in MODE 5.	36 hours
<3.6.C.1> A Containment average air temperature ≤ 50°F	A.1 Restore containment average air temperature to >50°F	Immediately

CLB.1 R.1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
<3.6.C.3> <Doc LA1> <Doc LA2> SR 3.6.5A.1	Verify containment average air temperature is within limit. (S)	24 hours

R.1

B 3.6 CONTAINMENT SYSTEMS

B 3.6.5~~A~~ Containment Air Temperature ~~(Atmospheric and Dual)~~

BASES

BACKGROUND

The containment structure serves to contain radioactive material that may be released from the reactor core following a Design Basis Accident (DBA). The containment average air temperature is limited during normal operation to preserve the initial conditions assumed in the accident analyses for a loss of coolant accident (LOCA) or steam line break (SLB).

The containment average air temperature limit is derived from the input conditions used in the containment functional analyses and the containment structure external pressure analyses. This LCO ensures that initial conditions assumed in the analysis of containment response to a DBA are not violated during unit operations. The total amount of energy to be removed from containment by the Containment Spray and Cooling systems during post accident conditions is dependent upon the energy released to the containment due to the event, as well as the initial containment temperature and pressure. The higher the initial temperature, the more energy that must be removed, resulting in higher peak containment pressure and temperature. Exceeding containment design pressure may result in leakage greater than that assumed in the accident analysis. Operation with containment temperature in excess of the LCO limit violates an initial condition assumed in the accident analysis. S R1

APPLICABLE SAFETY ANALYSES

Containment average air temperature is an initial condition used in the DBA analyses that establishes the containment environmental qualification operating envelope for both pressure and temperature. The upper limit for containment average air temperature ensures that operation is maintained within the assumptions used in the DBA analyses for containment (Ref. 1). R1

Insert B 3.6-52-01

The limiting DBAs considered relative to containment OPERABILITY are the LOCA and SLB. The DBA LOCA and SLB are analyzed using computer codes designed to predict the resultant containment pressure transients. No two DBAs are assumed to occur simultaneously or consecutively. The

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.5 - Containment Temperature

INSERT: B 3.6-52-01

CLB.1

The lower limit is to assure that the minimum service metal temperature of the containment liner is well above the NDT + 30°F criterion for the liner material (Ref. 3).

BASES

APPLICABLE SAFETY ANALYSES (continued)

postulated DBAs are analyzed with regard to Engineered Safety Feature (ESF) systems, assuming the loss of one ESF bus, which is the worst case single active failure, resulting in one train each of the Containment Spray System, Residual Heat Removal System, and Containment Cooling System being rendered inoperable.

may be either a LOCA or a SLB.

The limiting DBA for the maximum peak containment air temperature ~~is an SLB~~. The initial containment average air temperature assumed in the design basis analyses ~~(Ref. 1) is~~, [120] °F. ~~This resulted in a~~ maximum containment air temperature ~~of [384.9] °F.~~ The design temperature ~~is~~ [320] °F.

the

and the

are specified in Reference 1.

The temperature limit is used to establish the environmental qualification operating envelope for containment. The maximum peak containment air temperature was calculated to exceed the containment design temperature for only a few seconds during the transient. The basis of the containment design temperature, however, is to ensure the performance of safety related equipment inside containment (Ref. 2). Thermal analyses showed that the time interval during which the containment air temperature exceeded the containment design temperature was short enough that the equipment surface temperatures remained below the design temperature. Therefore, it is concluded that the calculated transient containment air temperature is acceptable for the DBA ~~SLB~~.

LOCA

The temperature limit is also used in the depressurization analyses to ensure that the minimum pressure limit is maintained following an inadvertent actuation of the Containment Spray System (Ref. 1).

The containment pressure transient is sensitive to the initial air mass in containment and, therefore, to the initial containment air temperature. The limiting DBA for establishing the maximum peak containment internal pressure ~~is a LOCA~~. The temperature limit is used in this analysis to ensure that in the event of an accident the maximum containment internal pressure will not be exceeded.

upper

R1

Containment average air temperature satisfies Criterion 2 of ~~the NRC Policy Statement~~.

10 CFR 50.36

(continued)

BASES (continued)

LCO

During a DBA, with an initial containment average air temperature less than or equal to the LCO temperature upper limit, the resultant peak accident temperature is maintained below the containment design temperature. As a result, the ability of containment to perform its design function is ensured. Insert B 3.6-54-01 | R.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, maintaining containment average air temperature within the limit is not required in MODE 5 or 6. | R.

S

ACTIONS

Insert: B 3.6-54-02 | R.1

A.1 B

When containment average air temperature is not within the limit of the LCO, it must be restored to within limit within 8 hours. This Required Action is necessary to return operation to within the bounds of the containment analysis. The 8 hour Completion Time is acceptable considering the sensitivity of the analysis to variations in this parameter and provides sufficient time to correct minor problems. | R.

greater than 130°F

S

B.1 and B.2 C C | R.

If the containment average air temperature cannot be restored to within its limit within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

S

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.6.5 - Containment Temperature

INSERT: B 3.6-54-01

The lower limit for containment average air temperature is to assure that the minimum service metal temperature of the containment liner.

INSERT: B 3.6-54-02

CLB.1

A.1

When containment average air temperature is ≤ 50°F, it must be restored within limits immediately. This Required Action is necessary to ensure that a sufficient margin of safety is maintained so the NDT limit is not compromised. The Completion Time of immediately ensures that containment temperature is restored to within limits without delay.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.5~~A~~.1 R.1

Verifying that containment average air temperature is within the LCO limit ensures that containment operation remains within the limit assumed for the containment analyses. In order to determine the containment average air temperature, an arithmetic average is calculated using measurements taken at locations within the containment selected to provide a representative sample of the overall containment atmosphere. The 24 hour Frequency of this SR is considered acceptable based on observed slow rates of temperature increase within containment as a result of environmental heat sources (due to the large volume of containment). Furthermore, the 24 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal containment temperature condition.

Insert B3.6-57-01

REFERENCES

1. FSAR, Section ~~6.2~~. 14.3
2. 10 CFR 50.49.
3. FSAR, Section 5.1 R.1

NUREG-1431 Markup Inserts
ITS SECTION 3.6.5 - Containment Temperature

INSERT: B 3.6-55-01

A representative measurement of containment air temperature requires an arithmetic average of temperatures measured at no fewer than 4 locations. Environmentally and seismically qualified RTDs mounted on the crane wall above the containment fan cooler units inlet are normally used for measuring containment ambient temperature. Portable temperature sensing equipment may also be used.

Indian Point 3
Improved Technical Specifications (ITS)
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Technical Specification 3.6.5:
"Containment Air Temperature"

PART 6:

Justification of Differences between

NUREG-1431 and IP3 ITS

JUSTIFICATION OF DIFFERENCES FROM NUREG-1431
ITS SECTION 3.6.5 - Containment Air Temperature

RETENTION OF EXISTING REQUIREMENT (CURRENT LICENSING BASIS)

CLB.1 This change maintains IP3 current licensing basis relative to the lower limit for average air temperature in the vapor containment. This change is acceptable because it ensures the structural integrity of the containment liner.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT

PA.1 Corrected typographical error or made a minor editorial improvement to improve clarity and ensure requirements are fully understood and consistently applied. There are no technical changes to requirements as specified in NUREG 1431, Rev. 1; therefore, this change is not a significant or generic deviation from NUREG 1431, Rev 1.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN OR DESIGN BASIS

DB.1 Design or implementation details are incorporated or revised as necessary to more precisely describe IP3 current design or practice. These changes are intended to describe the design, improve clarity, or ensure requirements are fully understood and consistently applied. Unless identified and described blow, these changes are self-explanatory. A detailed description of the design, accident analysis assumptions, and Operability requirements are incorporated into the IP3 ITS Bases. These changes maintain the IP3 current licensing basis except as identified and justified in the CTS/ITS discussion of changes.

DIFFERENCE BASED ON A GENERIC CHANGE TRAVELER FOR NUREG-1431

None

DIFFERENCE FOR ANY REASON OTHER THAN ABOVE

None

JUSTIFICATION OF DIFFERENCES FROM NUREG-1431
ITS SECTION 3.6.5 - Containment Air Temperature

RETENTION OF EXISTING REQUIREMENT (CURRENT LICENSING BASIS)

None

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT

PA.1 Corrected typographical error or made a minor editorial improvement to improve clarity and ensure requirements are fully understood and consistently applied. There are no technical changes to requirements as specified in NUREG 1431, Rev. 1; therefore, this change is not a significant or generic deviation from NUREG 1431, Rev 1.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN OR DESIGN BASIS

DB.1 Design or implementation details are incorporated or revised as necessary to more precisely describe IP3 current design or practice. These changes are intended to describe the design, improve clarity, or ensure requirements are fully understood and consistently applied. Unless identified and described blow, these changes are self-explanatory. A detailed description of the design, accident analysis assumptions, and Operability requirements are incorporated into the IP3 ITS Bases. These changes maintain the IP3 current licensing basis except as identified and justified in the CTS/ITS discussion of changes.

DIFFERENCE BASED ON A GENERIC CHANGE TRAVELER FOR NUREG-1431

None

DIFFERENCE FOR ANY REASON OTHER THAN ABOVE

None