JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.6

Reactor Building-to-Suppression Chamber Vacuum Breakers

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

DISCUSSION OF CHANGES (DOCs) TO THE CTS

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

MARKUP OF NUREG-1433, REVISION 1, SPECIFICATION

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1

MARKUP OF NUREG-1433, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1, BASES

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

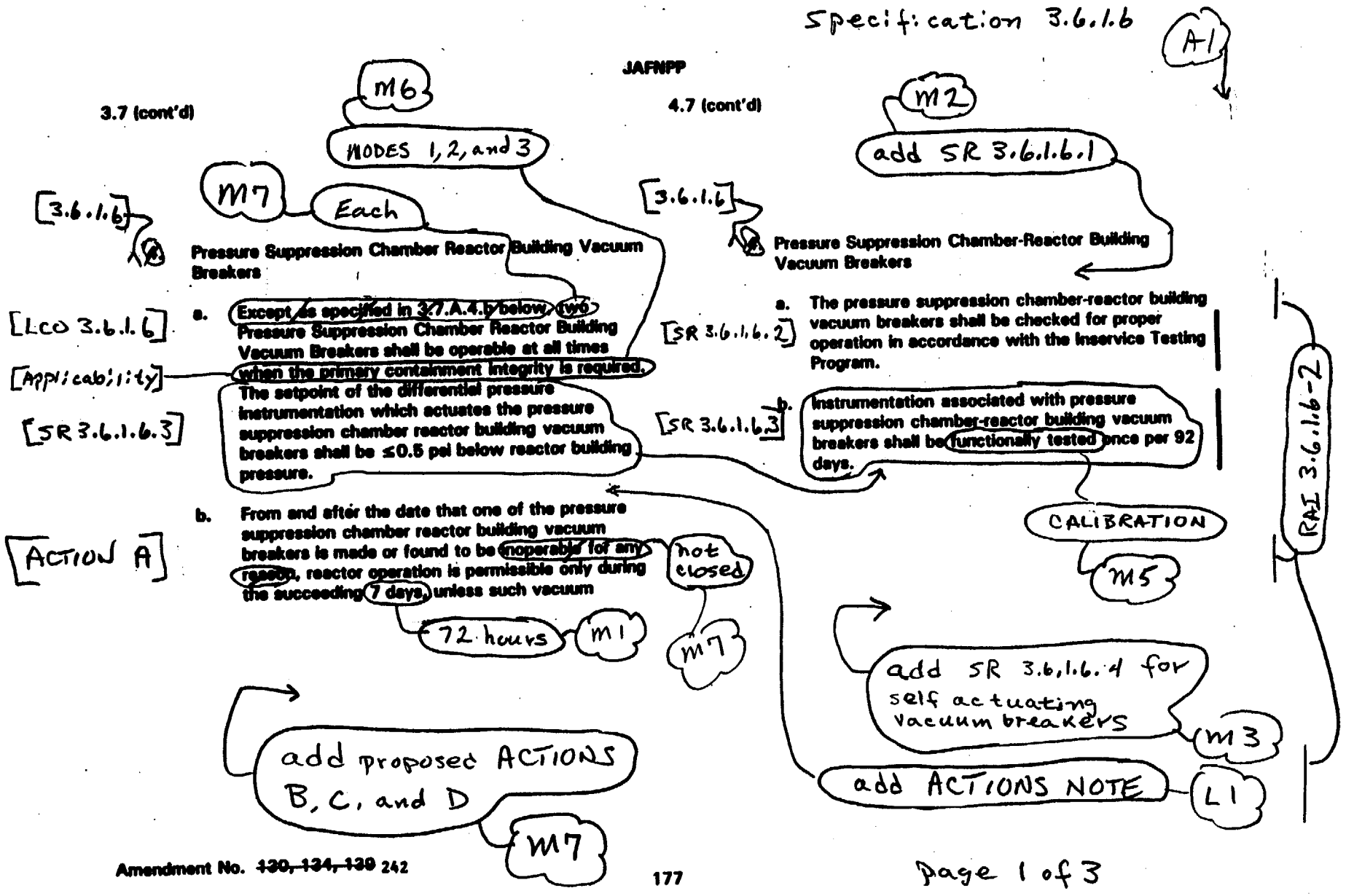
JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.6

Reactor Building-to-Suppression Chamber Vacuum Breakers

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)


Specification 3.6.1.6
A1
JAFNPP
3.7 (cont'd)
4.7 (cont'd)
M6
MODES 1, 2, and 3
M7
Each
M2
add SR 3.6.1.6.1
[3.6.1.6]
[3.6.1.6]
A
Pressure Suppression Chamber Reactor Building Vacuum Breakers
A
Pressure Suppression Chamber-Reactor Building Vacuum Breakers
[LCO 3.6.1.6]
[Applicability]
[SR 3.6.1.6.3]
a. Except as specified in 3.7.A.4.b below, two Pressure Suppression Chamber Reactor Building Vacuum Breakers shall be operable at all times when the primary containment integrity is required. The setpoint of the differential pressure instrumentation which actuates the pressure suppression chamber reactor building vacuum breakers shall be ≤0.5 psi below reactor building pressure.
[SR 3.6.1.6.2]
a. The pressure suppression chamber-reactor building vacuum breakers shall be checked for proper operation in accordance with the Inservice Testing Program.
[SR 3.6.1.6.3]
b. Instrumentation associated with pressure suppression chamber-reactor building vacuum breakers shall be functionally tested once per 92 days.
CALIBRATION
M5
RAI 3.6.1.6-2
[ACTION A]
b. From and after the date that one of the pressure suppression chamber reactor building vacuum breakers is made or found to be inoperable for any reason, reactor operation is permissible only during the succeeding 7 days, unless such vacuum
not closed
72 hours
M1
M7
add proposed ACTIONS B, C, and D
M7
add SR 3.6.1.6.4 for self actuating vacuum breakers
M3
add ACTIONS NOTE
L1
Amendment No. 130, 134, 139 242
177
Page 1 of 3
REVISION E

Specification 3.6.1.6

A1

RAI 3.6.1.6-2

3.7 (cont'd)

4.7 (cont'd)

[ACTION A] breaker is sooner made operable, provided that the repair procedure does not violate primary containment integrity.

See ITS: 3.6.1.7

5. Pressure Suppression Chamber - Drywell Vacuum Breakers	5. Pressure Suppression Chamber - Drywell Vacuum Breakers
a. When primary containment integrity is required, all drywell suppression chamber vacuum breakers shall be operable and positioned in the fully closed position except during testing and as specified in 3.7.A.5.b below.	a. Each drywell suppression chamber vacuum breaker shall be exercised through an opening - closing cycle monthly.
b. One drywell suppression chamber vacuum breaker may be non-fully closed so long as it is determined to be not more than 1° open as indicated by the position lights.	b. When it is determined that one vacuum breaker is inoperable for fully closing when operability is required, the operable breakers shall be exercised immediately, and every 15 days thereafter until the inoperable valve has been returned to normal service.
c. One drywell suppression chamber vacuum breaker may be determined to be inoperable for opening.	c. Each vacuum breaker valve shall be visually inspected to insure proper maintenance and operation in accordance with the Inservice Testing Program.
d. Deleted	d. A leak test of the drywell to suppression chamber structure shall be conducted once per 24 months; the acceptable leak rate is ≤0.25 in. water/min. over a 10 min period, with the drywell at 1 psid.

See ITS: 3.6.1.1

Page 2 of 3

Revision E

Specification 3.6.1.6

A1

3.7 (Cont'd)

4.7 (Cont'd)

(1) The drywell to torus differential pressure shall be established within 24 hours of exceeding 15% rated thermal power during startup. The differential pressure may be reduced to less than the limit up to 24 hours prior to reducing thermal power to less than 15% of rated before a plant shutdown.

(2) The differential pressure may be decreased to less than 1.7 psid for a maximum of four (4) hours during required operability testing of the HPCI, RCIC, and Suppression Chamber - Drywell Vacuum Breaker System.

(3) If 3.7.A.7.a above cannot be met, restore the differential pressure to within limits within eight hours or reduce thermal power to less than 15% of rated within the next 12 hours.

see ITS: 3.6.2.4

ACTION E

8. If the specifications of 3.7.A.1 through 3.7.A.5 cannot be met the reactor shall be in the cold condition within ~~24~~ 36 hours.

8. Not applicable.

L2

'MODE 3 in 12 hours

M4

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.6

Reactor Building-to-Suppression Chamber Vacuum Breakers

DISCUSSION OF CHANGES (DOCs) TO THE CTS

DISCUSSION OF CHANGES
ITS: 3.6.1.6 - REACTOR BUILDING-TO-SUPPRESSION CHAMBER VACUUM BREAKERS

ADMINISTRATIVE CHANGES

A1 In the conversion of the James A. FitzPatrick Nuclear Power Plant (JAFNPP) Current Technical Specifications (CTS) to the proposed plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted that do not result in technical changes. Editorial changes, reformatting, and revised numbering are adopted to make the ITS consistent with the conventions in NUREG-1433, "Standard Technical Specifications, General Electric Plants, BWR/4", Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)).

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 CTS 3.7.A.4.b allows 7 days to restore an inoperable reactor building-to-suppression chamber vacuum breaker provided primary containment integrity is maintained. ITS 3.6.1.6, ACTIONS A and C, stipulate restoration within 72 hours of the affected vacuum breaker valves in the reactor building-to-suppression chamber line(s) provided at least one valve in each line is closed and as long as one line is Operable for the opening function, respectively. This represents an additional restriction on plant operation and constitutes a more restrictive change necessary to ensure timely action is taken to restore the capability to withstand a single failure in the reactor building-to-suppression chamber vacuum breaker relief system.

M2 SR 3.6.1.6.1 is proposed to be added to CTS 4.7.A.4 to verify that the reactor building-to-suppression chamber vacuum breakers are closed. This SR serves to provide verification that a potential breach in the primary containment boundary is not present. The addition of new Surveillance Requirements constitutes a more restrictive change but intended to ensure safe operation.

RAI 3.6.1.6-1

M3 SR 3.6.1.6.4 is proposed to be added to CTS 4.7.A.4 to verify that the reactor building-to-suppression chamber self actuating vacuum breakers (27VB-6 and 27VB-7) are capable of full opening at a differential pressure of < 0.5 psid which will ensure the safety analysis assumptions are met. Since there is no explicit requirement for the self actuating vacuum breakers, this change is considered more restrictive but safer on plant operations since it will convey the proper functioning status of each vacuum breaker.

TECHNICAL CHANGES - MORE RESTRICTIVE

M4 CTS 3.7.A.8 requires the reactor to be in the cold condition within 24 hours if the Required Actions and Completion Time of CTS 3.7.A.4.b cannot be met or if two pressure reactor building-to-suppression chamber vacuum breakers are inoperable (CTS 3.7.A.4). Changes have been made to the current action requirements, however these changes are addressed in L1 and M1. ITS 3.6.1.6 Required Action E.1 places the plant in MODE 3 in 12 hours if the Required Action and Associated Completion Times are not met. In addition, Required Action E.2 places the plant in MODE 4 in 36 hours (see L2). This change is more restrictive because it provides an additional requirement to place the plant in MODE 3 in 12 hours. The allowed Completion Times in Required Action E.1 and E.2 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. However, the 12 hour Completion Time ensures timely action is taken to place the plant in a shutdown condition (MODE 3). The consequences of any design bases event is significantly reduced when plant is shutdown. This change is consistent with NUREG-1433, Revision 1.

M5 CTS 4.7.A.4.b requires a functional test of the instrumentation associated with the suppression chamber-reactor building vacuum breakers every 92 days. In addition, CTS 3.7.A.4.a requires the setpoint to be at $\leq$ 0.5 psi. ITS SR 3.6.1.6.3 requires a CALIBRATION (instead of a function test) of each air operated vacuum breaker differential pressure instrument channel and to verify the setpoint is $\leq$ 0.5 psid. This change is more restrictive since it will require a complete check of each instrument loop and the sensor, however the Frequency is consistent with the calibration interval assumed in the setpoint analysis.

M6 CTS 3.7.A.4.a requires the pressure suppression chamber reactor building vacuum breakers to be Operable at all times when the primary containment integrity is required. The CTS Applicability of the primary containment in CTS 3.7.A.2 is whenever the reactor is critical or when the reactor water temperature is above 212°F and fuel is in the reactor vessel. In addition, there is an exception in CTS 3.7.A.2, to not require primary containment integrity to be met during low power physics tests at atmospheric pressure and power levels not to exceed 5 MWt, however any change to this requirement is discussed in the Discussion of Changes for ITS 3.10.8. The scope of the current Applicability covers MODE 1, 3 and portions of MODE 2 operations. The Applicability in ITS 3.6.1.6 is MODES 1, 2 and 3. This change is considered more restrictive since the reactor building-to-suppression chamber vacuum breakers will be required

M6 (continued)

to be Operable at all times in MODE 2 even prior to any plant startup when reactor coolant temperature may be below 212°F. This change is consistent with NUREG-1433, Revision 1.

M7 CTS 3.7.A.4.a identifies that two reactor building-to-suppression chamber vacuum breakers shall be OPERABLE. ITS 3.6.1.6 LCO requires each of the two vacuum breakers (the self actuated valve and the air operated valve) in each of the two vacuum relief lines shall be OPERABLE. CTS 3.7.A.4.b identifies the Required Actions if one reactor building-to-suppression chamber vacuum breaker is inoperable (without specifying whether the vacuum relief or the containment isolation function of the valve is inoperable). CTS 3.7.A.4.b has been modified to specifically address inoperability of the containment isolation function of one vacuum breaker valve. If more than one vacuum breaker is inoperable (or the actions and associated completion times are not met), the default action of CTS 3.7.A.8 must be entered which requires the reactor be placed in the cold condition within the following 24 hours.

CTS 3.7.A.4 has been modified by providing additional more restrictive actions that specifically address the inoperability of containment isolation functions and vacuum relief of the vacuum breaker valves in each of the vacuum relief lines. Proposed ITS 3.6.1.6, ACTION A, addresses inoperability of the containment isolation function of one of the vacuum breaker valves in a line (while the other valve in the same line maintains containment isolation capability) and 72 hours is allowed to correct the Condition (consistent with ITS 3.6.1.3, ACTION C). Proposed ITS 3.6.1.6, ACTION B, addresses inoperability of the containment isolation function of two (both) vacuum breakers in a line (and consistent with ITS 3.6.1.3, ACTION B, 1 hour is allowed to correct the loss of containment capability). Proposed ITS 3.6.1.6, ACTION C, addresses the inoperability of the vacuum relief function of one vacuum relief line due to one or more vacuum breaker valves in the line not being capable of opening (while the vacuum relief function is maintained by the vacuum relief valves in the other line) and 72 hours is allowed to correct the Condition. Proposed ITS 3.6.1.6, ACTION D, addresses loss of the vacuum relief function of two (both) vacuum relief lines and 1 hour is allowed to correct the Condition. The proposed changes are consistent with NUREG-1433, Revision 1.

RAI 3.6.1.6-2

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

None

DISCUSSION OF CHANGES
ITS: 3.6.1.6 - REACTOR BUILDING-TO-SUPPRESSION CHAMBER VACUUM BREAKERS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

RAI 3.6.1.6-2

L1 CTS 3.7.A.4 has been modified by addition of a Note to the ACTIONS Table which allows separate Condition entry for each reason for Condition entry and for each vacuum relief line. This Note provides explicit instructions for proper application of the ACTIONS for Technical Specification compliance. Separate Condition entry for each reason for the Condition entry and for each vacuum relief line allow the ACTIONS to be applied consistent with the reasons for Condition entry. That is, the specific Condition applicable for each cause of vacuum breaker inoperability (such as the valve not being closed or not being capable of being opened) is allowed to be addressed separately and concurrently for each vacuum relief line. The addition of the Note, in conjunction with addressing "...one or more lines..." in the Condition statements avoids the need to provide a second series of Conditions that address inoperability of the vacuum relief or containment isolation function in both vacuum relief lines in addition to Conditions that address inoperability in only one line. Allowing separate Condition entry for each line is consistent with Specification 3.6.1.3, Primary Containment Isolation Valves (PCIVs), with regard to allowing separate Condition entry for each penetration and is consistent with NUREG-1433, Revision 1.

L2 CTS 3.7.A.8 requires the reactor to be in the cold condition within 24 hours if the Required Actions and Completion Time of CTS 3.7.A.4.b cannot be met or if two reactor building-to-suppression chamber vacuum breakers are inoperable (CTS 3.7.A.4). Changes have been made to the current action requirements, however these changes are addressed in L1 and M1. ITS 3.6.1.6 Required Action E.2 places the plant in MODE 4 (cold shutdown) in 36 hours if the Required Action and Associated Completion Times are not met. However, ITS 3.6.1.6 Required Action E.1 requires the plant to be in MODE 3 in 12 hours (M4). This change is less restrictive because it extends the time for the plant to be in MODE 4 from 24 hours to 36 hours. The allowed Completion Times in Required Actions E.1 and E.2 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. The consequences of an accident are not significantly increased because ITS 3.6.1.6, Required Action E.1 will require the plant be placed in MODE 3 within 12

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 (continued)

hours once the determination is made that the requirements associated with inoperable reactor building-to-suppression chamber vacuum breakers cannot be satisfied. This change reduces the time the reactor would be allowed to continue to operate once the condition is identified. The consequences of a LOCA are significantly mitigated when the reactor is shutdown and a controlled cooldown is already in progress. This change is consistent with NUREG-1433, Revision 1.

TECHNICAL CHANGES - RELOCATIONS

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.6

Reactor Building-to-Suppression Chamber Vacuum Breakers

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.6 - REACTOR BUILDING-TO-SUPPRESSION CHAMBER VACUUM BREAKERS

RAI 3.6.1.6-2

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion 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 3.6.1.6, ACTIONS Note, is proposed to be added. The Note allows separate Condition entry for each reactor building-to-suppression chamber vacuum relief line. The change does not involve a significant increase the probability of an accident previously evaluated because allowing separate Condition entry for each line does not increase the probability of vacuum relief valve (vacuum breaker) inoperability for either the vacuum relief or containment isolation function and vacuum breaker inoperability is not assumed to be the initiator of any accident previously evaluated. Allowing separate Condition entry for each line does not increase the consequences of an accident previously evaluated because the time period that the vacuum relief or containment isolation function of the vacuum breaker valves being inoperable is not increased. Therefore, the change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

   The proposed change does not involve any physical alteration of plant systems, structures or components, changes in parameters governing normal plant operation, or methods of operation. The inoperability of the vacuum relief or containment isolation function of the vacuum breaker valves in the lines or the separate Condition entry to address inoperability of one or more lines is not assumed to be the initiator of any accident previously evaluated. Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

RAI 3.6.1.6-2

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE (continued)

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

The proposed change does not involve any physical alteration of plant systems, structures or components, changes in parameters governing normal plant operation, or methods of operation. The change allows separate Condition entry for each vacuum relief line (vacuum breaker) inoperability. As such, the change also allows the concurrent (or overlapping) inoperability of both vacuum relief lines to be addressed concurrently and thus potentially reduces the time period during which one or more lines is inoperable by allowing concurrent Required Actions (corrective actions) to be taken. In addition, this change provides the benefit of a reduced potential for a plant event that could challenge safety systems by allowing separate Condition entry for each line (which would be necessary in the event of conditions resulting in more than one line being inoperable at the same time) by reducing the potential for a required shutdown of the plant under ITS 3.0.3 due to none of the Conditions in ITS 3.6.1.6 being applicable. Therefore, this change does not involve a significant reduction in a margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.6 - REACTOR BUILDING-TO-SUPPRESSION CHAMBER VACUUM BREAKERS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion 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?

   The proposed change does not increase the probability of an accident because the change extends the time allowed for the plant to get to Cold Shutdown from 24 hours to 36 hours when the Required Actions or Completion Times associated with an inoperable vacuum breaker(s) cannot be satisfied or if two reactor building-to-suppression chamber vacuum breakers are inoperable. Shutdown Completion Times are not assumed in the initiation of any analyzed event. The change will not allow continuous operation with excessive numbers of inoperable vacuum breakers. The consequences of an accident are not increased because ITS 3.6.1.6, Required Action E.1 will require that the plant be placed in MODE 3 within 12 hours once the determination is made that the Required Actions or Completion Time associated with an inoperable vacuum breaker(s) cannot be satisfied. This change reduces the time the reactor would be allowed to continue to operate once the condition is identified. The consequences of a LOCA are significantly mitigated when the reactor is shutdown and a controlled cooldown is already in progress. In addition, the consequences of an event occurring during the proposed shutdown Completion Time are the same as the consequences of an event occurring during the existing shutdown Completion Time. Therefore, the change does not involve a significant increase in the probability or consequences of an event previously evaluated.

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 plant systems, structures, or components (SSC), or the manner in which these SSC are operated, maintained, modified, tested, or inspected. The change increases the time allowed for the plant to get to Cold Shutdown from 24 hours to 36 hours. Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.6 - REACTOR BUILDING-TO-SUPPRESSION CHAMBER VACUUM BREAKERS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

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

The change extends the time allowed for the plant to get to Cold Shutdown from 24 hours to 36 hours when the Required Actions or Completion Times associated with an inoperable vacuum breaker(s) cannot be satisfied or if two reactor building-to-suppression chamber vacuum breakers are inoperable. There is no reduction in the margin of safety because ITS 3.6.1.6, Required Action E.1 will require that the plant be placed in MODE 3 within 12 hours once the determination is made that the Required Actions or Completion Times associated with an inoperable vacuum breaker(s) cannot be satisfied. This concurrent change reduces the time the reactor would be allowed to continue to operate once the condition is identified. The consequences of a LOCA are significantly mitigated when the reactor is shutdown and a controlled cooldown is already in progress. In addition, this change provides the benefit of a reduced potential for a plant event that could challenge safety systems by providing additional time to reduce pressure in a controlled and orderly manner. Therefore, this change does not involve a significant reduction in a margin of safety.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.6

Reactor Building-to-Suppression Chamber Vacuum Breakers

MARKUP OF NUREG-1433, REVISION 1
SPECIFICATION

PAI (6)

3.6 CONTAINMENT SYSTEMS

[3.7.A.4] 3.6.1.6 Reactor Building-to-Suppression Chamber Vacuum Breakers

(6) ← PAI

[3.7.A.4.a] [M7] LCO 3.6.1.6 Each reactor building-to-suppression chamber vacuum breaker shall be OPERABLE.

RAI-3.6.16-2

[3.7.A.4.a] APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

[L1] NOTE
Separate Condition entry is allowed for each line.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more lines with one reactor building-to-suppression chamber vacuum breaker not closed. [CTS 3.7.A.4b] [M1] [M7]	A.1 Close the open vacuum breaker.	72 hours
B. One or more lines with two reactor building-to-suppression chamber vacuum breakers not closed. [M7]	B.1 Close one open vacuum breaker.	1 hour
C. One line with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening. [M7]	C.1 Restore the vacuum breaker(s) to OPERABLE status.	72 hours

RAI-3.6.16-2

RAI-3.6.16-2

(continued)

Revision E

PAI (6)

ACTIONS (continued)

CONDITION (DB1)	REQUIRED ACTION	COMPLETION TIME
D. Two [or more] lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening. [M7]	D.1 Restore all vacuum breakers in [one] line to OPERABLE status. (DB2)	1 hour
E. Required Action and Associated Completion Time not met. [CTS 3.7.A.B] [L2] [M4]	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	12 hours 36 hours

RAI 3.6.1.6-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1 [M2] (6) PAI	NOTES 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. Not required to be met for vacuum breakers open when performing their intended function.	
	Verify each vacuum breaker is closed.	14 days (LL1)
SR 3.6.1.6.2 [4.7.A.4.a] 1 PAI (6)	Perform a functional test of each vacuum breaker.	[92] days In accordance with the Inservice Testing Program

(continued)

Revision E

PA1

6

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.6.1.7.3 Verify the opening setpoint of each vacuum breaker is ≤ 0.5 psid.	18 months

[M3]

6 PA1 full DB3

4 CLB2

self actuating CLB2

DB2

24 X1

SR 3.6.1.6.3 Perform a CHANNEL CALIBRATION of each air operated vacuum breaker differential pressure instrument channel and verify the setpoint is ≤ 0.5 psid. 92 days

[3.7.A.4.b]
[3.7.A.4.b]
[M5]

CLB2

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.6

Reactor Building-to-Suppression Chamber Vacuum Breakers

JUSTIFICATION FOR DIFFERENCES (JFDs)
FROM NUREG-1433, REVISION 1

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.6.1.6 - REACTOR BUILDING-TO-SUPPRESSION CHAMBER
VACUUM BREAKERS

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 The brackets have been removed and the Frequency of ISTS 3.6.1.7.2 (ITS 3.6.1.6.2) has been changed to "In accordance with the Inservice Testing Program," consistent with the current licensing basis in CTS 4.7.A.4.a.

CLB2 ITS SR 3.6.1.6.3 has been added to help ensure the OPERABILITY of the differential pressure instrumentation channels. This requirement is consistent with CTS 3.7.A.4.a and 4.7.A.4.b. Subsequent Surveillances have been renumbered as necessary. In addition, ISTS SR 3.6.1.7.3 (ITS SR 3.6.1.6.4) has been modified so that it will only be applicable to the self actuating vacuum breakers since ITS SR 3.6.1.6.1, SR 3.6.1.6.2 and SR 3.6.1.6.3 will ensure the air-operated vacuum breakers function properly.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 JAFNPP will not adopt ISTS 3.6.1.6. As a result, ISTS 3.6.1.7 has been renumbered.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 The brackets have been removed and the words "or more" deleted since the plant specific design only includes two lines.

DB2 The brackets have been removed and the proper plant specific value has been provided.

DB3 The wording of ISTS SR 3.6.1.7.3 (ITS 3.6.1.6.4) has been changed since the vacuum breakers are required to be full open at 0.5 psid.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.6.1.6 - REACTOR BUILDING-TO-SUPPRESSION CHAMBER
VACUUM BREAKERS

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 The brackets have been removed on the ISTS SR 3.6.1.7.3 (ITS SR 3.6.1.6.4) Frequency of 18 months and the Frequency has been changed to 24 months. These valves are similar in design to the Suppression Chamber-to-Drywell Vacuum breakers which are currently tested on a 24 month basis in accordance with CTS 4.7.A.5.g. JAFNPP has determined that this 24 month Frequency is also adequate for the Reactor Building-to-Suppression Chamber Vacuum breakers.

RAI 3.6.1.6-1

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.6

Reactor Building-to-Suppression Chamber Vacuum Breakers

MARKUP OF NUREG-1433, REVISION 1, BASES

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.6 Reactor Building-to-Suppression Chamber Vacuum Breakers

BASES

BACKGROUND The function of the reactor building-to-suppression chamber vacuum breakers is to relieve vacuum when primary containment depressurizes below reactor building pressure. If the drywell depressurizes below reactor building pressure, the negative differential pressure is mitigated by flow through the reactor building-to-suppression chamber vacuum breakers and through the suppression-chamber-to-drywell vacuum breakers. The design of the external (reactor building-to-suppression chamber) vacuum relief provisions consists of four vacuum breakers (two vacuum breakers and an air operated butterfly valve), located in series in each of two lines from the reactor building to the suppression chamber airspace. The butterfly valve is actuated by differential pressure. The vacuum breaker is self actuating and can be remotely operated for testing purposes. The two vacuum breakers in series must be closed to maintain a leak tight primary containment boundary.

A negative differential pressure across the drywell wall is caused by rapid depressurization of the drywell. Events that cause this rapid depressurization are cooling cycles, inadvertent primary containment spray actuation, and steam condensation in the event of a primary system rupture. Reactor building-to-suppression chamber vacuum breakers prevent an excessive negative differential pressure across the primary containment boundary. Cooling cycles result in minor pressure transients in the drywell, which occur slowly and are normally controlled by heating and ventilation equipment. Inadvertent spray actuation results in a more significant pressure transient and becomes important in sizing the external (reactor building-to-suppression chamber) vacuum breakers.

The external vacuum breakers are sized on the basis of the air flow from the secondary containment that is required to mitigate the depressurization transient and limit the maximum negative containment (drywell and suppression chamber) pressure to within design limits. The maximum depressurization rate is a function of the primary containment spray flow rate and temperature and the assumed initial conditions of the primary containment atmosphere.

(continued)

BASES

BACKGROUND (continued)

Low spray temperatures and atmospheric conditions that yield the minimum amount of contained noncondensible gases are assumed for conservatism.

APPLICABLE SAFETY ANALYSES

Analytical methods and assumptions involving the reactor building-to-suppression chamber vacuum breakers are presented in Reference 1 as part of the accident response of the containment systems. Internal (suppression chamber-to-drywell) and external (reactor building-to-suppression chamber) vacuum breakers are provided as part of the primary containment to limit the negative differential pressure across the drywell and suppression chamber walls, which form part of the primary containment boundary.

The safety analyses assume the external vacuum breakers to be closed initially and to be fully open at [0.5] psid (Ref. 1). Additionally, one of the two reactor building-to-suppression chamber vacuum breakers is assumed to fail in a closed position, to satisfy the single active failure criterion. Design Basis Accident (DBA) analyses require the vacuum breakers to be closed initially and to remain closed and leak tight with positive primary containment pressure.

Five cases were considered in the safety analyses to determine the adequacy of the external vacuum breakers:

a. A small break loss of coolant accident followed by actuation of both primary containment spray loops;

b. Inadvertent actuation of one primary containment spray loop during normal operation;

c. Inadvertent actuation of both primary containment spray loops during normal operation;

d. A postulated DBA assuming Emergency Core Cooling Systems (ECCS) runout flow with a condensation effectiveness of 50%; and

e. A postulated DBA assuming ECCS runout flow with a condensation effectiveness of 100%.

The results of these five cases show that the external vacuum breakers, with an opening setpoint of [0.5] psid, are not required to mitigate the consequences of any DBA since the maximum resulting negative differential pressure is 1.92 psid (case a) which is below the design differential pressure limit of 2 psid.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

capable of maintaining the differential pressure within design limits.

The reactor building-to-suppression chamber vacuum breakers satisfy Criterion 3 of the NRC Policy Statement.

10 CFR 50.36(c)(2)(ii) (Ref. 2)

LCO

All reactor building-to-suppression chamber vacuum breakers are required to be OPERABLE to satisfy the assumptions used in the safety analyses. The requirement ensures that the two vacuum breakers (vacuum breaker and air operated butterfly valve) in each of the two lines from the reactor building to the suppression chamber airspace are closed (except during testing or when performing their intended function). Also, the requirement ensures both vacuum breakers in each line will open to relieve a negative pressure in the suppression chamber.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause pressurization of primary containment. In MODES 1, 2, and 3, the Suppression Pool Spray System is required to be OPERABLE to mitigate the effects of a DBA. Excessive negative pressure inside primary containment could occur due to inadvertent initiation of this system. Therefore, the vacuum breakers are required to be OPERABLE in MODES 1, 2, and 3, when the Suppression Pool Spray System is required to be OPERABLE, to mitigate the effects of inadvertent actuation of the Suppression Pool Spray System.

Also, in MODES 1, 2, and 3, a DBA could result in excessive negative differential pressure across the drywell wall caused by the rapid depressurization of the drywell. The event that results in the limiting rapid depressurization of the drywell is the primary system rupture, which purges the drywell of air and fills the drywell free airspace with steam. Subsequent condensation of the steam would result in depressurization of the drywell. The limiting pressure and temperature of the primary system prior to a DBA occur in MODES 1, 2, and 3.

In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining reactor

(continued)

DBI

Insert ASA

However, to ensure the resulting negative pressure is minimized, the reactor building-to-suppression chamber vacuum breakers are included in the design and set to ensure the valves are full open at ≤ 0.5 psid.

BASES

APPLICABILITY (continued) building-to-suppression chamber vacuum breakers OPERABLE is not required in MODE 4 or 5.

ACTIONS A Note has been added to provide clarification that, for the purpose of this LCO, separate Condition entry is allowed for each penetration flow path.

A.1

With one or more vacuum breakers not closed, the leak tight primary containment boundary may be threatened. Therefore, the inoperable vacuum breakers must be restored to OPERABLE status or the open vacuum breaker closed within 72 hours. The 72 hour Completion Time is consistent with requirements for inoperable suppression-chamber-to-drywell vacuum breakers in LCO 3.6.1.6, "Suppression-Chamber-to-Drywell Vacuum Breakers." The 72 hour Completion Time takes into account the redundancy capability afforded by the remaining breakers, the fact that the OPERABLE breaker in each of the lines is closed, and the low probability of an event occurring that would require the vacuum breakers to be OPERABLE during this period.

B.1

With one or more lines with two vacuum breakers not closed, primary containment integrity is not maintained. Therefore, one open vacuum breaker must be closed within 1 hour. This Completion Time is consistent with the ACTIONS of LCO 3.6.1.1, "Primary Containment," which requires that primary containment be restored to OPERABLE status within 1 hour.

C.1

With one line with one or more vacuum breakers inoperable for opening, the leak tight primary containment boundary is intact. The ability to mitigate an event that causes a containment depressurization is threatened, however, if both vacuum breakers in at least one vacuum breaker penetration are not OPERABLE. Therefore, the inoperable vacuum breaker

(continued)

BASES

ACTIONS

C.1 (continued)

must be restored to OPERABLE status within 72 hours. This is consistent with the Completion Time for Condition A and the fact that the leak tight primary containment boundary is being maintained.

D.1

With two [or more] lines with one or more vacuum breakers inoperable for opening, the primary containment boundary is intact. However, in the event of a containment depressurization, the function of the vacuum breakers is lost. Therefore, all vacuum breakers in [one] line must be restored to OPERABLE status within 1 hour. This Completion Time is consistent with the ACTIONS of LCO 3.6.1.1, which requires that primary containment be restored to OPERABLE status within 1 hour.

E.1 and E.2

If all the vacuum breakers in [one] line cannot be closed or 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 12 hours and to MODE 4 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.~~6~~.1

Each vacuum breaker is verified to be closed to ensure that a potential breach in the primary containment boundary is not present. This Surveillance is performed by observing local or ~~control room~~ indications of vacuum breaker position or by verifying a differential pressure of [0.5] psid is maintained between the reactor building and suppression chamber. The 14 day Frequency is based on engineering

Position indicators of the air operated vacuum breakers are available in the control and relay rooms while position indicators of the self actuating vacuum breakers are only available in the relay room.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.[illegible].1 (continued)

judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Two Notes are added to this SR. The first Note allows reactor-to-suppression chamber vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers. The second Note is included to clarify that vacuum breakers open due to an actual differential pressure are not considered as failing this SR.

SR 3.6.1.[illegible].2

Each vacuum breaker must be cycled to ensure that it opens properly to perform its design function and returns to its fully closed position. This ensures that the safety analysis assumptions are valid. The [92] day Frequency of this SR was developed based upon Inservice Testing Program requirements to perform valve testing at least once every [92] days.

SR 3.6.1.[illegible].3

Demonstration of vacuum breaker opening setpoint is necessary to ensure that the safety analysis assumption regarding vacuum breaker full open differential pressure of ≤ [0.5] psid is valid. 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. For this unit, the [18] month Frequency has been shown to be acceptable, based on operating experience, and is further justified because other Surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.

REFERENCES 1. FSAR, Section [6.2].

Insert SR 3.6.1.6.3 CLB2

SR 3.6.1.6.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verfies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent withthe plant specific setpoint methodology.

The Frequency of SR 3.6.1.6.3 is based on the assumptiom of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

Insert SR 3.6.1.6.4 DB5

While this Surveillance can be performed with the reactor at power, operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency, which is based on the operating cycle.

Insert Ref DB6

1. Design Basis Document-016A, Section 5.2.10, Maximum Design Negative Pressure for Containment.
2. 10 CFR 50.36 (c)(2)(ii). X1

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.6

Reactor Building-to-Suppression Chamber Vacuum Breakers

JUSTIFICATION FOR DIFFERENCES (JFDs)
FROM NUREG-1433, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.6.1.6 - REACTOR BUILDING-TO-SUPPRESSION CHAMBER
VACUUM BREAKERS

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 The brackets have been removed and the Frequency changed to "In accordance with the Inservice Testing Program," consistent with the current licensing basis (CTS 4.7.A.4.a).

CLB2 ITS SR 3.6.1.6.3 has been added to help ensure the OPERABILITY of the differential pressure instrumentation channels. This requirement is consistent with CTS 3.7.A.4.a and 4.7.A.4.b (and as modified by M5). The Bases for this SR has been added and subsequent Surveillances have been renumbered as necessary. In addition, the Bases for ISTS SR 3.6.1.7.3 (ITS SR 3.6.1.6.4) has been modified so that it will only be applicable to the self actuating vacuum breakers since ITS SR 3.6.1.6.1, SR 3.6.1.6.2 and SR 3.6.1.6.3 will ensure the air-operated vacuum breakers function properly.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 JAFNPP will not adopt ISTS 3.6.1.6. As a result, the ISTS 3.6.1.7 has been renumbered.

PA2 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific nomenclature.

PA3 Editorial change made for enhanced clarity or to be consistent with similar statements in other places in the Bases.

PA4 Changes have been made to match the Specifications.

PA5 Typographical/grammatical error corrected.

PA6 The correct LCO number has been included.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific design or analysis description.

DB2 The brackets have been removed and the proper plant specific value has been provided.

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.6.1.6 - REACTOR BUILDING-TO-SUPPRESSION CHAMBER
VACUUM BREAKERS

RAI 3.6.1.6-3

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB3 Inadvertent actuation of the Suppression Pool Spray System is not the main concern for depressurizing the drywell; a small break LOCA inside the drywell followed by actuation of one RHR Containment Spray (drywell spray) loop is the main concern. Therefore, the Applicability Bases discussion of ISTS 3.6.1.7 (ITS 3.6.1.6) has been reworded to place the emphasis on the proper reason.

DB4 The brackets have been removed and the value "or more" deleted since the plant specific design only includes two lines.

DB5 The Bases for the Frequency of ISTS SR 3.6.1.7.3 (ITS SR 3.6.1.6.4) has been changed to reflect the plant specific justification.

DB6 The brackets have been removed and the plant specific reference has been incorporated.

DB7 The Bases description of ITS SR 3.6.1.6.1 has been revised to delete the option to verify a specified differential pressure is being maintained between the reactor building and suppression chamber. This option is not a valid alternative to verify both vacuum breakers are closed in each pathway. The appropriate methods have been added.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 NUREG-1433, Revision 1, Bases references to "the NRC Policy Statement" has been replaced with 10 CFR 50.36(c)(2)(ii), in accordance with 60 FR 36953 effective August 18, 1995.

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.6.1.6 - REACTOR BUILDING-TO-SUPPRESSION CHAMBER
VACUUM BREAKERS

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X2 The brackets have been removed on the ISTS SR 3.6.1.7.3 (ITS SR 3.6.1.6.4) Frequency of 18 months and the Frequency has been changed to 24 months. These valves are similar in design to the Suppression Chamber-to-Drywell Vacuum breakers which are currently tested on a 24 month basis in accordance with CTS 4.7.A.5.g. JAFNPP has determined that this 24 month Frequency is also adequate for the Reactor Building-to-Suppression Chamber Vacuum breakers.Not used.

RAI 3.6.1.6-1

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.6

Reactor Building-to-Suppression Chamber Vacuum Breakers

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

3.6 CONTAINMENT SYSTEMS

3.6.1.6 Reactor Building-to-Suppression Chamber Vacuum Breakers

LCO 3.6.1.6 Each reactor building-to-suppression chamber vacuum breaker shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each line.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more lines with one reactor building-to-suppression chamber vacuum breaker not closed.	A.1 Close the open vacuum breaker.	72 hours
B. One or more lines with two reactor building-to-suppression chamber vacuum breakers not closed.	B.1 Close one open vacuum breaker.	1 hour
C. One line with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	C.1 Restore the vacuum breaker(s) to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	D.1 Restore all vacuum breakers in one line to OPERABLE status.	1 hour
E. Required Action and Associated Completion Time not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	----------NOTES---------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. Not required to be met for vacuum breakers open when performing their intended function. ---------- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.6.2	Perform a functional test of each vacuum breaker.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.3	Perform a CHANNEL CALIBRATION of each air operated vacuum breaker differential pressure instrument channel and verify the setpoint is ≤ 0.5 psid.	92 days
SR 3.6.1.6.4	Verify the full open setpoint of each self actuating vacuum breaker is ≤ 0.5 psid.	24 months

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.6 Reactor Building-to-Suppression Chamber Vacuum Breakers

BASES

BACKGROUND

The function of the reactor building-to-suppression chamber vacuum breakers is to relieve vacuum when primary containment depressurizes below reactor building pressure. If the drywell depressurizes below reactor building pressure, the negative differential pressure is mitigated by flow through the reactor building-to-suppression chamber vacuum breakers and through the suppression-chamber-to-drywell vacuum breakers. The design of the reactor building-to-suppression chamber vacuum relief system consists of four vacuum breakers (two parallel sets of 100% capacity vacuum breaker pairs, each set consisting of a self-actuating vacuum breaker and an air operated vacuum breaker), located in two lines. The air operated vacuum breakers are actuated by differential pressure switches and can be remotely operated from the relay room. The self-actuating vacuum breakers function similar to a check valve. The two vacuum breakers in series must be closed to maintain a leak tight primary containment boundary.

A negative differential pressure across the drywell wall is caused by rapid depressurization of the drywell. Events that cause this rapid depressurization are cooling cycles, inadvertent primary containment spray actuation, and steam condensation in the event of a primary system rupture. Reactor building-to-suppression chamber vacuum breakers prevent an excessive negative differential pressure across the primary containment boundary. Cooling cycles result in minor pressure transients in the drywell, which occur slowly and are normally controlled by heating and ventilation equipment. Inadvertent spray actuation results in a more significant negative pressure transient.

The reactor building-to-suppression chamber vacuum breakers are sized to mitigate any depressurization transient and limit the maximum negative containment (drywell and suppression chamber) pressure to within design limits. The maximum depressurization rate is a function of the primary containment spray flow rate and temperature and the assumed initial conditions of the primary containment atmosphere.

(continued)

BASES

BACKGROUND (continued)

Low spray temperatures and atmospheric conditions that yield the minimum amount of contained noncondensible gases are assumed for conservatism.

APPLICABLE SAFETY ANALYSES

Suppression chamber-to-drywell and reactor building-to-suppression chamber vacuum breakers are provided as part of the primary containment to limit the negative differential pressure across the drywell and suppression chamber walls, which form part of the primary containment boundary.

The safety analyses assume the reactor building-to-suppression chamber vacuum breakers to be closed initially (Ref. 1). Additionally, one or both reactor building-to-suppression chamber vacuum breakers in each line are assumed to fail in a closed position. Therefore, the single active failure criterion is met.

Several cases were considered in the safety analyses to determine the maximum negative pressure differential between the containment and reactor building assuming the reactor building-to-suppression chamber vacuum breakers remain closed (Ref. 1):

a. A small break loss of coolant accident followed by actuation of one Residual Heat Removal (RHR) containment spray loop;

b. Inadvertent actuation of one RHR containment spray loop during normal operation;

c. A large break loss of coolant accident followed by actuation of one RHR containment spray loop.

The results of these cases show that the reactor building-to-suppression chamber vacuum breakers are not required to mitigate the consequences of any DBA since the maximum resulting negative differential pressure is 1.92 psid (case a) which is below the design differential pressure limit of 2 psid. However, to ensure the resulting negative pressure is minimized, the reactor building-to-suppression chamber vacuum breakers are included in the design and set to ensure the valves are full open at $\leq$ 0.5 psid.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

The reactor building-to-suppression chamber vacuum breakers satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 2).

LCO

All reactor building-to-suppression chamber vacuum breakers are required to be OPERABLE to ensure the primary containment design differential pressure limit is not challenged. This requirement ensures both vacuum breakers in each line (self-actuated vacuum breaker and air operated vacuum breaker) will open to relieve a negative pressure in the suppression chamber. This LCO also ensures that the two vacuum breakers in each of the two lines from the reactor building to the suppression chamber airspace are closed (except during testing or when performing their intended function).

APPLICABILITY

In MODES 1, 2, and 3, a DBA could result in excessive negative differential pressure across the drywell wall caused by the rapid depressurization of the drywell. The event that results in the limiting rapid depressurization of the drywell is the primary system rupture, which purges the drywell of air and fills the drywell free airspace with steam. Subsequent condensation of the steam would result in depressurization of the drywell, which after the suppression chamber-to-drywell vacuum breakers open (due to differential pressure between the suppression chamber and drywell) would result in depressurization of the suppression chamber. The limiting pressure and temperature of the primary system prior to a DBA occur in MODES 1, 2, and 3. Excessive negative pressure inside primary containment could occur due to inadvertent initiation of the RHR Containment Spray System.

In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining reactor building-to-suppression chamber vacuum breakers OPERABLE is not required in MODE 4 or 5.

(continued)

BASES (continued)

ACTIONS

A Note has been added to provide clarification that, for the purpose of this LCO, separate Condition entry is allowed for each penetration flow path.

A.1

With one or more lines with one vacuum breaker not closed, the leak tight primary containment boundary may be threatened. Therefore, the inoperable vacuum breakers must be restored to OPERABLE status or the open vacuum breaker closed within 72 hours. The 72 hour Completion Time is consistent with requirements for inoperable suppression-chamber-to-drywell vacuum breakers in LCO 3.6.1.7, "Suppression-Chamber-to-Drywell Vacuum Breakers." The 72 hour Completion Time takes into account the redundant capability afforded by the remaining breakers, the fact that the OPERABLE breaker in each of the lines is closed, and the low probability of an event occurring that would require the vacuum breakers to be OPERABLE during this period.

B.1

With one or more lines with two vacuum breakers not closed, primary containment integrity is not maintained. Therefore, one open vacuum breaker must be closed within 1 hour. This Completion Time is consistent with the ACTIONS of LCO 3.6.1.1, "Primary Containment," which requires that primary containment be restored to OPERABLE status within 1 hour.

C.1

With one line with one or more vacuum breakers inoperable for opening, the leak tight primary containment boundary is intact. The ability to mitigate the consequences of an event that causes a containment depressurization is threatened if one or more vacuum breakers in at least one vacuum breaker penetration are not OPERABLE. Therefore, the inoperable vacuum breaker must be restored to OPERABLE status within 72 hours. This is consistent with the Completion Time for Condition A and the fact that the leak tight primary containment boundary is being maintained.

(continued)

BASES

ACTIONS (continued)

D.1

With two lines with one or more vacuum breakers inoperable for opening, the primary containment boundary is intact. However, in the event of a containment depressurization, the vacuum relief function of the vacuum breakers is lost. Therefore, all vacuum breakers in one line must be restored to OPERABLE status within 1 hour. This Completion Time is consistent with the ACTIONS of LCO 3.6.1.1, which requires that primary containment be restored to OPERABLE status within 1 hour.

E.1 and E.2

If any Required Action and associated Completion Time cannot be 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 12 hours and to MODE 4 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 3.6.1.6.1

Each vacuum breaker is verified to be closed to ensure that a potential breach in the primary containment boundary is not present. This Surveillance may be performed by observing local or remote indications of vacuum breaker position. Position indications of the air operated vacuum breakers are available in the control and relay rooms while position indications of the self actuating vacuum breakers are only available in the relay room. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Two Notes are added to this SR. The first Note allows reactor-to-suppression chamber vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1 (continued)

vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers. The second Note is included to clarify that vacuum breakers open due to an actual differential pressure are not considered as failing this SR.

SR 3.6.1.6.2

Each vacuum breaker must be cycled to ensure that it opens properly to perform its design function and returns to its fully closed position. This ensures that the safety analysis assumptions are valid. The Frequency of this SR is in accordance with the Inservice Testing Program.

SR 3.6.1.6.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency of SR 3.6.1.6.3 is based on the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.6.1.6.4

Demonstration of each self-actuating vacuum breaker opening setpoint is necessary to ensure that the design function regarding vacuum breaker full open differential pressure of $\leq$ 0.5 psid is valid. While this Surveillance can be performed with the reactor at power, operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency, which is based on the operating cycle. The 24 month Frequency is further justified because SR 3.6.1.6.2 is performed at a shorter Frequency that conveys the proper functioning status of each self-actuating vacuum breaker.

(continued)

BASES (continued)

REFERENCES

1. Design Bases Document-016A, Section 5.2.10, Maximum Design Negative Pressure for Containment.

2. 10 CFR 50.36(c)(2)(ii).

(continued)

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.7

Suppression-Chamber-to-Drywell Vacuum Breakers

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

DISCUSSION OF CHANGES (DOCs) TO THE CTS

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

MARKUP OF NUREG-1433, REVISION 1, SPECIFICATION

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1

MARKUP OF NUREG-1433, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1, BASES

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.7

Suppression-Chamber-to-Drywell Vacuum Breakers

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

Specification 3.6.1.7 (A1)

3.7 (cont'd)

see ITS: 3.6.1.C

breaker is sooner made operable, provided that the repair procedure does not violate primary containment integrity.

4.7 (cont'd)

(L4) In accordance with the Inservice Testing Program (E)

[3.6.1.7]

[3.6.1.7] 5. Pressure Suppression Chamber - Drywell Vacuum Breakers

5. Pressure Suppression Chamber - Drywell Vacuum Breakers (M1)

add SR 3.6.1.7.1

[Applicability] a. When primary containment integrity is required, all drywell suppression chamber vacuum breakers shall be operable and positioned in the fully closed position except during testing and as specified in 3.7.A.5.b below.

MODES 1, 2 and 3 (M5)

Five

[LCO 3.6.1.7. Note 1. to SR 3.6.1.7.1]

add Note 2 to SR 3.6.1.7.1 (A2)

a. Each drywell suppression chamber vacuum breaker shall be exercised through an opening - closing cycle monthly. (E)

[SR 3.6.1.7.2]

b. One drywell suppression chamber vacuum breaker may be non-fully closed so long as it is determined to be not more than 1° open as indicated by the position lights. (LA2)

b. When it is determined that one vacuum breaker is inoperable for fully closing when operability is required, the operable breakers shall be exercised immediately, and every 15 days thereafter until the inoperable valve has been returned to normal service. (L1)

(LA1)

[ACTION A] c. One drywell suppression chamber vacuum breaker may be determined to be inoperable for opening. (M2)

for 72 hours

c. Each vacuum breaker valve shall be visually inspected to insure proper maintenance and operation in accordance with the Inservice Testing Program.

~~d. Deleted~~

See ITS: 3.6.1.1

d. A leak test of the drywell to suppression chamber structure shall be conducted once per 24 months; the acceptable leak rate is ≤0.25 in. water/min, over a 10 min period, with the drywell at 1 psid.

RAI 3.6.1.7-3

Specification 3.6.1.7 A1

see ITS: 3.6.1.1

3.7 (cont'd)	4.7 (cont'd)
e. Leakage between the drywell and suppression chamber shall not exceed a rate of 71 scfm as monitored via the suppression chamber 10 min pressure transient of 0.25 in. water/min.	e. ~~Not applicable~~
f. The self actuated vacuum breakers shall open when subjected to a force equivalent to 0.5 psid acting on the valve disc. [SR 3.6.1.7.3]	f. ~~Not applicable~~
g. From and after the date that one of the pressure suppression chamber/drywell vacuum breakers is made or found to be inoperable for any reason, the vacuum breaker shall be ~~locked~~ closed and reactor operation is permissible only during the succeeding ~~seven days~~ 12 hours unless such vacuum breaker is sooner made operable, provided that the repair procedure does not violate primary containment integrity. [ACTION B] M3 FM3	g. Once per 24 months, each vacuum breaker shall be tested to determine that the force required to open the vacuum breaker does not exceed the force specified in Specification 3.7.A.6.f and each vacuum breaker shall be inspected and verified to meet design requirements. [SR 3.6.1.7.3] M3 LA1

[ACTION A] → 72 hours M2 [for OPENING]

Page 2 of 3

Specification 3.6.1.7

A1

3.7 (Cont'd)

4.7 (Cont'd)

(1) The drywell to torus differential pressure shall be established within 24 hours of exceeding 15% rated thermal power during startup. The differential pressure may be reduced to less than the limit up to 24 hours prior to reducing thermal power to less than 15% of rated before a plant shutdown.

(2) The differential pressure may be decreased to less than 1.7 psid for a maximum of four (4) hours during required operability testing of the HPCI, RCIC, and Suppression Chamber - Drywell Vacuum Breaker System.

(3) If 3.7.A.7.a above cannot be met, restore the differential pressure to within limits within eight hours or reduce thermal power to less than 15% of rated within the next 12 hours.

see ITS: 3.6.2.4

ACTION C

8. If the specifications of 3.7.A.1 through 3.7.A.5 cannot be met the reactor shall be in the cold condition within 24 hours.

36 — L2

MODE 3 in 12 hours

M4

8. Not applicable.

Page 3 of 3

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.7

Suppression-Chamber-to-Drywell Vacuum Breakers

DISCUSSION OF CHANGES (DOCs) TO THE CTS

DISCUSSION OF CHANGES
ITS: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

ADMINISTRATIVE CHANGES

A1 In the conversion of the James A. FitzPatrick Nuclear Power Plant (JAFNPP) Current Technical Specifications (CTS) to the proposed plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted that do not result in technical changes. Editorial changes, reformatting, and revised numbering are adopted to make the ITS consistent with the Conventions in NUREG-1433, "Standard Technical Specifications, General Electric Plants, BWR/4", Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)).

A2 CTS 3.7.A.5.a and ITS 3.6.1.7, Suppression Chamber-to-Drywell Vacuum Breakers, require that all of the vacuum breakers be closed. However, ITS SR 3.6.1.7 Note 2 makes the exception "except when performing their intended function." This is an explicit recognition that the automatic cycling of the vacuum breakers does not violate the intent of the LCO and is considered an administrative change. This change is consistent with NUREG-1433, Revision 1.

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 A new Surveillance Requirement has been added to CTS 4.7.A.5. ITS SR 3.6.1.7.1 will require the verification that each suppression chamber-to-drywell vacuum breaker is closed every 14 days. The addition of a new Surveillance Requirement constitutes a more restrictive change necessary to ensure the vacuum breakers are in the correct position and the design bases analyses can be met.

M2 CTS 3.7.A.5.c provides an allowance that one drywell suppression chamber vacuum breaker may be inoperable for opening with no specific limitation on the Completion Time. However, the limitation on the Completion Time is provided in CTS 3.7.A.5.g. The vacuum breaker must be restored within 7 days. ITS 3.6.1.7 ACTION A will allow only 72 hours to restore the vacuum breaker to OPERABLE status. This time is permitted since four vacuum breakers can perform the required safety function however the overall system reliability is reduced. Therefore, the 72 hour limit imposed is more restrictive but is acceptable due to the low probability of an event during this time period requiring the remaining vacuum breaker to function. This change is consistent with NUREG-1433, Revision 1.

DISCUSSION OF CHANGES
ITS: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

TECHNICAL CHANGES - MORE RESTRICTIVE

M3 CTS 3.7.A.5.g imposes limitations if one pressure suppression chamber/drywell vacuum breaker is made or found to be inoperable for any reason. If a vacuum breaker is inoperable the valve must be locked closed and operation is allowed for seven days. This action has been divided into two separate conditions. As discussed in comment M2 a Completion Time of 72 hours is given if a valve is found to be inoperable for opening (ITS 3.6.1.7 ACTION A). In CTS 3.7.A.5.g there is a requirement to "lock close" the inoperable vacuum breaker and operation is permissible for seven days, however there is no specific time requirement to close the valve. ITS ACTION B allows 12 hours to close an opened vacuum breaker to reduce the probability of an event that could pressurize primary containment and to allow sufficient time for vacuum breaker to be leak tested. The requirement to "lock" close the valve has been deleted since if the Completion Time is met the valve is assumed to be OPERABLE for opening and therefore the valve must not be locked. This reduction in Completion Time constitutes a more restrictive change necessary to ensure the vacuum breaker is closed. The time provided is necessary to perform the drywell to suppression chamber bypass leakage test of SR 3.6.1.1.2. This test ensures that each suppression chamber-to-drywell vacuum breakers are closed. The suppression chamber-to-drywell vacuum breaker instrumentation may be inoperable or undergoing maintenance and therefore proper suppression chamber-to-drywell vacuum breaker position indication may not be available at the time of the performance of SR 3.6.1.7.1. Local verification is possible, however this type of verification may not be convenient due to ALARA concerns. If excessive leakage existed, the suppression chamber and drywell pressure instrumentation would have indicated whether the primary containment was inoperable. ITS SR 3.0.1 will require all SRs to be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Therefore, as a result of ITS SR 3.6.1.1.2, the associated ACTIONS of ITS 3.6.1.1 (1 hours for primary containment inoperability), and SR 3.0.1, the 12 hour allowance is acceptable since entry into ITS 3.6.1.1 ACTION A is required if primary containment is inoperable.

M4 CTS 3.7.A.8 requires the reactor to be in the cold condition within 24 hours if the requirements of CTS 3.7.A.5 cannot be met. ITS 3.6.1.7 Required Action C.1 places the plant in MODE 3 in 12 hours if the Required Action and Associated Completion Times are not met. In addition, Required Action C.2 places the plant in MODE 4 in 36 hours (see L2). The allowed Completion Times in Required Actions C.1 and C.2

DISCUSSION OF CHANGES
ITS: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

TECHNICAL CHANGES - MORE RESTRICTIVE

M4 (continued)

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. However, the 12 hour Completion Time ensures timely action is taken to place the plant in a shutdown condition (MODE 3). The consequences of any design bases event is significantly reduced when plant is shutdown. This change is consistent with NUREG-1433, Revision 1.

M5 CTS 3.7.A.4.a requires the pressure suppression chamber-drywell vacuum breakers to be Operable at all times when the primary containment integrity is required. The CTS Applicability of the primary containment in CTS 3.7.A.2 is whenever the reactor is critical or when the reactor water temperature is above 212°F and fuel is in the reactor vessel. In addition, there is an exception in CTS 3.7.A.2, to not require primary containment integrity to be met during low power physics tests at atmospheric pressure and power levels not to exceed 5 MWt, however any change to this requirement is discussed in the Discussion of Changes for ITS 3.10.8. The scope of the current Applicability covers MODE 1, 3 and portions of MODE 2 operations. The Applicability in ITS 3.6.1.7 is MODES 1, 2 and 3. This change is considered more restrictive since the suppression chamber-to-drywell vacuum breakers will be required to be Operable at all times in MODE 2 even prior to any plant startup when reactor coolant temperature may be below 212°F. This change is consistent with NUREG-1433, Revision 1.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The requirements in CTS 4.7.A.5.c that each vacuum breaker valve be inspected to ensure proper maintenance and operation in accordance with the Inservice Testing (IST) Program and CTS 4.7.A.5.g that each vacuum breaker valve be inspected and verified to meet design requirements are both proposed to be relocated to the IST Program. This inspection and verification is not necessary to ensure the Operability of the vacuum breakers. ITS LCO 3.6.1.7 and the associated ACTIONs and SURVEILLANCEs are adequate to ensure the vacuum breakers can meet the requirements of the safety analysis. The IST Program list all valves required to be tested in accordance with ASME Section XI. In addition, ITS 5.5.7 requires the IST Program to be established, implemented and maintained. These controls are adequate to ensure the required tests are performed at the appropriate frequencies. As such, these surveillances are not required to be in the ITS to provide adequate protection of the public

DISCUSSION OF CHANGES
ITS: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 (continued)

health and safety. Changes to the relocated requirement in the IST Program will be controlled by the provisions of 10 CFR 50.59.

LA2 The allowance in CTS 3.7.A.5.b, that one suppression chamber-to-drywell vacuum breaker may be non-fully closed so long as it is determined to be not more than 1 degree open as indicated by the position lights, has been relocated to the Bases. The limit switches are installed such that a 1 degree arm movement will not actuate the limit switches. In this state the disc will remain on the seat and therefore the valve will be fully closed. The relocation of this detail will allow the new ITS Surveillance Requirement (SR 3.6.1.7.1), the verification of the position of each suppression chamber-to-drywell vacuum breaker, to be performed utilizing the installed remote indications in the relay room rather than by local verification. This is acceptable since the suppression chamber-to-drywell vacuum breakers are fully closed if the limit switches have not actuated and this will help to minimize plant radiation exposure when performing new SR 3.6.1.7.1.

RAI 3.6.1.7-3

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CTS 4.7.A.5.b requires that "When it is determined that one vacuum breaker is inoperable for fully closing when operability is required, the operable breakers shall be exercised immediately, and every 15 days thereafter until the inoperable valve has been returned to normal service." This requirement is not included in NUREG-1433 and is proposed to be deleted. This change eliminates the requirement to demonstrate the Operability of the redundant vacuum breakers whenever a vacuum breaker is declared inoperable. The inoperability of a vacuum breaker is not automatically indicative of a similar condition in the redundant vacuum breakers unless a generic failure is suspected. The periodic frequencies specified to demonstrate Operability have been shown to be adequate to ensure equipment Operability. Therefore, this change allows credit to be taken for normal periodic surveillance as a demonstration of Operability and availability of the remaining components and reduces unnecessary challenges and wear to redundant components. This change is consistent with NUREG-1433, Revision 1.

L2 CTS 3.7.A.8 requires the reactor to be in the cold condition within 24 hours if the requirements of CTS 3.7.A.5 cannot be met. ITS 3.6.1.7 Required Action C.2 places the plant in MODE 4 (Cold Shutdown) in

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

L2 (continued)

36 hours if the Required Action and Associated Completion Times are not met. However, ITS 3.6.1.7 Required Action C.1 requires the plant to be in MODE 3 in 12 hours (M4). This change is less restrictive because it extends the time for the plant to be in MODE 4 from 24 hours to 36 hours. The allowed Completion Times in Required Actions C.1 and C.2 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. The consequences of an accident are not significantly increased because ITS 3.6.1.7, Required Action C.1 will require the plant be placed in MODE 3 within 12 hours once the determination is made that the Required Action or Completion Time associated with inoperable suppression chamber-to-drywell vacuum breakers cannot be satisfied. This change reduces the time the reactor would be allowed to continue to operate once the condition is identified. The consequences of a LOCA are significantly mitigated when the reactor is shutdown and a controlled cooldown is already in progress. This change is consistent with NUREG-1433, Revision 1.

RAI 3.6.1.7-3

L3 Not used.

L4 The Frequency of CTS 4.7.A.5.a, which requires exercising each Suppression Chamber-to-Drywell vacuum breaker through an open-close cycle, is being extended from "monthly" to "In Accordance with the Inservice Testing (IST) Program" in proposed ITS SR 3.6.1.7.2 (NUREG SR 3.6.1.8.2). At JAFNPP the vacuum breakers are not located in the harsh environment of the suppression chamber as discussed in NUREG SR 3.6.1.8.2 Bases. The valves are located in the reactor building (secondary containment) where the environment is similar to that which exists for many primary and secondary containment isolation valves which are subjected to tests on a Frequency that is in accordance with the IST Program (92 days). In addition, similar surveillance requirements for the Reactor Building-to-Suppression Chamber vacuum breakers, which are of a similar design, have similar design functions, and are also located in the reactor building, are performed on a Frequency that is in accordance with the IST Program as stated in CTS 4.7.A.4.a (ITS SR

DISCUSSION OF CHANGES
ITS: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

L4 (continued)

3.6.1.6.2). An historical review of Suppression Chamber-to-Drywell vacuum breaker surveillance data for the past 5 years has been performed and the data indicate there were no failures of the vacuum breakers to properly operate through a full open-close cycle. Therefore, based on the longer test interval for the similar Reactor Building-to-Suppression Chamber vacuum breakers and other valves located in areas with a similar environment the "In Accordance with the Inservice Testing Program" (92 days) Frequency is considered adequate.

E

TECHNICAL CHANGES - RELOCATIONS

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.7

Suppression-Chamber-to-Drywell Vacuum Breakers

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion 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?

   The proposed change eliminates a requirement to exercise the remaining vacuum breakers whenever a vacuum breaker is declared inoperable. The probability of an accident is not increased because the elimination of an unscheduled performance of a surveillance test is not an initiator of any accident previously evaluated. The consequences of an accident will not be increased because there is adequate assurance that the remaining vacuum breakers are Operable and will perform their design function. The inoperability of a vacuum breaker is not automatically indicative of a similar condition in the remaining vacuum breakers unless a generic failure is suspected. The periodic frequencies specified to demonstrate Operability have been shown to be adequate to ensure equipment Operability. Therefore, this change allows credit to be taken for normal periodic surveillance as a demonstration of Operability and availability of the remaining components. Therefore, this change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

   This proposed change will not involve any physical changes to plant systems, structures, or components (SSC), or the manner in which these SSC are operated, maintained, modified, tested, or inspected. Therefore, this change 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?

   The proposed change eliminates the requirement to demonstrate the Operability of the remaining vacuum breakers whenever a vacuum breaker is declared inoperable. This change acknowledges that the inoperability

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

3. (continued)

of a vacuum breaker is not automatically indicative of a similar condition in the remaining vacuum breakers unless a generic failure is suspected and that the periodic frequencies specified to demonstrate Operability have been shown to be adequate to ensure equipment Operability. This change allows credit to be taken for normal periodic surveillance as a demonstration of Operability and availability of the remaining components and reduces unnecessary challenges and wear redundant components. As indicated in NRC Generic Letter 87-09, it is overly conservative to assume that systems or components are inoperable when a surveillance has not been performed. The opposite is in fact the case; the vast majority of surveillances demonstrate that systems or components in fact are operable. Therefore, reliance on the specified surveillance intervals does not result in a reduced level of confidence concerning this equipments availability. As a result, the change does not affect the current analysis assumptions. Therefore, this change does not involve a significant reduction in a margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion 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?

   The proposed change does not increase the probability of an accident because the change extends the time allowed for the plant to get to Cold Shutdown from 24 hours to 36 hours when the Required Actions or Completion Times associated with inoperable vacuum breaker(s) cannot be satisfied. Shutdown Completion Times are not assumed in the initiation of any analyzed event. The change will not allow continuous operation with inoperable vacuum breakers. The consequences of an accident are not increased because LCO 3.6.1.7, Required Action C.1 will require that the plant be placed in MODE 3 within 12 hours once the determination is made that the Required Actions or Completion Time associated with an inoperable vacuum breaker(s) cannot be satisfied. This change reduces the time the reactor would be allowed to continue to operate once the condition is identified. The consequences of a LOCA are significantly mitigated when the reactor is shutdown and a controlled cooldown is already in progress. In addition, the consequences of an event occurring during the proposed shutdown Completion Time are the same as the consequences of an event occurring during the existing shutdown Completion Time. Therefore, the change does not involve a significant increase in the probability or consequences of an event previously evaluated.

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 plant systems, structures, or components (SSC), or the manner in which these SSC are operated, maintained, modified, tested, or inspected. The change increases the time allowed for the plant to get to Cold Shutdown from 24 hours to 36 hours. Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

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

The change extends the time allowed for the plant to get to Cold Shutdown from 24 hours to 36 hours when the Required Actions or Completion Times associated with inoperable vacuum breakers cannot be satisfied. There is no significant reduction in the margin of safety because LCO 3.6.1.7, Required Action C.1 will require that the plant be placed in MODE 3 within 12 hours once the determination is made that the Required Actions or Completion Times associated with an inoperable vacuum breaker cannot be satisfied. This concurrent change (M4) reduces the time the reactor would be allowed to continue to operate once the condition is identified. The consequences of a LOCA are significantly mitigated when the reactor is shutdown and a controlled cooldown is already in progress. In addition, this change provides the benefit of a reduced potential for a plant event that could challenge safety systems by providing additional time to reduce pressure in a controlled and orderly manner. Therefore, this change does not involve a significant reduction in a margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

RAI 3.6.1.7-3

L3 CHANGE

Not used.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 CHANGE

The Licensee has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion 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?

   The proposed change extends the Frequency of Suppression Chamber-to-Drywell vacuum breaker functional testing (cycling) from monthly (31 days) to in accordance with the inservice testing program (92 days). The vacuum breakers are not assumed to be the initiator of any previously analyzed accident. Therefore this change does not involve a significant increase in the probability of an accident previously evaluated. Since the vacuum breakers are normally closed and perform properly when cycled, extending the Frequency does not involve a change in the consequences of an accident previously evaluated. Therefore, the proposed change does not involve an increase in the probability or consequences of an accident previously evaluated.

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

   The proposed change does not involve any physical alteration of plant systems, structures or components, changes in parameters governing normal plant operation, or methods of operation. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 CHANGE

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

The proposed change does not involve a reduction in the margin of safety since the Suppression Chamber-to-Drywell vacuum breakers are still required to be closed. The change extends the time interval between surveillance that requires cycling the valves from the closed position, to the open position, and back to the closed position. Surveillance data indicate the vacuum breakers operate properly when cycled. Therefore, the proposed change does not involve a significant reduction in the margin of safety.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.7

Suppression-Chamber-to-Drywell Vacuum Breakers

MARKUP OF NUREG-1433, REVISION 1
SPECIFICATION

3.6 CONTAINMENT SYSTEMS

3.6.1.8 Suppression Chamber-to-Drywell Vacuum Breakers

LCO 3.6.1.8 Nine suppression chamber-to-drywell vacuum breakers shall be OPERABLE for opening.

Five

AND

[Twelve] suppression chamber-to-drywell vacuum breakers shall be closed, except when performing their intended function.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required suppression chamber-to-drywell vacuum breaker inoperable for opening.	A.1 Restore one vacuum breaker to OPERABLE status.	72 hours
B. One suppression chamber-to-drywell vacuum breaker not closed.	B.1 Close the open vacuum breaker.	2 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

RAI 3.6.1.7-2

Revision E

PAI

7

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.8.1 NOTE: Not required to be met for vacuum breakers that are open during Surveillances.	14 days AND Within 2 hours after any discharge of steam to the suppression chamber from the safety/relief valves (S/RVs) or any operation that causes the drywell-to-suppression chamber differential pressure to be reduced by ≥ [0.5] psid

[3.7.A.5.a] [M1] [A2]

1. DBI

2. Not required to be met for vacuum breakers open when performing their intended function. DBI

X2 RAI 3.6.1.7-1

(continued)

PA1

7

SURVEILLANCE REQUIREMENTS (continued) SURVEILLANCE		FREQUENCY
SR 3.6.1.8.2	Perform a functional test of each required vacuum breaker.	31 days X3 E AND Within 12 hours after any discharge of steam to the suppression chamber from the S/RVs CLB2 AND Within 12 hours following an operation that causes any of the vacuum breakers to open
SR 3.6.1.8.3	Verify the opening setpoint of each required vacuum breaker is ≤ 0.5 psid.	18 months 24

[4.7.A.5.a] [L5] 7 PA1 In accordance with the Inservice Testing Program

7 PA1

[3.7.A.5.f] [4.7.A.5.g]

DB3 CLB3

RAI 3.6.1.7-4

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.7

Suppression-Chamber-to-Drywell Vacuum Breakers

JUSTIFICATION FOR DIFFERENCES (JFDs)
FROM NUREG-1433, REVISION 1

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

RAI 3.6.1.7-1

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 Not used.

CLB2 The second and third Frequencies to ISTS SR 3.6.1.8.2 require a functional test of the vacuum breakers (i.e., cycle the vacuum breakers) within 12 hours after the vacuum breakers have cycled, or after an operation that may have caused them to cycle. In a September 8, 1992 memorandum to C. I. Grimes from C. E. McCracken, the only basis for these Frequencies is given as "... in case the event caused damage to one or more vacuum breakers." Since the vacuum breakers are designed to operate and assumed to function after a LOCA blowdown, their operation as designed after some other minor steam release from the S/RVs should not raise questions regarding the immediate Operability of the vacuum breakers. Furthermore, steam quenching from the discharge of an S/RV is enhanced by the T-quenchers. Steam discharged to the torus, resulting in increased wetwell pressure and vacuum breaker opening, may pose a long term equipment degradation, rather than any immediate Operability concern. The 12 hour frequency would be meaningless to detect long term degradation, while the normal 31 day Frequency would more than suffice for this concern. In addition, review of vacuum breaker failures was performed and noted no failures. Thus it is not appropriate for JAFNPP, which does not have these current frequencies, to verify the vacuum breakers will open after they have just been opened.

CLB3 The brackets have been removed and the Surveillance Frequency changed from 18 to 24 months in accordance with CTS 4.7.A.5.g.

RAI 3.6.1.7-4

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 JAFNPP will not adopt ISTS 3.6.1.6. As a result, ISTS 3.6.1.8 has been renumbered.

PA2 Not used.

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 The JAFNPP design includes 5 suppression chamber-to-drywell vacuum breakers. The accident analysis requires 4 vacuum breakers to function. Therefore, to satisfy the single failure criteria all vacuum breakers must be Operable to satisfy the LCO. The ISTS LCO 3.6.1.8 has been reworded as required (ITS LCO 3.6.1.7). The ISTS LCO 3.6.1.8 detail that the valve must be closed except when performing their intended function has been moved to ISTS SR 3.6.1.8.1 as a Note (ITS SR 3.6.1.7.1 Note 2). Therefore, the first Note has been renumbered as required. This format change is consistent with the format of ISTS 3.6.1.7 for reactor building-to-suppression chamber vacuum breakers.

DB2 The term "required" in ITS 3.6.1.7 Condition A is not needed since all vacuum breakers must be OPERABLE and closed.

DB3 The brackets have been removed and the proper plant specific value has been provided.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 Not used.

X2 The second Frequency of ITS SR 3.6.1.7.1 (NUREG SR 3.6.1.8.1) is being deleted. The Suppression chamber-to-drywell vacuum breakers have position indication for each valve in the relay room and when one or more of the valves is not fully closed Control Room Annunciator 09-3-3-39 is actuated to alert the Control Room operators of the condition. In addition, drywell-to-suppression chamber differential pressure is maintained in accordance with ITS 3.6.2.4 during most of the time period that the vacuum breakers are required to be OPERABLE (and normally closed). Maintenance of the differential pressure results in a closing force of more than 1000 pounds on each valve disk to keep them closed. Further, the valve seat is at an angle of approximately 25 degrees from

RAI 3.6.1.7-2

RAI 3.6.1.7-1

RAI 3.6.1.7-1

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X2 (continued)

the vertical which allows gravity to assist in maintaining the valve disk in the closed position in the absence drywell-to-suppression chamber differential pressure. Finally, operating experience since initial plant operation in 1975 has shown that operation of Safety/Relief Valves or other operations that discharge steam to the suppression pool do not cause vacuum breaker valve disk movement (such as banging, clanging or chattering) even during those time periods when the closing force due to drywell-to-suppression chamber differential pressure is not present. The annunciation of a condition where a vacuum breaker valve is not fully closed, the valve design that include a positive seat angle, operating experience history, and the maintenance of differential pressure as required by ITS 3.6.2.4 make performance of ITS SR 3.6.1.7.1 as described in the second Frequency unnecessary.

X3 ITS SR 3.6.1.7.2 Frequency has been revised. The Suppression Chamber-to-Drywell vacuum breakers at JAFNPP are located in the reactor building (secondary containment) rather than within the suppression chamber where they might be exposed to a harsh environment. The vacuum breaker functional test Frequency has been changed from monthly to in accordance with the Inservice Testing Program consistent with the Frequency of the functional test of the Reactor Building-to-Suppression Chamber vacuum breakers (ITS SR 3.6.1.6.2) and other valves that are located in the reactor building (L4).

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.7

Suppression-Chamber-to-Drywell Vacuum Breakers

MARKUP OF NUREG-1433, REVISION 1, BASES

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.6 Suppression Chamber-to-Drywell Vacuum Breakers

BASES

BACKGROUND The function of the suppression chamber-to-drywell vacuum breakers is to relieve vacuum in the drywell. There are [12] external vacuum breakers located on the vent header of the vent system between the drywell and the suppression chamber, which allow air and steam flow from the suppression chamber to the drywell when the drywell is at a negative pressure with respect to the suppression chamber. Therefore, suppression chamber-to-drywell vacuum breakers prevent an excessive negative differential pressure across the wetwell drywell boundary. Each vacuum breaker is a self actuating valve, similar to a check valve, which can be remotely operated for testing purposes.

A negative differential pressure across the drywell wall is caused by rapid depressurization of the drywell. Events that cause this rapid depressurization are cooling cycles, inadvertent drywell spray actuation, and steam condensation from sprays or subcooled water reflood of a break in the event of a primary system rupture. Cooling cycles result in minor pressure transients in the drywell that occur slowly and are normally controlled by heating and ventilation equipment. Spray actuation or spill of subcooled water out of a break results in more significant pressure transients and becomes important in sizing the internal vacuum breakers. Suppression chamber-to-drywell

In the event of a primary system rupture, steam condensation within the drywell results in the most severe pressure transient. Following a primary system rupture, air in the drywell is purged into the suppression chamber free airspace, leaving the drywell full of steam. Subsequent condensation of the steam can be caused in two possible ways, namely, Emergency Core Cooling Systems flow from a recirculation line break, or drywell spray actuation following a loss of coolant accident (LOCA). These two cases determine the maximum depressurization rate of the drywell.

In addition, the waterleg in the Mark I Vent System downcomer is controlled by the drywell-to-suppression chamber differential pressure. If the drywell pressure is

(continued)

BASES

BACKGROUND (continued)

less than the suppression chamber pressure, there will be an increase in the vent waterleg. This will result in an increase in the water clearing inertia in the event of a postulated LOCA, resulting in an increase in the peak drywell pressure. This in turn will result in an increase in the pool swell dynamic loads. The internal vacuum breakers limit the height of the waterleg in the vent system during normal operation.

APPLICABLE SAFETY ANALYSES

Analytical methods and assumptions involving the suppression chamber-to-drywell vacuum breakers are presented in reference 1 as part of the accident response of the primary containment systems. Internal (suppression chamber-to-drywell) and external (reactor building-to-suppression chamber) vacuum breakers are provided as part of the primary containment to limit the negative differential pressure across the drywell and suppression chamber walls that form part of the primary containment boundary.

The safety analyses assume that the internal vacuum breakers are closed initially and are fully open at a differential pressure of 0.5 psid (Ref. 1). Additionally, 2 of the 12 internal vacuum breakers are assumed to fail in a closed position (Ref. 1). The results of the analyses show that the design pressure is not exceeded even under the worst case accident scenario. The vacuum breaker opening differential pressure setpoint and the requirement that 10 of 12 vacuum breakers be OPERABLE are a result of the requirement placed on the vacuum breakers to limit the vent system waterleg height. The total cross sectional area of the main vent system between the drywell and suppression chamber needed to fulfill this requirement has been established as a minimum of [51.5] times the total break area (Ref. 1). In turn, the vacuum relief capacity between the drywell and suppression chamber should be [1/16] of the total main vent cross sectional area, with the valves set to operate at [0.5] psid differential pressure. Design Basis Accident (DBA) analyses require the vacuum breakers to be closed initially and to remain closed and leak tight, except the suppression pool at a positive pressure relative to the drywell.

(continued)

DB3

Insert ASA

The cross sectional area of the vacuum breakers are sized on the basis of the Bodega Bay pressure suppression system tests. The vacuum breaker capacity selected on this test basis is more than adequate to limit the pressure differential between the suppression chamber and drywell during post-accident drywell cooling operations to a value which is within the suppression system design values (Refs. 2 and 3).

BASES

APPLICABLE SAFETY ANALYSES (continued)

The suppression chamber-to-drywell vacuum breakers satisfy Criterion 3 of ~~the NRC Policy Statement~~ 10 CFR 50.36 (c)(2)(ii) (Ref. 4).

LCO

~~Only [9] of the [12]~~ also vacuum breakers must be OPERABLE for opening. All suppression chamber-to-drywell vacuum breakers, however, are required to be closed (except during testing or when the vacuum breakers are performing their intended design function). The vacuum breaker OPERABILITY requirement provides assurance that the drywell-to-suppression chamber negative differential pressure remains below the design value. The requirement that the vacuum breakers be closed ensures that there is no excessive bypass leakage should a LOCA occur.

RAI 3.6.1.7-6

APPLICABILITY

In MODES 1, 2, and 3, the Suppression Pool Spray System is required to be OPERABLE to mitigate the effects of a DBA. Excessive negative pressure inside the drywell could occur due to inadvertent actuation of this system. The vacuum breakers, therefore, are required to be OPERABLE in MODES 1, 2, and 3, when the Suppression Pool Spray System is required to be OPERABLE, to mitigate the effects of inadvertent actuation of the Suppression Pool Spray System.

Also, in MODES 1, 2, and 3, a DBA could result in excessive negative differential pressure across the drywell wall, caused by the rapid depressurization of the drywell. The event that results in the limiting rapid depressurization of the drywell is the primary system rupture that purges the drywell of air and fills the drywell free airspace with steam. Subsequent condensation of the steam would result in depressurization of the drywell. The limiting pressure and temperature of the primary system prior to a DBA occur in MODES 1, 2, and 3.

In MODES 4 and 5, the probability and consequences of these events are reduced by the pressure and temperature limitations in these MODES; therefore, maintaining suppression chamber-to-drywell vacuum breakers OPERABLE is not required in MODE 4 or 5.

the RHR Containment Spray System during normal operation

(continued)

BASES (continued)

ACTIONS

A.1

With one of the required vacuum breakers inoperable for opening (e.g., the vacuum breaker is not open and may be stuck closed or not within its opening setpoint limit, so that it would not function as designed during an event that depressurized the drywell), the remaining eight OPERABLE vacuum breakers are capable of providing the vacuum relief function. However, overall system reliability is reduced because a single failure in one of the remaining vacuum breakers could result in an excessive suppression chamber-to-drywell differential pressure during a DBA. Therefore, with one of the nine required vacuum breakers inoperable, 72 hours is allowed to restore at least one of the inoperable vacuum breakers to OPERABLE status so that plant conditions are consistent with those assumed for the design basis analysis. The 72 hour Completion Time is considered acceptable due to the low probability of an event in which the remaining vacuum breaker capability could not be adequate.

B.1

An open vacuum breaker allows communication between the drywell and suppression chamber airspace, and, as a result, there is the potential for suppression chamber overpressurization due to this bypass leakage if a LOCA were to occur. Therefore, the open vacuum breaker must be closed. A short time is allowed to close the vacuum breaker due to the low probability of an event that would pressurize primary containment. If vacuum breaker position indication is not reliable, an alternate method of verifying that the vacuum breakers are closed is to verify that a differential pressure of [0.5] psid between the suppression chamber and drywell is maintained for 1 hour without makeup. The required 2 hour Completion Time is considered adequate to perform this test.

C.1 and C.2

If the inoperable suppression chamber-to-drywell vacuum breaker cannot be closed or 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

(continued)

PA1
2
DB7
negative drywell-to-suppression chamber
PA3
DB2
four
PA3
active
DB2
five
DB7
PA3
X3
occurring that would require
PA3
primary containment
DB6
is to verify the bypass leakage between the drywell and suppression chamber is within the limits of SR 3.6.1.1.2 or by local observation.
PA3
DB6
any Required Action and associated Completion Time cannot be met
PA4
X2
If the leak test fails, not only must this ACTION be taken (close the open vacuum breaker within the required Completion Time), but also the appropriate Conditions and Required Actions of LCO 3.6.1.1, Primary Containment, must be entered.
RAI 3.6.1.1-2
Revision F

BASES

ACTIONS C.1 and C.2 (continued)

achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 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 3.6.1.8.1

Each vacuum breaker is verified closed to ensure that this potential large bypass leakage path is not present. This Surveillance is performed by observing the vacuum breaker position indication or by verifying that a differential pressure of [0.5] psid between the suppression chamber and drywell is maintained for 1 hour without makeup. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience. This verification is also required within 2 hours after any discharge of steam to the suppression chamber from the safety/relief valves or any operation that causes the drywell-to-suppression chamber differential pressure to be reduced by ≥ [0.5] psid.

A Note is added to this SR which allows suppression chamber-to-drywell vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers.

SR 3.6.1.8.2

Each required vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. The 31 day Frequency of this SR was developed based on Inservice Testing Program requirements to perform valve testing at least once every 92 days. A 31 day Frequency was chosen to provide

(continued)

(X4)

RAI 3.6.1.7-3

Insert SR 3.6.1.7.1

Each suppression chamber-to-drywell vacuum breaker disc will be seated as long as the arm movement is $\leq$ 1.0 degree. The vacuum breakers are considered closed if the associated position light indicates the closed position since it is set to actuate at $\leq$ 1.0 degree.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.8.2 (continued)

Additional assurance that the vacuum breakers are OPERABLE since they are located in a harsh environment (the suppression chamber airspace). In addition, this functional test is required within 12 hours after either a discharge of steam to the suppression chamber from the safety/relief valves or after an operation that causes any of the vacuum breakers to open.

SR 3.6.1.8.3

Verification of the vacuum breaker opening setpoint is necessary to ensure that the safety analysis assumption regarding vacuum breaker full open differential pressure of [0.5] psid is valid. 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. For this facility, the [18] month Frequency has been shown to be acceptable, based on operating experience, and is further justified because other surveillances performed at shorter Frequencies (SR 3.6.1.7.2 is) convey the proper functioning status of each vacuum breaker.

REFERENCES 1. UFSAR, Section [6.2].

2. UFSAR, Section 5.2.4.2

3. Preliminary Hazards Summary Report, Bodega Bay Atomic Park Unit Number 1, Docket No. 50-205, Appendix I, December 28, 1962

4. 10 CFR 50.36 (c)(2)(ii)

Revision E

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.7

Suppression-Chamber-to-Drywell Vacuum Breakers

JUSTIFICATION FOR DIFFERENCES (JFDs)
FROM NUREG-1433, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

RAI 3.6.1.7-1

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 Not used.

CLB2 The second and third Frequencies to ISTS SR 3.6.1.8.2 require a functional test of the vacuum breakers (i.e., cycle the vacuum breakers) within 12 hours after the vacuum breakers have cycled, or after an operation that may have caused them to cycle. In a September 8, 1992 memorandum to C. I. Grimes from C. E. McCracken, the only basis for these Frequencies is given as "... in case the event caused damage to one or more vacuum breakers." Since the vacuum breakers are designed to operate and assumed to function after a LOCA blowdown, their operation as designed after some other minor steam release from the S/RVs should not raise questions regarding the immediate Operability of the vacuum breakers. Furthermore, steam quenching from the discharge of an S/RV is enhanced by the T-quenchers. Steam discharged to the torus, resulting in increased wetwell pressure and vacuum breaker opening, may pose a long term equipment degradation, rather than any immediate Operability concern. The 12 hour frequency would be meaningless to detect long term degradation, while the normal 31 day Frequency would more than suffice for this concern. In addition, review of vacuum breaker failures was performed and noted no failures. Thus it is not appropriate for JAFNPP, which does not have these current frequencies, to verify the vacuum breakers will open after they have just been opened.

CLB3 The brackets have been removed and the Surveillance Frequency changed from 18 to 24 months in accordance with CTS 4.7.A.5.g. This test can be performed at power, therefore, the Bases has been modified as required.

CLB4 The ISTS Bases for the 31 day Frequency of SR 3.6.1.8.2 (ITS SR 3.6.1.7.2) has been revised since the vacuum breakers are not located within the suppression chamber airspace. This surveillance Frequency is consistent with CTS 4.7.A.5.a.

CLB5 The Bases Background has been revised for clarity and to reflect the current requirements in CTS 3.7.A.7 (ITS 3.6.2.4).

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 JAFNPP will not adopt ISTS 3.6.1.6. As a result, ISTS 3.6.1.8 has been renumbered.

PA2 Editorial changes have been made to correct typographical/grammatical error.

PA3 Not used.

PA4 The Bases have been revised to match the LCO statement.

PA5 Changes have been made (additions, deletions and/or changes to the NUREG) to reflect the plant specific nomenclature.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 The Bases have been revised to indicate that the Suppression Chamber-to-Drywell Vacuum Breakers are not inside the Primary Containment Structure.

DB2 The JAFNPP design includes 5 suppression chamber-to-drywell vacuum breakers. The accident analysis requires 4 vacuum breakers to be OPERABLE for the vacuum relief function and the close function of all 5 vacuum breakers is required to be OPERABLE to limit the bypass area to within the area assumed in analyses. Therefore, to satisfy the single failure criteria all vacuum breakers must be Operable to satisfy the LCO. The ISTS LCO 3.6.1.8 (ITS LCO 3.6.1.7) has been reworded as required.

DB3 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific design, system description, or analysis description. References have been added as required.

DB4 Inadvertent actuation of the Suppression Pool Spray System is not the main concern for depressurizing the drywell; a small break LOCA inside the drywell followed by actuation of one RHR Containment Spray (drywell spray) loop is the main concern. Therefore, this section has been reworded to place the emphasis on the proper reason.

DB5 The brackets have been removed and the proper plant specific reference has been provided.

RAI 3.6.1.7-4

RAI 3.6.1.7-6

RAI 3.6.1.7-5

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS-BASES: 3.6.1.7 - SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKERS

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB6 The appropriate plant specific alternative methods for verification that the vacuum breakers are closed has been included in ITS 3.6.1.7 ACTION B and SR 3.6.1.7.1.

DB7 The term "required" and "at least one of" in ITS 3.6.1.7 Condition A is not needed since all vacuum breakers must be OPERABLE and closed.

DB8 The brackets have been removed and the proper plant specific value has been provided.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 NUREG-1433, Revision 1, Bases reference to "the NRC Policy Statement" has been replaced with 10 CFR 50.36(c)(2)(ii), in accordance with 60 FR 36953 effective August 18, 1995.

X2 This test ensures the suppression chamber-to-drywell vacuum breakers are closed. The suppression chamber-to-drywell vacuum breaker instrumentation may be inoperable or undergoing maintenance and therefore proper suppression chamber-to-drywell vacuum breaker position indication may not be available at the time of the performance of SR 3.6.1.7.1. If excessive leakage existed, the suppression chamber and drywell pressure instrumentation would have indicated whether the primary containment was inoperable. ITS SR 3.0.1 will require all SRs to be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Therefore, as a result of ITS SR 3.6.1.1.2, the associated ACTIONS of ITS 3.6.1.1 (1 hours for primary containment inoperability), and SR 3.0.1, the 12 hour allowance is acceptable since entry into ITS 3.6.1.1 ACTION A will be

RAI 3.6.1.7-2

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X2 (continued)

required if primary containment is inoperable. In addition, a requirement to enter LCO 3.6.1.1 if the leak test is not satisfied has been added to ACTION A and ITS SR 3.6.1.7.1 since the primary containment is inoperable and the appropriate actions for this inoperability is included in LCO 3.6.1.1.

X3 ISTS 3.6.1.8 Required Action B.1 (ITS 3.6.1.7) Bases discussion implies that there is a potential that the suppression chamber will overpresssurize if one vacuum breaker is open and a LOCA were to occur. In this condition, both the suppression chamber and the drywell integrity are in question. Since the pressure suppression function of the primary containment may not be met, the potential for overpressurization may affect the entire primary containment. The Bases discussion has been revised as required.

X4 Each vacuum breaker valve is provided with limit switches that are installed such that a 1 degree arm movement will not actuate the limit switches. In this state the disc will remain on the seat and therefore the valve will be fully closed. The addition of this detail (from CTS 3.7.A.5.b) will allow the new ITS Surveillance Requirement (SR 3.6.1.7.1), the verification of the position of each suppression chamber-to-drywell vacuum breaker, to be performed utilizing the installed remote indications in the relay room rather than by local verification. This is acceptable since the suppression chamber-to-drywell vacuum breakers are fully closed if the limit switches have not actuated and this will help to minimize plant radiation exposure when performing new SR 3.6.1.7.1.

RAI 3.6.1.7-3

X5 The second Frequency of ITS SR 3.6.1.7.1 (NUREG SR 3.6.1.8.1) is being deleted. The Suppression chamber-to-drywell vacuum breakers have position indication for each valve in the relay room and when one or more of the valves is not fully closed Control Room Annunciator 09-3-3-39 is actuated to alert the Control Room operators of the condition. In addition, drywell-to-suppression chamber differential pressure is maintained in accordance with ITS 3.6.2.4 during most of the time period that the vacuum breakers are required to be OPERABLE (and normally closed). Maintenance of the differential pressure results in a closing force of more than 1000 pounds on each valve disk to keep them closed. Further, the valve seat is at an angle of approximately 25 degrees from the vertical which allows gravity to assist in maintaining the valve

RAI 3.6.1.7-1

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X5 (continued)

disk in the closed position in the absence drywell-to-suppression chamber differential pressure. Finally, operating experience since initial plant operation in 1975 has shown that operation of Safety/Relief Valves or other operations that discharge steam to the suppression pool do not cause vacuum breaker valve disk movement (such as banging, clanging or chattering) even during those time periods when the closing force due to drywell-to-suppression chamber differential pressure is not present. The annunciation of a condition where a vacuum breaker valve is not fully closed, the valve design that include a positive seat angle, operating experience history, and the maintenance of differential pressure as required by ITS 3.6.2.4 make performance of ITS SR 3.6.1.7.1 as described in the second Frequency unnecessary.

RAI 3.6.1.7-1

X6 ITS SR 3.6.1.7.2 Frequency has been revised. The Suppression Chamber-to-Drywell vacuum breakers at JAFNPP are located in the reactor building (secondary containment) rather than within the suppression chamber where they might be exposed to a harsh environment. The vacuum breaker functional test Frequency has been changed from monthly to in accordance with the Inservice Testing Program consistent with the Frequency of the functional test of the Reactor Building-to-Suppression Chamber vacuum breakers (ITS SR 3.6.1.6.2) and other valves that are located in the reactor building (L4).

E

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.7

Suppression-Chamber-to-Drywell Vacuum Breakers

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

3.6 CONTAINMENT SYSTEMS

3.6.1.7 Suppression Chamber-to-Drywell Vacuum Breakers

LCO 3.6.1.7 Five suppression chamber-to-drywell vacuum breakers shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One suppression chamber-to-drywell vacuum breaker inoperable for opening.	A.1	Restore the vacuum breaker to OPERABLE status.	72 hours
B. One suppression chamber-to-drywell vacuum breaker not closed.	B.1	Close the open vacuum breaker.	2 hours
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours

RAI 3.6.1.7-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.1	----------NOTES---------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. Not required to be met for vacuum breakers open when performing their intended function. ---------- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.7.2	Perform a functional test of each required vacuum breaker.	In accordance with the Inservice Testing Program
SR 3.6.1.7.3	Verify the opening setpoint of each required vacuum breaker is ≤ 0.5 psid.	24 months

E

RAI 3.6.1.7-4

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.7 Suppression Chamber-to-Drywell Vacuum Breakers

BASES

BACKGROUND

The function of the suppression chamber-to-drywell vacuum breakers is to relieve vacuum in the drywell. There are 5 external vacuum breakers located on the external lines connecting the top of the suppression chamber with drywell vent pipes, which allow air and steam flow from the suppression chamber to the drywell when the drywell is at a negative pressure with respect to the suppression chamber. Therefore, suppression chamber-to-drywell vacuum breakers prevent an excessive negative differential pressure across the wetwell drywell boundary. Each vacuum breaker is a self-actuating valve, similar to a check valve, which can be manually operated locally for testing purposes.

A negative differential pressure across the drywell wall is caused by rapid depressurization of the drywell. Events that cause this rapid depressurization are cooling cycles, drywell spray actuation, and steam condensation from sprays or subcooled reflood water in the event of a primary system rupture. Cooling cycles result in minor pressure transients in the drywell that occur slowly and are normally controlled by ventilation equipment. Spray actuation or the spilling of subcooled water out of a break results in more significant pressure transients and becomes important in sizing suppression chamber-to-drywell vacuum breakers.

In the event of a primary system rupture, steam condensation within the drywell results in the most severe pressure transient. Following a primary system rupture, the gas mixture in the drywell is purged into the suppression chamber free airspace, leaving the drywell full of steam. Subsequent condensation of the steam can be caused in two possible ways, namely, Emergency Core Cooling Systems flow out of a line break, or Residual Heat Removal (RHR) Containment Spray System actuation following a loss of coolant accident (LOCA). These two cases determine the maximum depressurization rate of the drywell.

In addition, the waterleg in the Mark I Vent System downcomers are controlled by the drywell-to-suppression chamber differential pressure. If the drywell pressure is

(continued)

BASES

BACKGROUND (continued)

less than the suppression chamber pressure, there will be an increase in the vent waterleg. This will result in an increase in the water clearing inertia in the event of a postulated LOCA, resulting in an increase in the peak drywell pressure. This in turn will result in an increase in the pool swell dynamic loads. The suppression chamber-to-drywell vacuum breakers may limit the height of the waterleg in the vent system during time periods when drywell-to-suppression chamber differential pressure is not required or is not maintained within limits specified in LCO 3.6.2.4, "Drywell-to-Suppression Chamber Differential Pressure."

APPLICABLE SAFETY ANALYSES

Analytical methods and assumptions involving the suppression chamber-to-drywell vacuum breakers are used as part of the accident analyses of the primary containment systems. Suppression chamber-to-drywell and reactor building-to-suppression chamber vacuum breakers are provided as part of the primary containment to limit the negative differential pressure across the drywell and suppression chamber walls that form part of the primary containment boundary.

The safety analyses assume that the suppression chamber-to-drywell vacuum breakers are closed initially and are fully open at a differential pressure of 0.5 psid (Ref. 1). Additionally, 1 of the 5 vacuum breakers is assumed to fail in a closed position (Ref. 1). The results of the analyses show that the design differential pressure is not exceeded even under the worst case accident scenario. The vacuum breaker opening differential pressure setpoint and the requirement that all vacuum breakers be OPERABLE (the additional vacuum breaker is required to meet the single failure criterion) are a result of the requirement placed on the vacuum breakers to limit the vent system waterleg height. The cross sectional areas of the vacuum breakers are sized on the basis of the Bodega Bay pressure suppression system tests. The vacuum breaker capacity selected on this test basis is more than adequate to limit the pressure differential between the suppression chamber and drywell during post-accident drywell cooling operations to a value which is within the suppression system design values (Refs. 2 and 3). Design Basis Accident (DBA)

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

analyses assume the vacuum breakers to be closed initially and to remain closed and leak tight, until the suppression pool is at a positive pressure relative to the drywell.

The suppression chamber-to-drywell vacuum breakers satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 4).

RAI 3.6.1.7-6

LCO

All vacuum breakers must be OPERABLE for opening. All suppression chamber-to-drywell vacuum breakers also are required to be closed (except when the vacuum breakers are performing their intended design function). The vacuum breaker OPERABILITY requirement provides assurance that the drywell-to-suppression chamber negative differential pressure remains below the design value. The requirement that the vacuum breakers be closed ensures that there is no excessive bypass leakage should a LOCA occur.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could result in excessive negative differential pressure across the drywell wall, caused by the rapid depressurization of the drywell. The event that results in the limiting rapid depressurization of the drywell is the primary system rupture that purges the drywell of air and fills the drywell free airspace with steam. Subsequent condensation of the steam would result in depressurization of the drywell. The limiting pressure and temperature of the primary system prior to a DBA occur in MODES 1, 2, and 3. Excessive negative pressure inside the drywell could also occur due to inadvertent actuation of the RHR Containment Spray System during normal operation.

In MODES 4 and 5, the probability and consequences of these events are reduced by the pressure and temperature limitations in these MODES; therefore, maintaining suppression chamber-to-drywell vacuum breakers OPERABLE is not required in MODE 4 or 5.

(continued)

BASES (continued)

ACTIONS

A.1

With one of the vacuum breakers inoperable for opening (e.g., the vacuum breaker is not open and may be stuck closed or not within its opening setpoint limit, so that it would not function as designed during an event that depressurized the drywell), the remaining four OPERABLE vacuum breakers are capable of providing the vacuum relief function. However, overall system reliability is reduced because a single active failure in one of the remaining vacuum breakers could result in an excessive negative drywell-to-suppression chamber differential pressure during a DBA. Therefore, with one of the five vacuum breakers inoperable, 72 hours is allowed to restore the inoperable vacuum breaker to OPERABLE status so that plant conditions are consistent with those assumed for the design basis analysis. The 72 hour Completion Time is considered acceptable due to the low probability of an event occurring that would require the remaining vacuum breaker capability.

B.1

An open vacuum breaker allows communication between the drywell and suppression chamber airspace, and, as a result, there is the potential for primary containment overpressurization due to bypass leakage if a LOCA were to occur. Therefore, the open vacuum breaker must be closed. A short time is allowed to close the vacuum breaker due to the low probability of an event that would pressurize primary containment. If vacuum breaker position indication is not reliable, an alternate method of verifying that the vacuum breakers are closed is to verify the bypass leakage test between the drywell and suppression chamber is within the limits of SR 3.6.1.1.2 or by local observation. The required 2 hour Completion Time is considered adequate to perform this test. If the leak test fails, not only must this ACTION be taken (close the open vacuum breaker within the required Completion Time), but also the appropriate Conditions and Required Actions of LCO 3.6.1.1, Primary Containment, must be entered.

RAI 3.6.1.7-2

(continued)

BASES

ACTIONS (continued)

C.1 and C.2

If any Required Action and associated Completion Time cannot be 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 12 hours and to MODE 4 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 3.6.1.7.1

Each vacuum breaker is verified closed to ensure that this potential large bypass leakage path is not present. This Surveillance is performed by observing local or relay room vacuum breaker position indication or by performing SR 3.6.1.1.2, the bypass leakage test. If the bypass test fails, not only must the vacuum breaker(s) be considered open and the appropriate Conditions and Required Actions of this LCO be entered, but also the appropriate Condition and Required Actions of LCO 3.6.1.1, Primary Containment, must be entered. Each suppression chamber-to-drywell vacuum breaker disc will be seated as long as the arm movement is $\leq$ 1.0 degree. The vacuum breakers are considered closed if the associated position light indicates the closed position since it is set to actuate at $\leq$ 1.0 degree. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Two Notes are added to this SR. The first Note allows suppression chamber-to-drywell vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers.

The second Note is included to clarify that vacuum breakers open due to an actual differential pressure are not considered as failing this SR.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.7.2

Each required vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. The Frequency of this SR is in accordance with the Inservice Testing Program.

E

SR 3.6.1.7.3

Verification of the vacuum breaker opening setpoint is necessary to ensure that the safety analysis assumption regarding vacuum breaker full open differential pressure of 0.5 psid is valid. The 24 month Frequency has been shown to be acceptable, based on operating experience, and is further justified because SR 3.6.1.7.2 is performed at a shorter Frequency that conveys the proper functioning status of each vacuum breaker.

RAI 3.6.1.7-4

REFERENCES

1. UFSAR, Section 14.6.1.3.3.

2. UFSAR, Section 5.2.4.2.

3. Preliminary Hazards Summary Report, Bodega Bay Atomic Park Unit Number 1, Docket No. 50-205, Appendix I, December 28, 1962.

4. 10 CFR 50.36(c)(2)(ii).

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.8

Main Steam Leakage Collection (MSLC) System

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

DISCUSSION OF CHANGES (DOCs) TO THE CTS

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

MARKUP OF NUREG-1433, REVISION 1, SPECIFICATION

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1

MARKUP OF NUREG-1433, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1433, REVISION 1, BASES

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.8

Main Steam Leakage Collection (MSLC) System

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

Insert New Specification 3.6.1.8

Insert new Specification 3.6.1.8, "Main Steam Leakage Collection (MSLC) System" as shown in the JAFNPP Improved Technical Specifications.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.8

Main Steam Leakage Collection (MSLC) System

DISCUSSION OF CHANGES (DOCs) TO THE CTS

DISCUSSION OF CHANGES
ITS: 3.6.1.8 - MAIN STEAM LEAKAGE COLLECTION (MSLC) SYSTEM

ADMINISTRATIVE CHANGES

None

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 Proposed Specification ITS 3.6.1.8 (ISTS 3.6.1.9, Main Steam Isolation Valve (MSIV) Leakage Control System (LCS)), for the Main Steam Leakage Collection (MSLC) System, has been added. The MSLC System supplements the isolation function of the Main Steam Isolation Valves (MSIVs) by collecting and processing (via the Standby Gas treatment (SGT) System) the fission products that could leak through the stem packing or across the seat of the closed outboard MSIVs after a Design Basis Accident (DBA) Loss of Coolant Accident (LOCA). This system is required in accordance with criterion 3 of 10 CFR 50.36(c)(2)(ii). The addition of a new Specification imposes additional operational requirements necessary to ensure the safety analysis assumptions are met. This change does not adversely impact the safety of the plant.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

None

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

None

TECHNICAL CHANGES - RELOCATIONS

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.8

Main Steam Leakage Collection (MSLC) System

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

NO SIGNIFICANT HAZARDS CONSIDERATION
ITS: 3.6.1.8 - MAIN STEAM LEAKAGE COLLECTION (MSLC) SYSTEM

TECHNICAL CHANGE - LESS RESTRICTIVE (SPECIFIC)

There are no plant specific less restrictive changes identified for this specification.

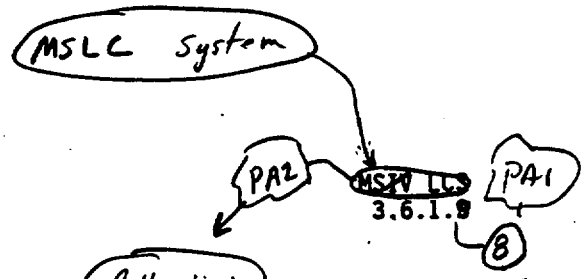
JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.8

Main Steam Leakage Collection (MSLC) System

MARKUP OF NUREG-1433, REVISION 1
SPECIFICATION



3.6 CONTAINMENT SYSTEMS

3.6.1.6 Main Steam Isolation Valve (MSIV) Leakage Control System (LCS)

PA1 8

LCO 3.6.1.6 Two MSIV LCO subsystems shall be OPERABLE.

PA2

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV LCO subsystem inoperable.	A.1 Restore MSIV LCO subsystem to OPERABLE status.	30 days
B. Two MSIV LCO subsystems inoperable.	B.1 Restore one MSIV LCO subsystem to OPERABLE status.	7 days
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

PA2

MSLC System (PA2)

MSIV LCS 3.6.1.9 (8) (PA1)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.9.1	Operate each MSIV LCS blower ≥ [15] minutes.	31 days
SR 3.6.1.9.2	Verify electrical continuity of each inboard MSIV LCS subsystem heater element circuitry.	31 days
SR 3.6.1.9.3	Perform a system functional test of each MSIV LCS subsystem.	[18] months

(PA1) — (8) (2) (DB1) (PA2) (24) (X1)

SR 3.6.1.8.1 Verify each MSLC subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position — 31 days

(DB1)

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.8

Main Steam Leakage Collection (MSLC) System

JUSTIFICATION FOR DIFFERENCES (JFDs)
FROM NUREG-1433, REVISION 1

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.6.1.8 - MAIN STEAM LEAKAGE COLLECTION (MSLC) SYSTEM

RETENTION OF EXISTING REQUIREMENT (CLB)

None

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 JAFNPP will not adopt ISTS 3.6.1.6. As a result, ISTS 3.6.1.9 has been renumbered.

PA2 The Specification has been modified to reflect plant specific nomenclature.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 Surveillance Requirements, ISTS SR 3.6.1.9.1 and 3.6.1.9.2 are not required and, are being deleted. The Main Steam Leakage Collection (MSLC) System at JAFNPP is not configured as described by NUREG-1433, Revision 1. The MSLC System does not contain independent fans and heaters for processing leakage, but utilizes the Standby Gas Treatment (SGT) System components for filtering and processing. As such these Surveillance Requirements are not required. ITS SR 3.6.1.8.1, to verify each MSLC subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position, is being inserted. This SR will ensure the OPERABILITY of the MSLC System by verifying the ability to align the subsystems to the SGT System. The subsequent Surveillance has been renumbered, as required.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 The Frequency of ITS SR 3.6.1.8.2 has been chosen to be consistent with the current operating cycle of 24 months.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.8

Main Steam Leakage Collection (MSLC) System

MARKUP OF NUREG-1433, REVISION 1, BASES

BASES

BACKGROUND

The MSIV LCS supplements the isolation function of the MSIVs by processing the fission products that could leak through the closed MSIVs after a Design Basis Accident (DBA) loss of coolant accident (LOCA).

The MSIV LCS consists of two independent and redundant subsystems, an inboard subsystem, connected between the inboard and outboard MSIVs, and an outboard subsystem, connected immediately downstream of the outboard MSIVs. Each subsystem is capable of processing leakage from MSIVs following a DBA LOCA. Each subsystem consists of blowers (one blower for the inboard subsystem and two blowers for the outboard subsystem), valves, piping, and heaters (for the inboard subsystem only). Four electric heaters in the inboard subsystem are provided to boil off any condensate prior to the gas mixture passing through the flow limiter.

Each subsystem operates in two process modes: depressurization and bleedoff. The depressurization process reduces the steam line pressure to within the operating capability of equipment used for the bleedoff mode. During bleedoff (long term leakage control), the blowers maintain a negative pressure in the main steam lines (Ref. 1). This ensures the leakage through the closed MSIVs is collected and processed by the MSIV LCS. In both process modes, the effluent is discharged to the secondary containment and ultimately filtered by the Standby Gas Treatment (SGT) System.

The MSIV LCS is manually initiated approximately 20 minutes following a DBA LOCA (Ref. 2).

APPLICABLE SAFETY ANALYSES

The MSIV LCS mitigates the consequences of a DBA LOCA by ensuring that fission products that may leak from the closed MSIVs are diverted to the secondary containment and ultimately filtered by the SGT System. The operation of the MSIV LCS prevents a release of untreated leakage for this type of event.

(continued)

DBI

INSERT BKG-1

Each subsystem collects leakage from the stem packing of all four outboard main steam isolation valves (MSIVs) and downstream of all outboard MSIVs. Each subsystem consists of valves, controls and piping which can be aligned to the Standby Gas Treatment (SGT) System for processing. During operation, the SGT System maintains sufficient negative pressure to provide the MSLC System flow required to ensure that all postulated leakage is collected and processed (Ref. 1). While both the stem packing and the downstream portion of each subsystem contribute to reducing uncontrolled or untreated MSIV leakage, the downstream portion performs the primary function of the MSLC System to collect and process the leakage across the MSIV seats. The downstream portion is provided with interlocks that prevent inadvertent overpressurization of the SGT System during normal operation and improper system lineup during accident conditions.

Each downstream portion of the MSLC subsystems includes a remote manual isolation valve, an automatic isolation valve, and a backup automatic isolation valve. The backup isolation valve is normally open. A pressure switch which monitors MSLC System piping pressure is provided for each automatic isolation valve. These pressure switches act to prevent the opening of the valves and to automatically close the valves on high pressure. The pressure switches will indicate low pressure during normal plant operation since the remote manual isolation valves will isolate the pressure switches from main steam pressure. The operator initiates the operation of the stem packing portion of the MSLC subsystem by opening the associated remote manual isolation valve. Any leakage is directly routed to the SGT System. The operator initiates operation of the downstream portion of each MSLC subsystem by first opening the associated remote manual isolation valve. The operator then places the control switch associated with the automatic isolation valves to open. If the MSLC System pressure is greater than 16 psig the valves will remain shut. The automatic and backup automatic isolation valves automatically open at or below 16 psig.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The MSIV LCO satisfies Criterion 3 of the NRC Policy Statement. (10 CFR 50.36(c)(2)(ii)(Ref. 3)) X1

LCO

One MSIV LCO subsystem can provide the required processing of the MSIV leakage. To ensure that this capability is available, assuming worst case single failure, two MSIV LCO subsystems must be OPERABLE.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could lead to a fission product release to primary containment. Therefore, MSIV LCO OPERABILITY is required during these MODES. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the MSIV LCO OPERABLE is not required in MODE 4 or 5 to ensure MSIV leakage is processed.

ACTIONS

A.1

With one MSIV LCO subsystem inoperable, the inoperable MSIV LCO subsystem must be restored to OPERABLE status within 30 days. In this Condition, the remaining OPERABLE MSIV LCO subsystem is adequate to perform the required leakage control function. However, the overall reliability is reduced because a single failure in the remaining subsystem could result in a total loss of MSIV leakage control function. The 30 day Completion Time is based on the redundant capability afforded by the remaining OPERABLE MSIV LCO subsystem and the low probability of a DBA LOCA occurring during this period.

B.1

With two MSIV LCO subsystems inoperable, at least one subsystem must be restored to OPERABLE status within 7 days. The 7 day Completion Time is based on the low probability of the occurrence of a DBA LOCA.

(continued)

BASES

ACTIONS (continued)

C.1 and C.2 PA2

If the MSIV LCO subsystem 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 12 hours and to MODE 4 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

B PA1

SR 3.6.1.9.1

INSERT SR-36181

DB2

Each MSIV LCS blower is operated for ≥ [15] minutes to verify OPERABILITY. The 31 day Frequency was developed considering the known reliability of the LCS blower and controls, the two subsystem redundancy, and the low probability of a significant degradation of the MSIV LCS subsystems occurring between surveillances and has been shown to be acceptable through operating experience.

SR 3.6.1.9.2

The electrical continuity of each inboard MSIV LCS subsystem heater is verified by a resistance check, by verifying that the rate of temperature increase meets specifications, or by verifying that the current or wattage draw meets specifications. The 31 day Frequency is based on operating experience that has shown that these components usually pass this Surveillance when performed at this Frequency.

PA1 B 2 DB2

SR 3.6.1.9.3

PA2 System DB1

A system functional test is performed to ensure that the MSIV LCO will operate through its operating sequence. This includes verifying that the automatic positioning of the valves and the operation of each interlock and timer are correct, that the blowers start and develop the required flow rate and the necessary vacuum, and that the upstream heaters meet current or wattage draw requirements (if not used to verify electrical continuity in SR 3.6.1.9.2). DB3 the DB5

(continued)

(DB2)

INSERT SR-36181

Verifying the correct alignment for manual, power operated, and automatic valves in the MSLC System flow path provides assurance that the proper flow path exists for system operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable since the MSLC System is manually initiated. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Frequency of 31 days is justified because the valves are operated under procedural control, improper valve position would affect only a single subsystem, the probability of an event requiring initiation of the system is low, and the subsystem is a manually initiated system. This Frequency has been shown to be acceptable based on operating experience.

SURVEILLANCE REQUIREMENTS SR 3.6.1.[3].[2] (continued)

[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 the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section [6.3].
2. Regulatory Guide 1.96, Revision [1].
3. 10 CFR 50.36 (c)(2)(ii)

While this Surveillance can be performed with the reactor at power,

Design of Main Steam Isolation Valve Leakage Control Systems For Boiling Water Reactor Nuclear Power Plants, June 1976

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.8

Main Steam Leakage Collection (MSLC) System

JUSTIFICATION FOR DIFFERENCES (JFDs)
FROM NUREG-1433, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.6.1.8 - MAIN STEAM LEAKAGE COLLECTION (MSLC) SYSTEM

RETENTION OF EXISTING REQUIREMENT (CLB)

None

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 JAFNPP will not adopt ISTS 3.6.1.6. As a result, ISTS 3.6.1.9 has been renumbered.

PA2 The Bases has been modified to reflect plant specific nomenclature.

PA3 The title of ITS 3.6.1.8 Reference 2 (Regulatory Guide 1.96) has been included.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 The Bases has been revised to reflect the plant specific design.

DB2 Surveillance Requirements, ISTS SR 3.6.1.9.1 and 3.6.1.9.2, are not required and, have been deleted. The Main Steam Leakage Collection (MSLC) System at JAFNPP is not configured as described by NUREG-1433, Revision 1. The MSLC System does not contain independent fans and heaters for processing leakage, but utilizes the Standby Gas Treatment (SGT) System components for filtering and processing. As such these Surveillance Requirements are not required. ITS SR 3.6.1.8.1, to verify each MSLC subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position, is being inserted. This SR will ensure the OPERABILITY of the MSLC System by verifying the ability to align the subsystems to the SGT System. The subsequent Surveillance has been renumbered to reflect this change.

DB3 The ISTS SR 3.6.1.9.3 (ITS SR 3.6.1.8.2) requirement to develop the required flow rate and the necessary vacuum has been deleted since the MSLC System does not contain independent fans and heaters for processing leakage. The testing requirements in ITS 3.6.4.1, "Secondary Containment" and ITS 3.6.4.3, "Standby Gas Treatment" System are sufficient to ensure that SGT System can draw sufficient vacuum in the secondary containment. This testing will also ensure sufficient vacuum will be developed in the main steam leakage control system volume between the main steam line isolation valves to the turbine control valves.

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.6.1.8 - MAIN STEAM LEAKAGE COLLECTION (MSLC) SYSTEM

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB4 The brackets have been removed and the proper plant specific reference included.

DB5 The justification for the ISTS SR 3.6.1.9.3 (ITS SR 3.6.1.8.2) Frequency of 24 months has been modified since the system has been designed to be tested during plant operating conditions. However, the 24 month Frequency is more than adequate based on operating experience.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 NUREG-1433, Revision 1, Bases references to "the NRC Policy Statement" has been replaced with 10 CFR 50.36(c)(2)(ii), in accordance with 60 FR 36953 effective August 18, 1995.

X2 The brackets have been removed and the Frequency of ITS SR 3.6.1.8.2 has been chosen to be consistent with the current operating cycle of 24 months.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.8

Main Steam Leakage Collection (MSLC) System

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

3.6 CONTAINMENT SYSTEMS

3.6.1.8 Main Steam Leakage Collection (MSLC) System

LCO 3.6.1.8 Two MSLC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One MSLC subsystem inoperable.	A.1	Restore MSLC subsystem to OPERABLE status.	30 days
B. Two MSLC subsystem inoperable.	B.1	Restore one MSLC subsystem to OPERABLE status.	7 days
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	Verify each MSLC subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	31 days
SR 3.6.1.8.2	Perform a system functional test of each MSLC subsystem.	24 months

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.8 Main Steam Leakage Collection (MSLC) System

BASES

BACKGROUND

The MSLC System supplements the isolation function of the MSIVs by processing the fission products that could leak through the closed MSIVs after a Design Basis Accident (DBA) loss of coolant accident (LOCA).

The MSLC System consists of two independent and redundant subsystems. Each subsystem collects leakage from the stem packing of all four outboard main steam isolation valves (MSIVs) and downstream of all outboard MSIVs. Each subsystem consists of valves, controls and piping which can be aligned to the Standby Gas Treatment (SGT) System for processing. During operation, the SGT System maintains sufficient negative pressure to provide the MSLC System flow required to ensure that all postulated leakage is collected and processed (Ref. 1). While both the stem packing and the downstream portion of each subsystem contribute to reducing uncontrolled or untreated MSIV leakage, the downstream portion performs the primary function of the MSLC System to collect and process the leakage across the MSIV seats. The downstream portion is provided with interlocks that prevent inadvertent overpressurization of the SGT System during normal operation and improper system lineup during accident conditions.

Each downstream portion of the MSLC subsystems includes a remote manual isolation valve, an automatic isolation valve, and a backup automatic isolation valve. The backup isolation valve is normally open. A pressure switch which monitors MSLC System piping pressure is provided for each automatic isolation valve. These pressure switches act to prevent the opening of the valves and to automatically close the valves on high pressure. The pressure switches will indicate low pressure during normal plant operation since the remote manual isolation valves will isolate the pressure switches from main steam pressure. The operator initiates the operation of the stem packing portion of the MSLC subsystem by opening the associated remote manual isolation valve. Any leakage is directly routed to the SGT System. The operator initiates operation of the downstream portion of each MSLC subsystem by first opening the associated

(continued)

BASES

BACKGROUND (continued)

remote manual isolation valve. The operator then places the control switch associated with the automatic isolation valves to open. If the MSLC System pressure is greater than 16 psig the valves will remain shut. The automatic and backup automatic isolation valves automatically open at or below 16 psig.

The MSLC System is manually initiated approximately 20 minutes following a DBA LOCA (Ref. 2).

APPLICABLE SAFETY ANALYSES

The MSLC System mitigates the consequences of a DBA LOCA by ensuring that fission products that may leak from the closed MSIVs are diverted to and filtered by the SGT System. The operation of the MSLC System prevents a release of untreated leakage for this type of event.

The MSLC System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 3).

LCO

One MSLC subsystem can provide the required processing of the MSIV leakage. To ensure that this capability is available, assuming worst case single failure, two MSLC subsystems must be OPERABLE.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could lead to a fission product release to primary containment. Therefore, MSLC System OPERABILITY is required during these MODES. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the MSLC System OPERABLE is not required in MODE 4 or 5 to ensure MSIV leakage is processed.

ACTIONS

A.1

With one MSLC subsystem inoperable, the inoperable MSLC subsystem must be restored to OPERABLE status within

(continued)

BASES

ACTIONS

A.1 (continued)

30 days. In this Condition, the remaining OPERABLE MSLC subsystem is adequate to perform the required leakage control function. However, the overall reliability is reduced because a single failure in the remaining subsystem could result in a total loss of MSIV leakage control function. The 30 day Completion Time is based on the redundant capability afforded by the remaining OPERABLE MSLC subsystem and the low probability of a DBA LOCA occurring during this period.

B.1

With two MSLC subsystems inoperable, at least one subsystem must be restored to OPERABLE status within 7 days. The 7 day Completion Time is based on the low probability of the occurrence of a DBA LOCA.

C.1 and C.2

If the MSLC subsystem 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 12 hours and to MODE 4 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 3.6.1.8.1

Verifying the correct alignment for manual, power operated, and automatic valves in the MSLC System flow path provides assurance that the proper flow path exists for system operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.8.1 (continued)

accident analysis. This is acceptable since the MSLC System is manually initiated. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Frequency of 31 days is justified because the valves are operated under procedural control, improper valve position would affect only a single subsystem, the probability of an event requiring initiation of the system is low, and the subsystem is a manually initiated system. This Frequency has been shown to be acceptable based on operating experience.

SR 3.6.1.8.2

A system functional test is performed to ensure that the MSLC System will operate through its operating sequence. This includes verifying that the automatic positioning of the valves and the operation of each interlock are correct. While this Surveillance can be performed with the reactor at power, operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. UFSAR, Section 9.19.

2. Regulatory Guide 1.96, Revision 1, Design Of Main Steam Isolation Valve Leakage Control Systems For Boiling Water Reactor Nuclear Power Plants, June 1976.

3. 10 CFR 50.36(c)(2)(ii).

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.9

Residual Heat Removal (RHR) Containment Spray

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

DISCUSSION OF CHANGES (DOCs) TO THE CTS

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

MARKUP OF NUREG-1434, REVISION 1, SPECIFICATION

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1434, REVISION 1

MARKUP OF NUREG-1434, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1434, REVISION 1, BASES

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.9

Residual Heat Removal (RHR) Containment Spray

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

Specification 3.6.1.9 A1

3.5 (cont'd)

5. All recirculation pump discharge valves shall be operable prior to reactor startup (or closed if permitted elsewhere in these specifications).

6. If the requirements of 3.5.A cannot be met, the reactor shall be placed in the cold condition within 24 hrs.

3.6.1.9 RHR Containment Spray Containment Cooling Mode of the RHR System

LCO 3.6.1.9 Both subsystems of the containment cooling mode, each including two RHR and two RHRSW pumps, shall be operable whenever there is irradiated fuel in the reactor vessel, prior to startup from a cold condition, and reactor coolant temperature ≥212°F except as specified below.

L4

L A1

See ITS: 3.7.1

MODES 1, 2, 3

Applicability

4.5 (cont'd)

5. All recirculation pump discharge valves shall be tested for operability any time the reactor is in the cold condition exceeding 48 hours, if operability tests have not been performed during the preceding 31 days.

See ITS: 3.5.1

B. Containment Cooling Mode of the RHR System A1

1. Subsystems of the containment cooling mode shall be demonstrated operable by performing:

IST Program

Item	Frequency
a pump operability and flow rate test on the RHR pumps. (add specific flow rate and pathway) M2	Per Surveillance Requirement 4.5.A.3 A3
b. an operability test of the RHR containment cooling mode motor operated valves.	In accordance with the Inservice Testing Program LA2
c. an operability test on the RHRSW pumps and associated motor operated valves.	In accordance with the Inservice Testing Program
d. a flow rate test verifying a flow rate of 4000 gpm for each RHRSW pump and a total flow rate of 8000 gpm for two RHRSW pumps operating in parallel.	In accordance with the Inservice Testing Program

SR 3.6.1.9.2

See ITS: 3.7.1

Specification 3.6.1.9 (A1)

3.5 (cont'd)

4.5 (cont'd)

Item	Surveillance (A1)	Frequency
e.	a verification that each valve (manual, power operated, or automatic) in the flowpath that is not locked, sealed or otherwise secured in position, is in the correct position, or can be aligned to the correct position (A2)	Once per 31 Days
f.	an air test shall be performed (LA3) on the containment spray headers and nozzles, is unobstructed	Once per 10 (L3) Years

[SR 3.6.1.9.1]

[SR 3.6.1.9.3]

See ITS 3.7.1

2. Should one RHRSW pump of the components required in 3.5.B.1 above be made or found inoperable, continued reactor operation is permissible only during the succeeding 30 days provided that during such 30 days all remaining components of the containment cooling mode subsystems are operable.

2. When it is determined that one RHRSW pump of the components required in 3.5.B.1 above is inoperable, the remaining components of the containment cooling mode subsystems shall be verified to be operable immediately and daily thereafter.

3. When one containment cooling subsystem becomes inoperable, the redundant containment cooling subsystem shall be verified to be operable immediately and daily thereafter. When one RHRSW pump in each subsystem becomes inoperable, the remaining components of the containment cooling subsystems shall be verified to be operable immediately and daily thereafter. (A4)

RAI 3.6.1.9-5

[ACTION A] (2)

Should one of the containment cooling subsystems become inoperable or should one RHRSW pump in each subsystem become inoperable, continued reactor operation is permissible for a period not to exceed 7 days* (15)

See ITS 3.7.1

add ACTION B

[ACTION C] (A.)

If the requirements of 3.5.B.2 or 3.5.B.3 cannot be met, the reactor shall be placed in a cold condition within 24 (36) hr. (L2)

MODE 3 in 12 hours (M1)

5. Low power physics testing and reactor operator training shall be permitted with reactor coolant temperature <212°F with an inoperable component(s) as specified in 3.5.B above

See ITS 3.10.8

*During the installation of modification 99-095 to the "A" RHRSW strainer, continued reactor operation is permissible for a period not to exceed 11 days.

CTS Amend 259

See ITS 3.7.1

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.9

Residual Heat Removal (RHR) Containment Spray

DISCUSSION OF CHANGES (DOCs) TO THE CTS

DISCUSSION OF CHANGES
ITS: 3.6.1.9 - RESIDUAL HEAT REMOVAL (RHR) CONTAINMENT SPRAY

ADMINISTRATIVE CHANGES

A1 In the conversion of the James A. FitzPatrick Nuclear Power Plant (JAFNPP) Current Technical Specifications (CTS) to the proposed plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted that do not result in technical changes. Editorial changes, reformatting, and revised numbering are adopted to make the ITS consistent with the conventions in NUREG-1434, "Standard Technical Specifications, General Electric Plants, BWR/6", Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)).

RAI 3.6.1.9-1

A2 Additional words "or can be aligned to the correct position" have been added to CTS 4.5.B.1.e for clarity. The required lineup for ECCS OPERABILITY in CTS 4.5.A.1.c requires the RHR System to be in a lineup other than that necessary to perform the spray function required by CTS 3/4.5.B. In addition, the containment spray function is manually actuated (requiring repositioning of valves and starting of the RHR pump by the operator). In current Technical Specifications, this is recognized and interpreted that "in the correct position" allows the valves to be in a non-accident position provided they can be realigned to the correct position. In the proposed Specifications, the words "in the correct position" mean that the valves must be in the accident position, unless they can be automatically aligned on an accident signal. If so, then they can be in the non-accident position. Thus, for the spray function and other manually actuated systems, the additional words "or can be aligned to the correct position" have been added to clarify that it is permissible for this systems' valves to be in the non-accident position and still be considered OPERABLE. Since this is the current requirement, this change is considered administrative.

A3 CTS 4.5.B.1.a requires the pump operability and flow rate test on the RHR pumps to be performed at a Frequency consistent with CTS 4.5.A.3. The Frequency in CTS 4.5.A.3 is in accordance with the Inservice Testing Program. ITS SR 3.6.1.9.2 requires the test to be performed at a Frequency in accordance with the Inservice Testing Program. This change is considered administrative since it removes a cross reference to another Specification. This change is consistent with NUREG-1434, Revision 1.

RAI 3.6.1.9-5

A4 CTS 4.5.B.3 requires the redundant containment cooling subsystem to be verified to be operable immediately and daily thereafter when one containment cooling subsystem becomes inoperable. This explicit requirement is not retained in ITS 3.6.1.9. These verifications are an implicit part of using Technical Specifications (CTS or ITS) and determining the appropriate Conditions to enter and Actions to take in

ADMINISTRATIVE CHANGES

A4 (continued)

the event of inoperability of Technical Specification equipment. In addition, plant and equipment status is continuously monitored by control room personnel. The results of this monitoring process are documented in records/logs maintained by control room personnel. The continuous monitoring process includes re-evaluating the status of compliance with Technical Specification requirements when Technical Specification equipment becomes inoperable using the control room records/logs as aids. Therefore, the explicit requirement to periodically verify the Operability of the redundant subsystem is considered to be unnecessary for ensuring compliance with the applicable Technical Specification actions.

RAI 3.6.1.9-3

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 CTS 3.5.B.4 requires the reactor be in a cold shutdown condition within 24 hours when the actions of CTS 3.5.B.3 cannot be met for one inoperable RHR containment cooling subsystem. If two RHR containment cooling subsystems are inoperable entry into CTS 3.0.C is required and the plant must be in COLD SHUTDOWN in 24 hours consistent with the time in CTS 3.5.B.4. A new ACTION (ITS 3.6.1.9 ACTION B) has been added which allows 8 hours to restore one RHR containment spray subsystem to operable status when both subsystems are found to be inoperable, however this change is addressed in L5. ITS 3.6.1.9 Required Action C.1 requires the plant to be in MODE 3 in 12 hours if the Required Action and associated Completion Time of Condition A or B is not met for one or two RHR containment spray subsystems, respectively. In addition, ITS 3.6.1.9 Required Action C.2 has extended the time to reach cold condition (MODE 4) to 36 hours (L2). This change is considered more restrictive since a specific time to reach an interim condition has been specified (MODE 3 in 12 hours). The allowed Completion Times in Required Actions C.1 and C.2 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. However, the 12 hour Completion Time ensures timely action is taken to place the plant in a shutdown condition (MODE 3). The consequences of any design bases event is significantly reduced when plant is shutdown. This change is consistent with NUREG-1434,Revision 1.

RAI 3.6.1.9-1

TECHNICAL CHANGES - MORE RESTRICTIVE

M2 CTS 4.5.B.1.a requires the pump operability and flow rate test on the RHR pumps to be performed at a Frequency consistent with CTS 4.5.A.3. The Frequency in CTS 4.5.A.3 is in accordance with the Inservice Testing Program. ITS SR 3.6.1.9.2 requires the verification that each required RHR pump to develop a flow rate > 7750 gpm through the associated heat exchanger while operating in the suppression pool cooling mode. The proposed Frequency is consistent with the Inservice Testing Program. This change is considered more restrictive since a specific flow rate and flow path is specified. The test must be performed aligning the system in the RHR Suppression Pool Cooling mode of operation (i.e., through the RHR heat exchanger) instead of taking credit for a test performed to satisfy an independent function (ECCS flow requirements). This change is necessary to ensure the containment analysis can be satisfied.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The details in CTS 3.5.B.1 concerning the number of pumps required in each RHR Containment Spray subsystem (i.e., two RHR pumps) is proposed to be relocated to the Bases. The requirement in the proposed LCO that two RHR Containment Spray subsystems must be OPERABLE and the definition of OPERABILITY suffices. The requirement has been placed in ITS 3.6.1.9 LCO Bases which specifies that one RHR pump is required in each subsystem (see L4) with redundant power supplies. Therefore, this detail is not required to be included in the ITS to provide adequate protection of the public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA2 The inservice testing requirement in CTS 4.5.B.1.b for the RHR containment cooling mode motor operated valves is proposed to be relocated to the Inservice Testing (IST) Program. This testing is required to ensure the valves are Operable in order to perform their intended function. However, the IST Program, required by 10 CFR 50.55a, provides requirements for the testing of all ASME Code Class 1, 2, and 3 pumps and valves in accordance with Section XI of the ASME Code. The IST Program and implementing procedures ensure compliance with 10 CFR 50.55a, which is required by the JAFNPP Operating License. These controls are adequate to ensure the required testing to verify Operability is performed. Therefore, this detail is not required to be included in the ITS to provide adequate protection of the public health and safety. Changes to the relocated requirements in the IST Program will be controlled by the provisions of 10 CFR 50.59.

TECHNICAL CHANGES - MORE RESTRICTIVE

LA3 The details on the method to perform CTS 4.5.B.1.f (i.e., an air test) is proposed to be relocated to the Bases. The requirement in proposed SR 3.6.1.9.3 to verify each containment spray nozzle is unobstructed every 10 years (see L3) is adequate to ensure the surveillance is performed at the appropriate frequency. Therefore this detail on how to perform the surveillance is not necessary to provide adequate protection of the public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 Not used.

L2 CTS 3.5.B.4 requires the reactor be in a cold shutdown condition within 24 hours when the actions of CTS 3.5.B.3 cannot be met for one inoperable RHR containment cooling subsystem. If two RHR containment cooling subsystems are inoperable entry into CTS 3.0.C is required and the plant must be in COLD SHUTDOWN in 24 hours consistent with the time in CTS 3.5.B.4. A new ACTION (ITS 3.6.1.9 ACTION B) has been added which allows 8 hours to restore one RHR containment spray subsystem to operable status when both subsystems are found to be inoperable, however this change is addressed in L5. The proposed requirement, ITS 3.6.1.9 Required Action C.2, extends the time allowed for the plant to be in MODE 4, from 24 hours to 36 hours when the Required Action and associated Completion Time of ACTION A or B are not met. However, ITS 3.6.1.9 Required Action C.1 requires the plant to be in MODE 3 in 12 hours (M1). This change is less restrictive because it extends the time for the plant to be in MODE 4 from 24 hours to 36. The allowed Completion Times in Required Actions C.1 and C.2 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. The consequences of an accident are not significantly increased because ITS 3.6.1.9, Required Action C.1 will require the plant be placed in MODE 3 within 12 hours. This change reduces the time the reactor would be allowed to continue to operate under the conditions specified above. The consequences of a LOCA are significantly mitigated when the reactor is shutdown and a controlled cooldown is already in progress. This change is consistent with NUREG-1434, Revision 1.

RAI 3.6.1.9-5

RAI 3.6.1.9-1

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L3 The Frequency in CTS 4.5.B.1.f (proposed SR 3.6.1.9.3) for performance of an air test on the containment spray header and nozzles has been extended from 5 years to 10 years. This change is justified due to the passive design of the nozzles, and has been shown acceptable through industry operating experience. This change does not represent a significant increase in the probability of an accident because obstruction of the RHR containment spray nozzles is not a precursor to any accident.

L4 CTS 3.5.B.1 requires two Residual Heat Removal (RHR) pumps to be Operable in each containment cooling mode subsystem. ITS 3.6.1.9 will require both RHR containment spray subsystems to be Operable but as indicated in the Bases only one pump is required in each RHR containment spray subsystem. The containment analysis does not credit both RHR pumps in each subsystem. In order to satisfy the safety analysis, one RHR pump and two RHR service water pumps are required to function as indicated in UFSAR Section 14.6.1.3.3. In the condition where one RHR service water pump is inoperable in each subsystem the containment safety function can still be met as long as one RHR pump and one RHR service water pump is Operable in each subsystem. The requirements of the RHR Service Water System are specified in ITS 3.7.1, "RHR Service Water (RHRSW) System". CTS 3.5.B.3 and ITS 3.7.1 ACTION B allow one RHR Service Water pump to be inoperable in each subsystem for 7 days. In the CTS, if any RHR pump is inoperable longer than this time period the default action CTS 3.5.B.4 must be entered and the reactor must be in a cold condition in 24 hours. In the ITS, the 7 day period is permitted even with two RHR pumps inoperable in the same subsystem since the safety function can be met. Therefore, this change is less restrictive but acceptable since the safety analysis can be met. This change is consistent with NUREG-1434, Revision 1.

L5 A new action has been added to the current requirements in CTS 3.5.B.3 (ITS 3.6.1.9 ACTION B) for two RHR containment spray subsystems inoperable. Currently, this requirement will require entry in CTS 3.0.C and the reactor must be in COLD SHUTDOWN within 24 hours. ITS 3.6.1.9 ACTION B allows 8 hours when two RHR containment spray subsystems are inoperable. If this cannot be met ITS 3.6.1.9 ACTION C must be entered and a plant shutdown must commence (see L2 and M1). The proposed change is acceptable for the following reasons: 1) the probability of an accident is not increased because RHR containment spray is not an initiator of any accident; 2) the consequences of an event are the same in the 8 hour period as they are without the 8 hour period; 3) no new accident is possible because no physical changes have occurred in the

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L5 (continued)

plant nor have any procedures governing plant operation been changed and; 4) the time allowed to restore one RHR containment spray subsystem to OPERABLE status is acceptable based on the small probability of an event requiring the inoperable Technical Specification component to function during this period and the desire to reduce challenges to safety systems and thermal stress on components. Therefore this change does not involve a significant reduction in a margin of a safety. This change is consistent with NUREG-1434, Revision 1.

TECHNICAL CHANGES - RELOCATIONS

None

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.9

Residual Heat Removal (RHR) Containment Spray

NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC) FOR LESS RESTRICTIVE CHANGES

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.9 - RESIDUAL HEAT REMOVAL (RHR) CONTAINMENT SPRAY

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

CR1F 3.6.1.9-5

L1 CHANGE

Not used.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.9 - RESIDUAL HEAT REMOVAL (RHR) CONTAINMENT SPRAY

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. 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?

   The proposed change does not increase the probability of an accident because the change extends the time to Cold Shutdown from 24 hours to 36 hours when the Required Actions or Completion Times associated with an inoperable RHR containment spray subsystem cannot be satisfied. Shutdown Completion Times are not assumed in the initiation of any analyzed event. The change will not allow continuous operation with an inoperable RHR containment spray subsystem. The consequences of an accident are not increased because ITS 3.6.1.9 Required Action C.1 will require that the plant be placed in MODE 3 within 12 hours once the determination is made that the Required Actions or Completion Time associated with an inoperable RHR containment spray subsystem cannot be satisfied. This change reduces the time the reactor would be allowed to continue to operate once the condition is identified. The consequences of a LOCA are significantly mitigated when the reactor is shutdown and a controlled cooldown is already in progress. In addition, the consequences of an event occurring during the proposed shutdown Completion Time are the same as the consequences of an event occurring during the existing shutdown Completion Time. Therefore, the change does not involve a significant increase in the probability or consequences of an event previously evaluated.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.9 - RESIDUAL HEAT REMOVAL (RHR) CONTAINMENT SPRAY

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 CHANGE

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 plant systems, structures, or components (SSCs), or the manner in which these SSCs are operated, maintained, modified, tested, or inspected. The change increases the time allowed to Cold Shutdown from 24 hours to 36 hours. Therefore, this change 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?

The change extends the time allowed to Cold Shutdown from 24 hours to 36 hours when the Required Actions or Completion Times associated with an inoperable RHR containment spray subsystem cannot be satisfied. There is no reduction in the margin of safety because ITS 3.6.1.9 Required Action C.1 will require that the plant be placed in MODE 3 within 12 hours once the determination is made that the Required Actions or Completion Times associated with an inoperable RHR containment spray subsystem cannot be satisfied. This concurrent change reduces the time the reactor would be allowed to continue to operate once the condition is identified. The consequences of a LOCA are significantly mitigated when the reactor is shutdown and a controlled cooldown is already in progress. In addition, this change provides the benefit of a reduced potential for a plant event that could challenge safety systems by providing additional time to reduce pressure in a controlled and orderly manner. Therefore, this change does not involve a significant reduction in a margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.9 - RESIDUAL HEAT REMOVAL (RHR) CONTAINMENT SPRAY

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L3 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. 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?

   The proposed change does not result in any hardware changes. The containment spray subsystems (including nozzles) are not assumed to be initiators of any analyzed event. Extending the Surveillance Frequency for performing of an air test on the containment spray header and nozzles from 5 to 10 years does not represent a significant increase in the probability of any accident because obstruction of the containment spray nozzles is not a precursor to any accident analyses. The containment spray subsystems and nozzles function to mitigate the consequences of an analyzed event by providing spray flow to the containment during an accident. The proposed change still provides assurance that the containment spray nozzles will be maintained OPERABLE due to the passive design of the nozzles and based on industry operating experience. Therefore, the extension of the Surveillance Frequency does not significantly increase the consequences of any accident since the nozzles will still be maintained OPERABLE between Surveillance intervals.

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

   The proposed change does not necessitate a physical alteration of the plant (no new or different types of equipment will be installed) or changes in parameters governing normal plant operation. The proposed change will still ensure containment spray nozzle OPERABILITY is adequately maintained. Thus, this change does not create the possibility of a new or different type of accident from any accident previously evaluated.

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

   The increased interval between the air test on the containment spray header and nozzles is acceptable due to the passive design of the

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L3 CHANGE

3. (continued)

nozzles and industry operating experience. Therefore, the increased interval is considered acceptable for maintaining nozzle OPERABILITY. As a result, any reduction in a margin of safety will be insignificant and will likely be offset by the benefit gained from more efficient use of utility resources.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.9 - RESIDUAL HEAT REMOVAL (RHR) CONTAINMENT SPRAY

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. 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?

   The proposed change reduces the required number of Residual Heat Removal (RHR) pumps in each RHR containment spray subsystem from two to one. The RHR pumps are not considered to be initiators of any accident. Therefore, this change does not significantly increase the probability of an accident previously evaluated. The containment analysis only assumes one RHR pump is operating in the containment spray mode of operation. Therefore, the safety analysis can be met even with a single failure in one RHR containment spray subsystem. The RHR pumps are required to remain Operable to support the requirements of ITS 3.5.1, "ECCS-Operating". If one or two RHR pumps are inoperable in one subsystem, the ACTIONS of ITS 3.5.1 will only permit operation for 7 days which is consistent with the requirements in CTS 3.5.B.3. Since the consequences of an accident are bounded by the current containment analysis and since Operability requirements still exists in the Technical Specification for RHR pumps, this change does not involve a significant increase in the consequences of an accident previously evaluated.

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

   The proposed change reduces the required number of Residual Heat Removal (RHR) pumps in each RHR containment spray subsystem from two to one. ITS LCO 3.5.1 will continue to require both pumps in each subsystem to remain Operable during MODES 1, 2 and 3. The proposed change will not involve any physical changes to plant systems, structures, or components (SSCs), or the manner in which these SSCs are operated, maintained, modified, tested, or inspected. Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.9 - RESIDUAL HEAT REMOVAL (RHR) CONTAINMENT SPRAY

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 CHANGE

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

The proposed change reduces the required number of Residual Heat Removal (RHR) pumps in each RHR containment spray subsystem from two to one. ITS LCO 3.5.1 will continue to require both pumps in each subsystem to remain Operable during MODES 1, 2 and 3. The containment safety analysis can be met at all times with one RHR pump Operable in each subsystem. Even with a single failure one RHR containment spray subsystem has the capacity to perform the required containment spray function. Since the consequences of an accident are bounded by the current containment analysis and since Operability requirements still exists in the Technical Specification for all four RHR pumps, this change does not involve a significant reduction in a margin of safety.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.9 - RESIDUAL HEAT REMOVAL (RHR) CONTAINMENT SPRAY

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L5 CHANGE

New York Power Authority has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. 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?

   The proposed change adds an additional condition for two inoperable RHR containment spray subsystems which allows 8 hours to restore one RHR containment spray subsystem to OPERABLE status. The probability of an accident is not increased because RHR containment spray is not an initiator of any accident previously evaluated. The RHR containment spray subsystem is designed to mitigate the consequences of an accident. With both subsystems inoperable and if an accident were to occur the applicable safety analyses may not be met. However, the time allowed to restore one RHR containment spray subsystem to OPERABLE status is acceptable based on the small probability of an event requiring the inoperable Technical Specification component to function during this period and the desire to reduce challenges to safety systems and thermal stress on components. In addition, the consequences of an event are the same in the 8 hour period as they are without the 8 hour period, therefore the consequences of an accident will be bounded by the current requirements. Therefore, this change does not significantly increase the consequences of any previously analyzed accident.

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

   The proposed change adds an additional condition for two inoperable RHR containment spray subsystems which allows 8 hours to restore one RHR containment spray subsystem to OPERABLE status. The proposed change will not involve any physical changes to plant systems, structures, or components (SSC), or the manner in which these SSC are operated, maintained, modified, tested, or inspected. Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.6.1.9 - RESIDUAL HEAT REMOVAL (RHR) CONTAINMENT SPRAY

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L5 CHANGE

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

The proposed change adds an additional condition for two inoperable RHR containment spray subsystems which allows 8 hours to restore one RHR containment spray subsystem to OPERABLE status. The RHR containment spray subsystem is designed to mitigate the consequences of an accident. With both subsystems inoperable and if an accident were to occur the applicable safety analyses may not be met. However, the time allowed to restore one RHR containment spray subsystem to OPERABLE status is acceptable based on the small probability of an event requiring the inoperable Technical Specification component to function during this period and the desire to reduce challenges to safety systems and thermal stress on components. Therefore, this change does not involve a significant reduction in the margin of safety.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.9

Residual Heat Removal (RHR) Containment Spray

MARKUP OF NUREG-1434, REVISION 1, SPECIFICATION

3.6 CONTAINMENT SYSTEMS

3.6.1.0 (9) Residual Heat Removal (RHR) Containment Spray System

[CTS 3.5.B.1] LCO 3.6.1.0 (9) Two RHR containment spray subsystems shall be OPERABLE.

[CTS 3.5.B.1] APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
[CTS 3.5.B.3] A. One RHR containment spray subsystem inoperable.	A.1	Restore RHR containment spray subsystem to OPERABLE status.	7 days
[L5] B. Two RHR containment spray subsystems inoperable.	B.1	Restore one RHR containment spray subsystem to OPERABLE status.	8 hours
[CTS 3.5.B.4] [L2] [M1] C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours

Insert Page 3.6-30a

Insert 3.6.1.9

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.9.1 [CTS 4.5.B.1.a]	NOTE RHR containment spray subsystems may be considered OPERABLE during alignment and operation for decay heat removal when below [the RHR cut in permissive pressure in MODE 3] if capable of being manually realigned and not otherwise inoperable. Verify each RHR containment spray subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days or can be aligned to the correct position
SR 3.6.1.9.2 [CTS 4.5.B.1.a]	Verify each RHR pump develops a flow rate of ≥ [5850] gpm on recirculation flow through the associated heat exchanger to the suppression pool.	[In accordance with the Inservice Testing Program or 92 days]
SR 3.6.1.7.3	Verify each RHR containment spray subsystem automatic valve in the flow path actuates to its correct position on an actual or simulated automatic initiation signal.	[18] months
SR 3.6.1.9.3 [CTS 4.5.B.1.f]	Verify each spray nozzle is unobstructed.	[At first refueling AND 10 years]

Insert Page 3.6-306

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.9

Residual Heat Removal (RHR) Containment Spray

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1434, REVISION 1

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1434, REVISION 1
ITS: 3.6.1.9 - RESIDUAL HEAT REMOVAL (RHR) CONTAINMENT SPRAY

RAI 3.6.1.9-1

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 This Specification has been added in accordance with the current requirements in CTS 3.5.B.1. At JAFNPP both the drywell and suppression chamber sprays are required to mitigate the consequences of accidents. The current requirements are more consistent with Specification 3.6.1.7 of the BWR/6 Standard Technical Specifications, NUREG-1434, Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)), therefore this Specification and Bases have been used to develop the ITS requirements of containment spray for the JAFNPP ITS submittal. The NUREG-1434 Specification and Surveillances have been renumbered as applicable.

CLB2 The brackets have been removed and the proper plant specific Surveillance Frequency has been included in accordance with CTS 4.5.B.1.a.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 The word "required" has been included in ITS SR 3.6.1.9.2 in accordance with the use of this term in the Improved Technical Specifications. All RHR pumps are not required to be Operable to satisfy this Specification therefore this change is appropriate.

RAI 3.6.1.9-6

PA2 The Note to NUREG-1434, SR 3.6.1.7.1 is for BWR/6 plants where the RHR Containment Spray System is automatically initiated. The note has been deleted in the NUREG markup for ITS SR 3.6.1.9.1 because the RHR Contaiment Spray System at the FitzPatrick plant is manually initiated. The phrase "or can be aligned to the correct position" has been added to ITS SR 3.6.1.9.1 to be consistent with the format of the SRs of other manually initiated systems such as those addressed by NUREG-1433, SR 3.6.2.4.1 and NUREG-1433, SR 3.6.2.3.1 (ITS SR 3.6.2.3.1).

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 NUREG-1434 SR 3.6.1.7.3 has been deleted since it is not applicable. The JAFNPP design does not include any automatic actuation of the containment spray mode therefore this surveillance is not necessary.

DB2 The brackets have been removed and the proper plant specific value has been included.

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1434, REVISION 1
ITS: 3.6.1.9 - RESIDUAL HEAT REMOVAL (RHR) CONTAINMENT SPRAY

RAI 3.6.1.9-1

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 The bracketed surveillance Frequency in NUREG-1434 SR 3.6.1.7.4 (At first refueling) has been deleted since the first refueling outage is already completed. This surveillance was intended for new plants licensed under NUREG-1434.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.9

Residual Heat Removal (RHR) Containment Spray

MARKUP OF NUREG-1434, REVISION 1, BASES

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.0 Residual Heat Removal (RHR) Containment Spray System

BASES

BACKGROUND

The primary containment is designed with a suppression pool so that, in the event of a loss of coolant accident (LOCA), steam released from the primary system is channeled through the suppression pool water and condensed without producing significant pressurization of the primary containment. The primary containment is designed so that with the pool initially at the minimum water volume and the worst single failure of the primary containment heat removal systems, suppression pool energy absorption combined with subsequent operator controlled pool cooling will prevent the primary containment pressure from exceeding its design value. However, the primary containment must also withstand a postulated bypass leakage pathway that allows the passage of steam from the drywell directly into the primary containment airspace, bypassing the suppression pool. The primary containment also must withstand a low energy steam release into the primary containment airspace. The RHR Containment Spray System is designed to mitigate the effects of bypass leakage and low energy line breaks.

There are two redundant, 100% capacity RHR containment spray subsystems. Each subsystem consists of a suction line from the suppression pool, an RHR pump, a heat exchanger, and three spray spargers inside the primary containment (outside of the drywell) above the refueling floor. Dispersion of the spray water is accomplished by 350 nozzles in each subsystem.

The RHR containment spray mode may be automatically initiated, if required, following a LOCA, or it may be manually initiated according to emergency procedures.

APPLICABLE SAFETY ANALYSES

Reference 2 contains the results of analyses that predict the primary containment pressure response for a LOCA with the maximum allowable bypass leakage area.

The equivalent flow path area for bypass leakage has been specified to be [0.9] ft^2. The analysis demonstrates that

(continued)

Insert Page B 3.6-57a Revision E

<INSERT B 3.6.1.9> CLB1

INSERT BKGD 1 DB2

to prevent the drywell temperature from exceeding its design value of 309°F (Ref. 1) for a significant period of time and to ensure the safety equipment can perform its associated function during a design basis event.

INSERT BKGD 2 DB2

its associated spray header embedded in and protected by the primary shield wall located in the drywell and to a common spray header suspended in the suppression chamber above the minimum water level.

BASES

APPLICABLE SAFETY ANALYSES (continued)

with containment spray operation the primary containment pressure remains within design limits.

The RHR Containment Spray System satisfies Criterion 3 of the NRC Policy Statement.

LCO

In the event of a Design Basis Accident (DBA), a minimum of one RHR containment spray subsystem is required to mitigate potential bypass leakage paths and maintain the primary containment peak pressure below design limits. To ensure that these requirements are met, two RHR containment spray subsystems must be OPERABLE. Therefore, in the event of an accident, at least one subsystem is OPERABLE assuming the worst case single active failure. An RHR containment spray subsystem is OPERABLE when the pump, the heat exchanger, and associated piping, valves, instrumentation, and controls are OPERABLE.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause pressurization of primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining RHR containment spray subsystems OPERABLE is not required in MODE 4 or 5.

ACTIONS

A.1

With one RHR containment spray subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days. In this Condition, the remaining OPERABLE RHR containment spray subsystem is adequate to perform the primary containment cooling function. However, the overall reliability is reduced because a single active failure in the OPERABLE subsystem could result in reduced primary containment cooling capability. The 7 day Completion Time was chosen in light of the redundant RHR containment capabilities afforded by the OPERABLE subsystem and the low probability of a DBA occurring during this period.

(continued)

Insert Page B 3.6-57c

Revision E

INSERT ASA

(DBZ)

Steam line breaks have been analyzed to develop a drywell temperature history for use in equipment qualification (Refs. 3, 4 and 5). The RHR containment sprays are assumed to be initiated at a minimum time of 10 minutes. The RHR containment spray flow rates were assumed to be 7,150 gpm for drywell sprays and 600 gpm for suppression chamber sprays. The highest temperature envelope is 330°F for the first 200 seconds and this is as a result of a 0.75 ft^2 steam line break (Ref. 5). This temperature exceeds the containment design temperature of 309°F but is acceptable since the drywell design temperature limit is applicable coincident with a drywell design pressure of 56 psig (Ref. 6).

INSERT LCO

(PAZ)

An RHR containment spray subsystem may be considered OPERABLE during alignment and operation for decay heat removal when below the actual RHR shutdown cooling permissive pressure in MODE 3, if capable of being manually realigned (remote or local) to the containment spray mode and not otherwise inoperable. Alignment and operation for decay heat removal includes the period when the required RHR pump is not operating or when the system is realigned from or to the RHR shutdown cooling mode.

BASES

ACTIONS (continued)

B.1

With two RHR containment spray subsystems inoperable, one subsystem must be restored to OPERABLE status within 8 hours. In this Condition, there is a substantial loss of the primary containment bypass leakage mitigation function. The 8 hour Completion Time is based on this loss of function and is considered acceptable due to the low probability of a DBA and because alternative methods to remove heat from primary containment are available.

C.1 and C.2

If the inoperable RHR containment spray subsystem 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 12 hours and to MODE 4 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 3.6.1.3.1

Verifying the correct alignment for manual, power operated, and automatic valves in the RHR containment spray mode flow path provides assurance that the proper flow paths will exist for system operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these were verified to be in the correct position prior to locking, sealing, or securing. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The 31 day Frequency of this SR is justified because the valves are operated under procedural control and because improper valve position would affect only a single subsystem. This Frequency has been shown to be acceptable based on operating experience.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.7.1 (continued)

A Note has been added to this SR that allows RHR containment spray subsystems to be considered OPERABLE during alignment to and operation in the RHR shutdown cooling mode when below [the RHR cut in permissive pressure in MODE 3] if capable of being manually realigned and not otherwise inoperable. At these low pressures and decay heat levels (the reactor is shut down in MODE 3), a reduced complement of subsystems can provide the required containment pressure mitigation function thereby allowing operation of an RHR shutdown cooling loop when necessary.

SR 3.6.1.7.2

Verifying each RHR pump develops a flow rate ≥ [5650] gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. It is tested in the pool cooling mode to demonstrate pump OPERABILITY without spraying down equipment in [primary containment]. Flow is a normal test of centrifugal pump performance required by the ASME Code, Section XI (Ref. [9]). This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice [inspections] confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program [or 92 days].

SR 3.6.1.7.3

This SR verifies that each RHR containment spray subsystem automatic valve actuates to its correct position upon receipt of an actual or simulated automatic actuation signal. Actual spray initiation is not required to meet this SR. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.3.6 overlaps this SR to provide complete testing of the safety function. 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 the Surveillance when performed at

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.7.3 (continued)

the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.6.1.[illegible]

This Surveillance is performed every 10 years by introduction of air to verify that the spray nozzles are not obstructed and that flow will be provided when required. The 10 year Frequency is adequate to detect degradation in performance due to the passive nozzle design and its normally dry state and has been shown to be acceptable through operating experience.

RAI 3.6.19-4

REFERENCES

1. FSAR, Section [6.2.1.1.5].
2. ASME, Boiler and Pressure Vessel Code, Section XI.

Insert B 3.6.19

Insert Ref-1

Insert Ref-2

Insert Page B3.6-57g

Revision E

<Insert B 3.6.1.9>-(CLB)

INSERT Ref-1

1. UFSAR, Table 5.2-1.

INSERT Ref-2

3. UFSAR, Section 14.6.1.3.

4. GE-NE-T23-00725-01, James A. FitzPatrick Nuclear Power Plant LOCA Drywell Temperature Analysis at Power Uprate Conditions, March 1995.

5. GE-NE-T23-00737-01, James A. FitzPatrick Nuclear Power Plant Higher RHR Service Water Temperature Analysis, August 1996.

6. UFSAR, Section 16.7.3.2.3.

7. 10 CFR 50.36(c)(2)(ii).

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.9

Residual Heat Removal (RHR) Containment Spray

JUSTIFICATION FOR DIFFERENCES (JFDs) FROM NUREG-1434, REVISION 1, BASES

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1434, REVISION 1
ITS BASES: 3.6.1.9 - RESIDUAL HEAT REMOVAL (RHR) CONTAINMENT SPRAY

RAI 3.6.19-1

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 This Specification has been added in accordance with the current requirements in CTS 3.5.B.1. At JAFNPP both the drywell and suppression chamber sprays are required to mitigate the consequences of accidents. The current requirements are more consistent with Specification 3.6.1.7 of the BWR/6 Standard Technical Specifications, NUREG-1434, Revision 1 (i.e., Improved Standard Technical Specifications). Therefore, this Specification and Bases have been used to develop the ITS requirements of containment spray for the JAFNPP ITS submittal. The NUREG-1434 Specification and Surveillances have been renumbered as applicable.

CLB2 The brackets have been removed and the proper plant specific Surveillance Frequency has been included in accordance with CTS 4.5.B.1.a.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

RAI 3.6.19-6

PA1 The word "required" has been included in the Bases of ITS 3.6.1.9.2 in accordance with the use of this term in the Improved Technical Specifications. All RHR pumps are not required to be Operable to satisfy this Specification therefore this change is appropriate.

PA2 Changes were made to enhance clarity or to be consistent with other places in the Bases.

PA3 The Note to NUREG-1434, SR 3.6.1.7.1 is for BWR/6 plants where the RHR Containment Spray System is automatically initiated. The note has been deleted in the NUREG markup for ITS SR 3.6.1.9.1 because the RHR Containment Spray System at the FitzPatrick plant is manually initiated. The phrase "or can be aligned to the correct position" has been added to ITS SR 3.6.1.9.1 to be consistent with the format of the SRs of other manually initiated systems such as those addressed by NUREG-1433, SR 3.6.2.4.1 and NUREG-1433, SR 3.6.2.3.1 (ITS SR 3.6.2.3.1). The appropriate changes have been made to the Bases of ITS SR 3.6.1.9.1.

PA4 Changes have been made to reflect the plant specific terminology.

RAI 3.6.19-4

PA5 NUREG 1434, SR 3.6.1.7.4 (ITS SR 3.6.1.9.3) Bases has been revised to include details of the method of testing to show that flow is provided to the spray system and the spray nozzles are not obstructed.

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1434, REVISION 1
ITS BASES: 3.6.1.9 - RESIDUAL HEAT REMOVAL (RHR) CONTAINMENT SPRAY

RAI 3.6.1.9-1

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 The Bases Background of ITS 3.6.1.9 has been revised to remove any details related to the Mark III containment design and include the details pertinent to the Mark I containment design which is consistent with the JAFNPP design.

DB2 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific references or UFSAR analysis description. References have been renumbered where applicable to reflect this change.

DB3 NUREG-1434 SR 3.6.1.7.3 has been deleted since it is not applicable. The JAFNPP design does not include any automatic actuation of the containment spray mode therefore this surveillance is not necessary. The Background section has been revised to reflect this change.

DB4 The brackets have been removed and the proper plant specific value has been included.

DB5 The brackets have been removed and the proper plant specific reference has been included.

RAI 3.6.1.9-2

DB6 Changes made to Bases Background and LCO Bases discussions for clarification of number of pumps provided by design (two per loop) and number required by analysis (one per loop).

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 NUREG-1434, Revision 1, Bases references to "the NRC Policy Statement" has been replaced with 10 CFR 50.36(c)(2)(ii), in accordance with 60 FR 36953 effective August 18, 1995.

JAFNPP

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) CONVERSION

ITS: 3.6.1.9

Residual Heat Removal (RHR) Containment Spray

RETYPED PROPOSED IMPROVED TECHNICAL SPECIFICATIONS (ITS) AND BASES

3.6 CONTAINMENT SYSTEMS

3.6.1.9 Residual Heat Removal (RHR) Containment Spray System

LCO 3.6.1.9 Two RHR containment spray subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One RHR containment spray subsystem inoperable.	A.1	Restore RHR containment spray subsystem to OPERABLE status.	7 days
B. Two RHR containment spray subsystems inoperable.	B.1	Restore one RHR containment spray subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.9.1	Verify each RHR containment spray subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	31 days
SR 3.6.1.9.2	Verify each required RHR pump develops a flow rate of ≥ 7750 gpm on recirculation flow through the associated heat exchanger to the suppression pool.	In accordance with the Inservice Testing Program
SR 3.6.1.9.3	Verify each spray nozzle is unobstructed.	10 years

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.9 Residual Heat Removal (RHR) Containment Spray System

BASES

BACKGROUND

The primary containment is designed with a suppression pool so that, in the event of a loss of coolant accident (LOCA), steam released from the primary system is channeled through the suppression pool water and condensed without producing significant pressurization of the primary containment. The primary containment is designed so that with the pool initially at the minimum water volume and the worst single active failure of the primary containment heat removal systems, suppression pool energy absorption combined with subsequent operator controlled pool cooling will prevent the primary containment pressure from exceeding its design value. However, the primary containment must also withstand a postulated bypass leakage pathway that allows the passage of steam from the drywell directly into the suppression chamber airspace, bypassing the suppression pool. The RHR Containment Spray System is designed to mitigate the effects of bypass leakage and to prevent the drywell temperature from exceeding its design value of 309°F (Ref. 1) for a significant period of time and to ensure the safety equipment can perform its associated function during a design basis event.

There are two redundant, 100% capacity RHR containment spray subsystems. Each subsystem consists of a suction line from the suppression pool, two RHR pumps, a heat exchanger, and its associated spray header embedded in and protected by the primary shield wall located in the drywell and to a common spray header suspended in the suppression chamber above the minimum water level.

The RHR containment spray mode may be manually initiated, if required, following a LOCA, according to emergency procedures.

RAI 3.6.1.9-2

APPLICABLE SAFETY ANALYSES

Reference 2 contains the results of analyses that predict the primary containment pressure response for a LOCA with the maximum allowable bypass leakage area.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

The maximum allowable equivalent flow path area for bypass leakage has been specified to be 0.032 ft^2. The analysis demonstrates that with containment spray operation the primary containment pressure remains within design limits.

Steam line breaks have been analyzed to develop a drywell temperature history for use in equipment qualification (Refs. 3, 4 and 5). The RHR containment sprays are assumed to be initiated at a minimum time of 10 minutes. The RHR containment spray flow rates were assumed to be 7,150 gpm for drywell sprays and 600 gpm for suppression chamber sprays. The highest temperature envelope is 330°F for the first 200 seconds and this is as a result of a .75 ft^2 steam line break (Ref. 5). This temperature exceeds the containment design temperature of 309°F but is acceptable since the drywell design temperature limit is applicable coincident with a drywell design pressure of 56 psig (Ref. 6).

The RHR Containment Spray System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 7).

LCO

In the event of a Design Basis Accident (DBA), a minimum of one RHR containment spray subsystem is required to mitigate potential bypass leakage paths and maintain the primary containment peak pressure and temperature below design limits. To ensure that these requirements are met, two RHR containment spray subsystems must be OPERABLE. Therefore, in the event of an accident, at least one subsystem is OPERABLE assuming the worst case single active failure. An RHR containment spray subsystem is OPERABLE when one of the pumps, the heat exchanger, and associated piping, valves, instrumentation, and controls are OPERABLE. An RHR containment spray subsystem may be considered OPERABLE during alignment and operation for decay heat removal when below the actual RHR shutdown cooling permissive pressure in MODE 3, if capable of being manually realigned (remote or local) to the containment spray mode and not otherwise inoperable. Alignment and operation for decay heat removal includes the period when the required RHR pump is not operating or when the system is realigned from or to the RHR shutdown cooling mode.

RAI 3.6.1.6-2

(continued)

BASES (continued)

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause pressurization and heating of primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining RHR containment spray subsystems OPERABLE is not required in MODE 4 or 5.

ACTIONS

A.1

With one RHR containment spray subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days. In this Condition, the remaining OPERABLE RHR containment spray subsystem is adequate to perform the primary containment cooling function. However, the overall reliability is reduced because a single active failure in the OPERABLE subsystem could result in reduced primary containment cooling capability. The 7 day Completion Time was chosen in light of the redundant RHR containment capabilities afforded by the OPERABLE subsystem and the low probability of a DBA occurring during this period.

B.1

With two RHR containment spray subsystems inoperable, one subsystem must be restored to OPERABLE status within 8 hours. In this Condition, there is a substantial loss of the primary containment bypass leakage and temperature mitigation function. The 8 hour Completion Time is based on this loss of function and is considered acceptable due to the low probability of a DBA and because alternative methods to remove heat from primary containment are available.

C.1 and C.2

If any Required Action and associated Completion Time is 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 12 hours and to MODE 4 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 3.6.1.9.1

Verifying the correct alignment for manual, power operated, and automatic valves in the RHR containment spray mode flow path provides assurance that the proper flow paths will exist for system operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these were verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable since the RHR Containment Spray System is manually initiated. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The 31 day Frequency of this SR is justified because the valves are operated under procedural control and because improper valve position would affect only a single subsystem. This Frequency has been shown to be acceptable based on operating experience.

SR 3.6.1.9.2

Verifying each required RHR pump develops a flow rate $\geq$ 7750 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. It is tested in the pool cooling mode to demonstrate pump OPERABILITY without spraying down equipment in the drywell. Flow is a normal test of centrifugal pump performance required by the ASME Code, Section XI (Ref. 8). This test confirms one point on the pump performance curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.9.3

This Surveillance is performed every 10 years by introduction of air to verify that the spray nozzles are not obstructed and that flow will be provided when required. The 10 year Frequency is adequate to detect degradation in performance due to the passive nozzle design and its normally dry state and has been shown to be acceptable through operating experience.

RAI 3.6.1.9-4

REFERENCES

1. UFSAR, Table 5.2-1.
2. UFSAR, Section 5.2.4.4.
3. UFSAR, Section 14.6.1.3.
4. GE-NE-T23-00725-01, James A. FitzPatrick Nuclear Power Plant LOCA Drywell Temperature Analysis at Power Uprate Conditions, March 1995.
5. GE-NE-T23-00737-01, James A. FitzPatrick Nuclear Power Plant Higher RHR Service Water Temperature Analysis, August 1996.
6. UFSAR, Section 16.7.3.2.3.
7. 10 CFR 50.36(c)(2)(ii).
8. ASME, Boiler and Pressure Vessel Code, Section XI.