VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

February 11, 2002

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No.:	01-281B
CM/RAB	R0
Docket Nos.:	50-338 50-339
License Nos.:	NPF-4 NPF-7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
NORTH ANNA POWER STATION UNITS 1 AND 2
PROPOSED IMPROVED TECHNICAL SPECIFICATIONS
REQUEST FOR ADDITIONAL INFORMATION (RAI)
SECTION 3.6 (TAC NOS. MB0799 AND MB0800)
MISCELLANEOUS DOMINION CHANGES TO ITS SUBMITTAL

This letter transmits our additional responses to the NRC's Request for Additional Information (RAI) regarding the North Anna Power Station (NAPS) Units 1 and 2 proposed Improved Technical Specifications (ITS). Also, this letter transmits miscellaneous changes to the submittal that are a result of internal comments. The North Anna ITS license amendment request was submitted to the NRC in a December 11, 2000 letter (Serial No. 00-606). The NRC requested additional information on ITS Section 3.6 in a letter dated April 23, 2001 (TAC Nos. MB0799 and MB0800). Dominion submitted responses to the NRC's RAIs in a letter dated June 18, 2001 (Serial No. 01-281). After reviewing Dominion's responses, the NRC requested additional information. This letter transmits the additional information that was requested, in addition to the miscellaneous changes to ITS submittal that are a result of internal comments.

Attached are the NRC's RAIs, our responses to the RAIs, and the revised pages of the submittal, which complete our responses to the subject RAIs. Following the responses to the NRC's questions is a summary of the changes that are not associated with the NRC's questions, and the affected ITS submittal pages.

A001

If you have any further questions or require additional information, please contact us.

Very truly yours,

Leslie N. Hartz
Vice President - Nuclear Engineering

Attachment

Commitments made in this letter: None

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SN: 01-281B
Docket Nos.: 50-338/339
Subject: Proposed ITS – RAI – Section 3.6

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Leslie N. Hartz, who is Vice President - Nuclear Engineering, of Virginia Electric and Power Company. She has affirmed before me that she is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of her knowledge and belief.

Acknowledged before me this 11th day of February, 2002.

My Commission Expires: March 31, 2004.

Maggie McClure
Notary Public

(SEAL)

Attachment

Proposed Improved Technical Specifications
Responses to Requests for Additional Information
ITS 3.6, "Containment Systems"

Virginia Electric and Power Company
(Dominion)

North Anna Power Station Units 1 and 2

NAPS Responses to NRC Requests for Additional Information
ITS Section 3.6, Containment Systems

3.6.1 Containment

Discussion of Changes (DOC) A.8 (CTS 1.0)
(3.6.1-1) CTS 1.6
CTS 3/4.6
ITS 3.6.1, 3.6.2, 3.6.3, and Associated Bases

NRC RAI: CTS 1.6 defines CONTAINMENT INTEGRITY. A markup of CTS 1.6 is provided in the CTS markup of CTS 1.0, but not in the markup of CTS 3.6. DOC A.8 (CTS 1.0) states that the definition of CONTAINMENT INTEGRITY is deleted from the CTS/ITS. This is not entirely correct. The DOC is incorrect in that the definition is not deleted but is relocated to various Bases in ITS 3.6, which is a Less Restrictive (LA) change. In addition, there are Administrative changes associated with CTS 1.6, which deal with the requirements of the definition being used as the basis for certain SRs in ITS 3.6.1, 3.6.2 and 3.6.3. CTS 1.6, Item 1.6.1 is the basis for ITS SRs 3.6.3.1, 3.6.3.2, 3.6.3.3, and 3.6.3.4; Item 1.6.3 is the basis for ITS 3.6.2, and Item 1.6.4 is the basis for ITS SRs 3.6.1.1 and 3.6.1.2. Refer to Comment Numbers 3.6.1-2 and 3.6.1-3.
Comment: Revise the CTS markup and provide the appropriate discussions and justifications for these Administrative and Less Restrictive (LA) changes.

Response: The Company will take the action proposed in the Comment.

CTS 1.6.1 is marked as part of ITS 3.6.3 adopting the requirement using DOC A.1. Requirements for CTS 1.6.1 are included as being related to ITS SR 3.6.3.1, SR 3.6.3.2, SR 3.6.3.3, and 3.6.3.4.

CTS 1.6.3 is remarked as part of ITS 3.6.2 adopting the requirement using DOC A.1. Requirements for CTS 1.6.3 have been marked as part of ITS 3.6.2.

CTS 1.6.4 is remarked as part of ITS SR 3.6.1.1 adopting the requirement using DOC A.1. ISTS 3.6.1.2 is not adopted.

* An LA DOC is not used because the material is retained in the ITS, not moved to another document. DOC A.1 is used instead.

CTS Pages in Section 1.0 are marked to describe to which ITS sections the respective requirements are being moved.

Additional Response: Based on verbal comments from the NRC, the portion of the previous response marked with an asterisk is modified. DOC LA.2 is added to document the relocation of CTS 1.6.1 to the 3.6.1 Bases. The CTS markups for ITS 3.6.2 and Section 1.1 are revised to reference this change.

(A.1)

1.0 USE AND APPLICATION

5-5-83

ITS Section 1.1

1.0 DEFINITIONS

NOTE: The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases. (A.1)

ACTION (S)

1.1 ACTION shall be that part of a Specification which prescribes ~~remedial measures required~~ Required Actions to be taken under designated conditions within specified Completion Times. (A.1)

Add proposed definition of Actuation Logic Test (A.2)

AXIAL FLUX DIFFERENCE

1.2 AXIAL FLUX DIFFERENCE (AFD) shall be the difference in normalized flux signals, ~~expressed in % of RATED THERMAL POWER~~ between the top and bottom halves of a two section excore neutron detector. (A.1)

CHANNEL CALIBRATION

1.3 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass ~~the entire channel including the sensor and alarm and/or trip functions,~~ all devices in the channel required for channel OPERABILITY ~~and shall include the CHANNEL FUNCTIONAL TEST~~. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping or total channel steps ~~such that the entire channel is calibrated~~. Insert 1 (A.12)

CHANNEL CHECK

1.4 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/~~or~~ status with other indications ~~and~~/or status derived from independent instrumentation channels measuring the same parameter. (A.1)

CHANNEL ~~FUNCTIONAL~~ OPERATIONAL TEST (COT)

1.5 A ~~CHANNEL FUNCTIONAL TEST~~ COT shall be~~:~~

~~a. Analog channels -~~ the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY ~~including alarm and/or trip functions~~ of all devices in the channel required for channel OPERABILITY. Insert 2 (L.1) (A.1) (A.11)

~~b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.~~ (A.4)

~~CONTAINMENT INTEGRITY~~ (A.8)

~~1.6 CONTAINMENT INTEGRITY shall exist when:~~

~~1.6.1 All penetrations required to be closed during accident conditions are either:~~

See ITS 3.6.1, 3.6.3

RAI 3.6.1-1 R1, R14

RAI 3.6.3-1
RAI 3.6.1-1
R1, R14

RAI 3.6.1-1
RAI 3.6.2-1
RAI 3.6.3-1
R1

a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1.

<See ITS 3.6.1 & 3.6.3>

1.6.2 All equipment hatches are closed and sealed. <See ITS 3.6.1>

1.6.3 Each air lock is OPERABLE pursuant to Specification 3.6.1.3. <See ITS 3.6.2>

1.6.4 The containment leakage rates are within the limits of Specification 3.6.1.2 and <See ITS 3.6.1>

1.6.5 The sealing mechanism associated with each penetration (e.g. welds, bellows or O-rings) is OPERABLE. <See ITS 3.6.1>

R1, R14 RAI 3.6.1-3
R1, RAI 3.6.1-2

CONTROLLED LEAKAGE

1.7 CONTROLLED LEAKAGE shall be that seal water flow supplied to the reactor coolant pump seals. (A.9)

CORE ALTERATION

1.8 CORE ALTERATION shall be the movement ~~or manipulation~~ of any components [fuel, sources, or reactivity control components] within the reactor pressure vessel with the vessel head removed and fuel in the vessel. suspension of CORE ALTERATION shall not preclude completion of movement of a component to a safe conservative position. (L.2) (A.5)

CORE OPERATING LIMITS REPORT (COLR)

1.9 The CORE OPERATING LIMITS REPORT is the unit-specific document that provides core operating [Cycle specific parameter] limits for the current operating reload cycle. These cycle-specific core operating [parameter] limits shall be determined for each reload cycle in accordance with Specification 6.9.1.7 [5.6.5]. Plant operation within these operating limits is addressed in individual specifications. (A.1)

DOSE EQUIVALENT I-131

1.10 The DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134 and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, [AEC, 1962,] "Calculation of Distance Factors for Power and Test Reactor Sites". (A.1)

Ē-AVERAGE DISINTEGRATION ENERGY

1.11 Ē shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

(A.1)

1.0 USE AND APPLICATION

5-5-83

1.0 DEFINITIONS

ITS Section 1.1 NOTE:

The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications. and Bases (A.1)

ACTION

1.1 ACTION shall be that part of a Specification which prescribes ~~remedial measures required~~ Required Actions to be taken under designated conditions within specified Completion Times. (A.1)

Add proposed definition of Actuation Logic Test (A.2)

AXIAL FLUX DIFFERENCE

AFD

1.2 AXIAL FLUX DIFFERENCE shall be the difference in normalized flux signals, ~~expressed in % of RATED THERMAL POWER~~ between the top and bottom halves of a two section excore neutron detector. (A.1)

CHANNEL CALIBRATION

1.3 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass ~~the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST.~~ all devices in the channel required for channel OPERABILITY. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping or total channel steps ~~such that the entire channel is calibrated~~. Insert 1 (A.12)

CHANNEL CHECK

1.4 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrumentation channels measuring the same parameter. (A.1)

CHANNEL ~~FUNCTIONAL~~ OPERATIONAL TEST (COT)

1.5 A ~~CHANNEL FUNCTIONAL TEST~~ COT shall be: (A.1)

~~a. Analog channels -~~ the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY ~~including alarm and/or trip functions~~ of all devices in the channel required for channel OPERABILITY. Insert 2 (L.1) (A.11)

~~b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.~~ (A.4) (A.8)

CONTAINMENT INTEGRITY

1.6 CONTAINMENT INTEGRITY shall exist when:

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

See ITS 3.6.1 & 3.6.3 | RAI 3.6.1-1 R1, R14 | RAI 3.6.1-1 | RAI 3.6.3-1 R1

ITS Section 1.1

1.0 1 DEFINITIONS (Continued)

a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1.

<See ITS 3.6.1 & 3.6.3>

1.6.2 All equipment hatches are closed and sealed. <See ITS 3.6.1>

1.6.3 Each air lock is OPERABLE pursuant to Specification 3.6.1.3. <See ITS 3.6.2>

1.6.4 The containment leakage rates are within the limits of Specification 3.6.1.2 and <See ITS 3.6.1>

1.6.5 The sealing mechanism associated with each penetration (e.g. welds, bellows or O-rings) is OPERABLE. <See ITS 3.6.1>

R1, R14 RAI 3.6.1-3
R1 RAI 3.6.1-2

~~CONTROLLED LEAKAGE~~

~~1.7 CONTROLLED LEAKAGE shall be that seal water flow supplied to the reactor coolant pump seals.~~ A.9

CORE ALTERATION

1.8 CORE ALTERATION shall be the movement ~~or manipulation~~ of any ~~component~~ fuel, sources, or reactivity control components within the reactor pressure vessel with the vessel head removed and fuel in the vessel. suspension of CORE ALTERATION shall not preclude completion of movement of a component to a safe ~~conservative~~ position. L.2 A.5

CORE OPERATING LIMITS REPORT (COLR)

1.9 The CORE OPERATING LIMITS REPORT is the unit-specific document that provides ~~core operating~~ cycle specific parameter limits for the current ~~operating~~ reload cycle. These cycle-specific ~~core operating~~ parameter limits shall be determined for each reload cycle in accordance with Specification ~~6.9.1.7~~ 5.6.5. Plant operation within these ~~operating~~ limits is addressed in individual specifications. A.1

DOSE EQUIVALENT I-131

1.10 The DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134 and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites". A.1

$\bar{E}$-AVERAGE DISINTEGRATION ENERGY

1.11 $\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

ITS 3.6.1

(A.1)

5-5-83

ITS

1.0 DEFINITIONS

The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications.

ACTION

1.1 ACTION shall be that part of a Specification which prescribes remedial measures required under designated conditions.

AXIAL FLUX DIFFERENCE

1.2 AXIAL FLUX DIFFERENCE shall be the difference in normalized flux signals, expressed in % of RATED THERMAL POWER between the top and bottom halves of a two section excore neutron detector.

CHANNEL CALIBRATION

1.3 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is calibrated.

See ITS 1.0

CHANNEL CHECK

1.4 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrumentation channels measuring the same parameter.

CHANNEL FUNCTIONAL TEST

1.5 A CHANNEL FUNCTIONAL TEST shall be:

a. Analog channels - the injection of a simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions.

b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

CONTAINMENT INTEGRITY

LCO 3.6.1 1.6 CONTAINMENT ~~INTEGRITY~~ OPERABILITY shall exist when: (A.4)

~~1.6.1 All penetrations required to be closed during accident conditions are either:~~ (LA.2)

RAI 3.6.3-1 R1

RAI 3.6.1-1 R1, R14

Rev 14

page 4 of 5

A.1

RAI 3.6.1-1
RAI 3.6.2-1
RAI 3.6.3-1
R1, R14

ITS

a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1.

LA.2

3.6.1 1.6.2 All equipment hatches are closed and sealed. L.1

1.6.3 Each air lock is OPERABLE pursuant to Specification 3.6.1.3. LA.1 <See ITS 3.6.2>

SR 3.6.1.1 1.6.4 The containment leakage rates are within the limits of Specification 3.6.1.2 and

1.6.5 The sealing mechanism associated with each penetration (e.g. welds, bellows or O-rings) is OPERABLE. LA.2

RAI 3.6.1-3
RAI 3.6.1-2
R1, R14

CONTROLLED LEAKAGE

1.7 CONTROLLED LEAKAGE shall be that seal water flow supplied to the reactor coolant pump seals.

CORE ALTERATION

1.8 CORE ALTERATION shall be the movement or manipulation of any component within the reactor pressure vessel with the vessel head removed and fuel in the vessel. suspension of CORE ALTERATION shall not preclude completion of movement of a component to a safe conservative position.

CORE OPERATING LIMITS REPORT

1.9 The CORE OPERATING LIMITS REPORT is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.7 Plant operation within these operating limits is addressed in individual specifications.

<See ITS 1.0>

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ITS

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See ITS 1.0

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b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

CONTAINMENT INTEGRITY

LCO 3.6.1 1.6 CONTAINMENT INTEGRITY shall exist when: OPERABILITY A.4

1.6.1 All penetrations required to be closed during accident conditions are either: LA.2

RAI 3.6.3-1 R1 RAI 3.6.1-1 R1, R14

REV14

(A.1) ITS 3.6.1

RAI 3.6.1-1
RAI 3.6.2-1
RAI 3.6.3-1
R1, R14

ITS

a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1. (LA.2)

3.6.1 1.6.2 All equipment hatches are closed and sealed. (L.1) (LA.1)

1.6.3 Each air lock is OPERABLE pursuant to Specification 3.6.1.3. (See ITS 3.6.2)

SR 3.6.1.1 1.6.4 The containment leakage rates are within the limits of Specification 3.6.1.2 and

1.6.5 The sealing mechanism associated with each penetration (e.g. welds, bellows or O-rings) is OPERABLE. (LA.2)

RAI 3.6.1-3
RAI 3.6.1-2
R1, R14

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1.7 CONTROLLED LEAKAGE shall be that seal water flow supplied to the reactor coolant pump seals.

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(See ITS 1.0)

DOSE EQUIVALENT I-131

1.10 The DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134 and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, "Calculation of Distance Factors for Power and Test Reactor Sites".

$\bar{E}$-AVERAGE DISINTEGRATION ENERGY

1.11 $\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

The purpose of CTS 3.6.1.6 is to ensure action is taken expeditiously to restore containment structural integrity if it is not within limits. This change is acceptable because a 1 hour Completion Time is representative of the importance to take action expeditiously. Containment structural integrity problems once confirmed are unlikely to be corrected in as short a period of time as 1 or 24 hours. The 1 hour time frame is consistent with the ITS 3.0.3 requirement to make preparations to place the unit outside the MODE of Applicability. This change is considered more restrictive because the completion time for an action in the CTS is reduced.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 2 – Removing Descriptions of System Operation)* CTS 1.6 states, "CONTAINMENT INTEGRITY shall exist when:...1.6.2 All equipment hatches are closed and sealed." 3.6.1 states, "Containment shall be OPERABLE." This changes the CTS by moving the reference to the equipment hatch being closed to the Bases. The change deleting the phrase "and sealed" is addressed by DOC L.1. RAI 3.6.1-2 R1

The removal of these details, which are related to system operation, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement to perform required visual inspections and leakage rate testing in accordance with the Containment Leakage Rate Testing Program in accordance with 10 CFR 50 Appendix J, Part B, which would provide verification that the equipment hatch is closed. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system operation is being removed from the Technical Specifications.

LA.2 *(Type 2 – Removing Descriptions of System Operation)* CTS 1.6 states, "CONTAINMENT INTEGRITY shall exist when:...1.6.1 All penetrations required to be closed during accident conditions are either: a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1." CTS 1.6.5 states, "The sealing mechanism associated with RAI 3.6.1-3 3.6.1-1 R14

each penetration (e.g. welds, bellows, or O-rings) is OPERABLE." This changes the CTS by moving the 1.6.1 and 1.6.5 portions of the definition to the 3.6.1 Bases. RAI 3.6.1-1 3.6.1-3 R14

The removal of these details, which are related to system operation, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the containment to be OPERABLE and the relocated material describes aspects of OPERABILITY. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system operation is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 1 – Relaxation of LCO Requirements)* CTS 1.6 states, "CONTAINMENT INTEGRITY shall exist when:…1.6.2 All equipment hatches are closed and sealed." 3.6.3 states, "Each containment isolation valve shall be OPERABLE." This changes the CTS by not including an explicit reference to sealing the equipment hatches. The change associated with moving the reference to the equipment hatch to the Bases is addressed by DOC LA.1. RAI 3.6.1-2 R1

The purpose of CTS 1.6.2 is to help provide assurance that the equipment hatches can perform their safety function. This change is acceptable because the LCO requirements continue to ensure that the structures, systems, and components are maintained consistent with the safety analyses and licensing basis. The Containment Leakage Rate Testing Program requires testing be performed in accordance with 10 CFR 50 Appendix J, Part B, requiring the containment isolation valves, including the equipment hatch, is OPERABLE, but there is no specific mention of sealing the equipment hatches. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

A.1

ITS 3.6.2

RAI 3.6.1-1
RAI 3.6.1-2
RAI 3.6.1-3
R1, R14

ITS

a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1.

<See ITS 3.6.1, 3.6.3>

1.6.2 All equipment hatches are closed and sealed. <See ITS 3.6.1>

3.6.2 1.6.3 Each air lock is OPERABLE pursuant to Specification 3.6.1.3.

1.6.4 The containment leakage rates are within the limits of Specification 3.6.1.2 and <See ITS 3.6.1>

1.6.5 The sealing mechanism associated with each penetration (e.g. welds, bellows or O-rings) is OPERABLE. <See ITS 3.6.1>

RAI 3.6.1-3
RAI 3.6.1-2
R1, R14

CONTROLLED LEAKAGE

1.7 CONTROLLED LEAKAGE shall be that seal water flow supplied to the reactor coolant pump seals.

CORE ALTERATION

1.8 CORE ALTERATION shall be the movement or manipulation of any component within the reactor pressure vessel with the vessel head removed and fuel in the vessel. suspension of CORE ALTERATION shall not preclude completion of movement of a component to a safe conservative position.

CORE OPERATING LIMITS REPORT

1.9 The CORE OPERATING LIMITS REPORT is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.7 Plant operation within these operating limits is addressed in individual specifications.

<See ITS 1.0>

DOSE EQUIVALENT I-131

1.10 The DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134 and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, "Calculation of Distance Factors for Power and Test Reactor Sites".

$\bar{E}$-AVERAGE DISINTEGRATION ENERGY

1.11 $\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

RAI 3.6.1-1 RAI 3.6.2-1 RAI 3.6.3-1 R1, R14

a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1. <See ITS 3.6.1, 3.6.3>

1.6.2 All equipment hatches are closed and sealed. <See ITS 3.6.1>

3.6.2 1.6.3 Each air lock is OPERABLE pursuant to Specification 3.6.1.3.

1.6.4 The containment leakage rates are within the limits of Specification 3.6.1.2 and <See ITS 3.6.1>

1.6.5 The sealing mechanism associated with each penetration (e.g. welds, bellows or O-rings) is OPERABLE. <See ITS 3.6.1>

RAI 3.6.1-3 RAI 3.6.1-2 R1, R14

CONTROLLED LEAKAGE

1.7 CONTROLLED LEAKAGE shall be that seal water flow supplied to the reactor coolant pump seals.

CORE ALTERATION

1.8 CORE ALTERATION shall be the movement or manipulation of any component within the reactor pressure vessel with the vessel head removed and fuel in the vessel. suspension of CORE ALTERATION shall not preclude completion of movement of a component to a safe conservative position.

CORE OPERATING LIMITS REPORT

1.9 The CORE OPERATING LIMITS REPORT is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.7 Plant operation within these operating limits is addressed in individual specifications.

<See ITS 1.0>

DOSE EQUIVALENT I-131

1.10 The DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134 and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, "Calculation of Distance Factors for Power and Test Reactor Sites".

$\bar{E}$-AVERAGE DISINTEGRATION ENERGY

1.11 $\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

NAPS Responses to NRC Requests for Additional Information
ITS Section 3.6, Containment Systems

3.6.1 Containment

DOC A.8 (CTS 1.0)
(3.6.1-3) Bases JFD 2
CTS 1.6.5
STS B3.6.1 Bases - BACKGROUND
ITS B3.6.1 Bases - BACKGROUND

NRC RAI: CTS 1.6 defines CONTAINMENT INTEGRITY. A markup of CTS 1.6 is provided in the CTS markup of CTS 1.0, but not in the markup of CTS 3.6. DOC A.8 (CTS 1.0) states that the definition of CONTAINMENT INTEGRITY is deleted from the CTS/ITS. DOC A.8 is incorrect. CTS 1.6.5 states that "The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE." STS B3.6.1.1 Bases - BACKGROUND has a similar statement defining the leaktight barrier. ITS B3.6.1.1 Bases - BACKGROUND deletes this statement based on changes made to the ISTS (Bases JFD 2). Since CTS 1.6.5 is contained in the CTS and no changes to the ISTS were made with regards to this item, it needs to be included in ITS B3.6.1.1 Bases - BACKGROUND. **Comment:** Revise ITS B3.6.1.1 Bases - BACKGROUND to include CTS 1.6.5 or provide additional discussion and justification for its deletion based on system design, operational constraints, or current licensing basis.

Response: The Company will take the action proposed in the Comment. CTS 1.6.5 is marked as part of ITS 3.6.3. Requirements for CTS 1.6.5 are deleted and justified by DOC L.14. CTS Pages in Section 1.0 are marked to describe to which ITS sections the respective requirements are being moved.

Additional Response: Based on verbal comments from the NRC, the previous response is modified. CTS 1.6.5 is relocated to the ITS 3.6.1 Bases instead of being deleted. The ITS 3.6.1 CTS markup is revised and DOC LA.2 is added to document the relocation of CTS 1.6.5 to the 3.6.1 Bases. The ITS 3.6.3 CTS markup is revised and ITS 3.6.3 DOC L.14, which deleted CTS 1.6.5, is eliminated.

BASES

BACKGROUND (continued)

b. Each air lock is OPERABLE, except as provided in LCO 3.6.2, "Containment Air Locks"; RAI 3.6.1-3 R14

c. All equipment hatches are closed; and

d. The sealing mechanism associated with each penetration (e.g. welds, bellows, or O-rings) is OPERABLE.

APPLICABLE SAFETY ANALYSES

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

The DBAs that result in a challenge to containment OPERABILITY from high pressures and temperatures are a LOCA, a steam line break, and a rod ejection accident (REA) (Ref. 2). In addition, release of significant fission product radioactivity within containment can occur from a LOCA or REA. In the DBA analyses, it is assumed that the containment is OPERABLE such that, for the DBAs involving release of fission product radioactivity, release to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of 0.1% of containment air weight per day (Ref. 3). This leakage rate, used to evaluate offsite doses resulting from accidents, is defined in 10 CFR 50, Appendix J, Option B (Ref. 1), as L_a: the maximum allowable containment leakage rate at the calculated peak containment internal pressure (P_a) resulting from the limiting design basis LOCA. The allowable leakage rate represented by L_a forms the basis for the acceptance criteria imposed on all containment leakage rate testing. L_a is assumed to be 0.1% of containment air weight per day in the safety analyses at P_a = 44.1 psig (Ref. 3). RAI 3.6.1-4 R1

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

The containment satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

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

(continued)

BASES

BACKGROUND (continued)

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

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

c. All equipment hatches are closed; and

d. The pressurized sealing mechanism associated with a each penetration (e.g. welds, bellows or O-rings) is OPERABLE, except as provided in LCO 3.6.1.1. (3) RAI 3.6.1-3 R14

APPLICABLE SAFETY ANALYSES

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

The DBAs that result in a challenge to containment OPERABILITY from high pressures and temperatures are a loss of coolant accident (LOCA), a steam line break, and a rod ejection accident (REA) (Ref. 2). In addition, release of significant fission product radioactivity within containment can occur from a LOCA or REA. In the DBA analyses, it is assumed that the containment is OPERABLE such that, for the DBAs involving release of fission product radioactivity, release to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of [0.1]% of containment air weight per day (Ref. 3). This leakage rate, used to evaluate offsite doses resulting from accidents, is defined in 10 CFR 50, Appendix J, Option B (Ref. 1), as L_a: the maximum allowable containment leakage rate at the calculated peak containment internal pressure (P_a) resulting from the limiting DBA design basis LOCA. The allowable leakage rate represented by L_a forms the basis for the acceptance criteria imposed on all containment leakage rate testing. L_a is assumed to be [0.1]% of containment air weight per day in the safety analyses at P_a = [40.4] 44.1 psig (Ref. 3). (3) (6)

TSTF-52 RAI 3.6.1-4 R1

TSTF-52

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

(continued)

Rev. 14

RAI 3.6.1-1
RAI 3.6.2-1
RAI 3.6.3-1
R1, R14

a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1.

LA.2

3.6.1 1.6.2 All equipment hatches are closed and sealed. L.1

1.6.3 Each air lock is OPERABLE pursuant to Specification 3.6.1.3. LA.1 (See ITS 3.6.2)

SR 3.6.1.1 1.6.4 The containment leakage rates are within the limits of Specification 3.6.1.2 and

1.6.5 The sealing mechanism associated with each penetration (e.g. welds, bellows or O-rings) is OPERABLE. LA.2

RAI 3.6.1-3
RAI 3.6.1-2
R1, R14

CONTROLLED LEAKAGE

1.7 CONTROLLED LEAKAGE shall be that seal water flow supplied to the reactor coolant pump seals.

CORE ALTERATION

1.8 CORE ALTERATION shall be the movement or manipulation of any component within the reactor pressure vessel with the vessel head removed and fuel in the vessel. suspension of CORE ALTERATION shall not preclude completion of movement of a component to a safe conservative position.

CORE OPERATING LIMITS REPORT

1.9 The CORE OPERATING LIMITS REPORT is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.7 Plant operation within these operating limits is addressed in individual specifications.

(See ITS 1.0)

DOSE EQUIVALENT I-131

1.10 The DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134 and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, "Calculation of Distance Factors for Power and Test Reactor Sites".

$\bar{E}$-AVERAGE DISINTEGRATION ENERGY

1.11 $\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1.

LA.2

3.6.1 1.6.2 All equipment hatches are closed and sealed. L.1 LA.1

1.6.3 Each air lock is OPERABLE pursuant to Specification 3.6.1.3. (See ITS 3.6.2)

SR 3.6.1.1 1.6.4 The containment leakage rates are within the limits of Specification 3.6.1.2 and

1.6.5 The sealing mechanism associated with each penetration (e.g. welds, bellows or O-rings) is OPERABLE. LA.2

RAI 3.6.1-3
RAI 3.6.1-2
R1, R14

CONTROLLED LEAKAGE

1.7 CONTROLLED LEAKAGE shall be that seal water flow supplied to the reactor coolant pump seals.

CORE ALTERATION

1.8 CORE ALTERATION shall be the movement or manipulation of any component within the reactor pressure vessel with the vessel head removed and fuel in the vessel. suspension of CORE ALTERATION shall not preclude completion of movement of a component to a safe conservative position.

(See ITS 1.0)

CORE OPERATING LIMITS REPORT

1.9 The CORE OPERATING LIMITS REPORT is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.7 Plant operation within these operating limits is addressed in individual specifications.

DOSE EQUIVALENT I-131

1.10 The DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134 and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, "Calculation of Distance Factors for Power and Test Reactor Sites".

$\bar{E}$-AVERAGE DISINTEGRATION ENERGY

1.11 $\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

The purpose of CTS 3.6.1.6 is to ensure action is taken expeditiously to restore containment structural integrity if it is not within limits. This change is acceptable because a 1 hour Completion Time is representative of the importance to take action expeditiously. Containment structural integrity problems once confirmed are unlikely to be corrected in as short a period of time as 1 or 24 hours. The 1 hour time frame is consistent with the ITS 3.0.3 requirement to make preparations to place the unit outside the MODE of Applicability. This change is considered more restrictive because the completion time for an action in the CTS is reduced.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 2 – Removing Descriptions of System Operation)* CTS 1.6 states, "CONTAINMENT INTEGRITY shall exist when:...1.6.2 All equipment hatches are closed and sealed." 3.6.1 states, "Containment shall be OPERABLE." This changes the CTS by moving the reference to the equipment hatch being closed to the Bases. The change deleting the phrase "and sealed" is addressed by DOC L.1. RAI 3.6.1-2 R1

The removal of these details, which are related to system operation, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement to perform required visual inspections and leakage rate testing in accordance with the Containment Leakage Rate Testing Program in accordance with 10 CFR 50 Appendix J, Part B, which would provide verification that the equipment hatch is closed. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system operation is being removed from the Technical Specifications.

LA.2 *(Type 2 – Removing Descriptions of System Operation)* CTS 1.6 states, "CONTAINMENT INTEGRITY shall exist when:...1.6.1 All penetrations required to be closed during accident conditions are either: a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1." CTS 1.6.5 states, "The sealing mechanism associated with RAI 3.6.1-3 3.6.1-1 R14

each penetration (e.g. welds, bellows, or O-rings) is OPERABLE." This changes the CTS by moving the 1.6.1 and 1.6.5 portions of the definition to the 3.6.1 Bases. RAI 3.6.1-1 3.6.1-3 R14

The removal of these details, which are related to system operation, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the containment to be OPERABLE and the relocated material describes aspects of OPERABILITY. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system operation is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 1 – Relaxation of LCO Requirements)* CTS 1.6 states, "CONTAINMENT INTEGRITY shall exist when:...1.6.2 All equipment hatches are closed and sealed." 3.6.3 states, "Each containment isolation valve shall be OPERABLE." This changes the CTS by not including an explicit reference to sealing the equipment hatches. The change associated with moving the reference to the equipment hatch to the Bases is addressed by DOC LA.1. RAI 3.6.1-2 R1

The purpose of CTS 1.6.2 is to help provide assurance that the equipment hatches can perform their safety function. This change is acceptable because the LCO requirements continue to ensure that the structures, systems, and components are maintained consistent with the safety analyses and licensing basis. The Containment Leakage Rate Testing Program requires testing be performed in accordance with 10 CFR 50 Appendix J, Part B, requiring the containment isolation valves, including the equipment hatch, is OPERABLE, but there is no specific mention of sealing the equipment hatches. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

(A.1) ITS 3.6.3

RAI 3.6.1-1
RAI 3.6.2-1
RAI 3.6.3-1
R1

ITS

SR 3.6.3.1
SR 3.6.3.2
SR 3.6.3.3
SR 3.6.3.4
SR 3.6.3 ACTIONS Note

a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1.

1.6.2 All equipment hatches are closed and sealed. <See ITS 3.6.1>

1.6.3 Each air lock is OPERABLE pursuant to Specification 3.6.1.3. <See ITS 3.6.2>

1.6.4 The containment leakage rates are within the limits of Specification 3.6.1.2 and <See ITS 3.6.1>

1.6.5 The sealing mechanism associated with each penetration (e.g. welds, bellows or O-rings) is OPERABLE. <see ITS 3.6.1>

RAI 3.6.1-3
R14
RAI 3.6.1-2
R1

CONTROLLED LEAKAGE

1.7 CONTROLLED LEAKAGE shall be that seal water flow supplied to the reactor coolant pump seals.

CORE ALTERATION

1.8 CORE ALTERATION shall be the movement or manipulation of any component within the reactor pressure vessel with the vessel head removed and fuel in the vessel. suspension of CORE ALTERATION shall not preclude completion of movement of a component to a safe conservative position.

CORE OPERATING LIMITS REPORT

1.9 The CORE OPERATING LIMITS REPORT is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.7 Plant operation within these operating limits is addressed in individual specifications.

<See ITS 1.0>

DOSE EQUIVALENT I-131

1.10 The DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134 and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, "Calculation of Distance Factors for Power and Test Reactor Sites".

$\bar{E}$-AVERAGE DISINTEGRATION ENERGY

1.11 $\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

A.1

ITS 3.6.3

ITS

RAI 3.6.1-1 RAI 3.6.2-1 RAI 3.6.3-1 R1

SR 3.6.3.1 SR 3.6.3.2 SR 3.6.3.3 SR 3.6.3.4

a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1.

SR 3.6.3 ACTIONS Note

1.6.2 All equipment hatches are closed and sealed. <See ITS 3.6.1>

1.6.3 Each air lock is OPERABLE pursuant to Specification 3.6.1.3. <See ITS 3.6.2>

1.6.4 The containment leakage rates are within the limits of Specification 3.6.1.2 and <See ITS 3.6.1>

1.6.5 The sealing mechanism associated with each penetration (e.g. welds, bellows or O-rings) is OPERABLE. <See ITS 3.6.1>

RAI 3.6.1-3 RAI 3.6.1-2 R1

<See ITS 1.0>

CONTROLLED LEAKAGE

1.7 CONTROLLED LEAKAGE shall be that seal water flow supplied to the reactor coolant pump seals.

CORE ALTERATION

1.8 CORE ALTERATION shall be the movement or manipulation of any component within the reactor pressure vessel with the vessel head removed and fuel in the vessel. suspension of CORE ALTERATION shall not preclude completion of movement of a component to a safe conservative position.

CORE OPERATING LIMITS REPORT

1.9 The CORE OPERATING LIMITS REPORT is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.7 Plant operation within these operating limits is addressed in individual specifications.

DOSE EQUIVALENT I-131

1.10 The DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134 and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, "Calculation of Distance Factors for Power and Test Reactor Sites".

$\bar{E}$-AVERAGE DISINTEGRATION ENERGY

1.11 $\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

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Rev 14

misinterpreting the requirements of the Surveillance Requirement while maintaining the assumptions of the accident analysis. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS. RAI 3.6.3-21 R1 RAI 3.6.1-3 R14

L.14 Not used.

L.15 *(Category 3 – Relaxation of Completion Time)* CTS 3.6.3.1 states that with one or more isolation valves inoperable, maintain at least one isolation valve OPERABLE in each affected penetration and restore the inoperable valve to OPERABLE status within 4 hours. ITS 3.6.3, ACTION D, states that with purge valve penetration leakage not within limit, restore leakage within limit within 24 hours. This changes the CTS by relaxing the Completion Time for inoperable purge valve penetrations from 4 hours to 24 hours. RAI 3.6.3-2 R14

The purpose of CTS 3.6.3.1 is to ensure that containment penetration leakage is within the assumed limit. This change is acceptable because the Completion Time is consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the allowed Completion Time. Allowing 24 hours to repair a leaking purge valve penetration is appropriate because the valves are required to be closed and a gross breach of containment would fall under the requirement of LCO 3.6.1, "Containment." If the leakage through the purge valve penetration exceeds the LCO 3.6.1, "Containment," limit, then the ACTIONS of that Specification must be followed. This change is designated as less restrictive because additional time is allowed to restore parameters to within the LCO limits than was allowed in the CTS.

L.16 *(Category 4 – Relaxation of Required Action)* CTS 4.6.1.1.a requires verification that all non-automatic containment isolation valves that are required to be closed are closed every 31 days. If a non-automatic valve that is supposed to be closed is found open, CTS 3.6.1.1 Action applies. That Action states, "Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within one hour or be in at least Hot Standby within the next 6 hours and in Cold Shutdown within the following 30 hours." ITS 3.6.3 ACTIONS do not differentiate between automatic and non-automatic valves and allow 1 hour, 4 hours, or 72 hours to isolate the affected flow path. ITS 3.6.3 allows continued operation with the inoperable containment isolation valve, but if the Required Actions and associated Completion Times are not met, a shutdown to MODE 3 in 6 hours and MODE 5 in 36 hours is required. In addition, ITS 3.6.3 ACTIONS Notes 2, 3 and 4 allow separate condition entry for each penetration flow path, require entry into the applicable Conditions and Required Actions for systems made inoperable by containment isolation valves, and require entry into the applicable Conditions and Required Actions for LCO 3.6.1, "Containment," when leakage for a penetration flow path results in exceeding the RAI 3.6.3-3 3.6.3-6 R14

3.6.2 Containment Air Locks

STS SR 3.6.2.2
(3.6.2-9) ITS SR 3.6.2.2 and Associated Bases

NRC RAI: STS SR 3.6.2.2 requires verifying only one door in the air lock will open at a time at a 6-month interval. The interval is modified in ITS SR 3.6.2.2 from 6 months to 24 months. This modification is in accordance with TSTF-17 Rev. 2; however, the Bases changes are not in accordance with TSTF-17 Rev. 2. **Comment:** Revise the ITS Bases to be in accordance with TSTF-17 Rev. 2 or justify the deviations.

Response: The Company will take the action proposed in the Comment. The sentence, "The 24 month Frequency for the interlock is justified based on generic operating experience." is added to the SR 3.6.2.2 Bases. Also, JFD 9 is added and the TSTF-17 insert is modified to justify how the TSTF was addressed.

Additional Response: Based on verbal comments from the NRC, the previous response has been modified. The TSTF-17 insert is revised to reflect Revision 2 of TSTF-17.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.2.2 (continued)

OPERABILITY if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 24 month Frequency. The 24 month Frequency is also based on engineering judgment and is considered adequate given that the interlock is not challenged during use of the air lock. RAI 3.6.2-9 R1, R14

REFERENCES

1. 10 CFR 50, Appendix J, Option B.
2. UFSAR, Section 6.2.
3. UFSAR, Chapter 15.

INSERT

every 24 months. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage, and the potential for loss of [primary {BWR only}] containment OPERABILITY 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 24 month Frequency.

NAPS Responses to NRC Requests for Additional Information
ITS Section 3.6, Containment Systems

3.6.3 Containment Isolation Valves

DOC A.1
(3.6.3-2) JFD 3
Bases JFD 2
CTS 4.6.1.1.d
STS 3.6.3, ACTIONS A, B, D, and E, SR 3.6.3.7 and Associated Bases
ITS 3.6.3, ACTIONS A, and B and Associated Bases

NRC RAI: CTS 4.6.1.1.d requires specific leak rate tests for the butterfly isolation valves in the containment purge and the containment vacuum ejector lines. The CTS markup of CTS 4.6.1.1.d in CTS 3.6 refers the reviewer to ITS 5.5.15 for changes associated with this specification. The CTS markup for ITS 5.5.15 relocates this specification out of the ITS to the Containment Leakage Rate Testing Program. This change is justified by DOC A.26 (CTS 6.0). This change is incorrect. ITS 5.5.15 does not contain the specifics of this specification; the specifics are contained in the body of the program, which is outside of TS. Thus the change, if acceptable, would be a Less Restrictive (LA) change. However, the staff concludes that this specification needs to be retained in the North Anna ITS. Amendments 196 and 177 to the North Anna Unit 1 and Unit 2 TS respectively, dated February 9, 1996, implemented 10 CFR 50 Appendix J, Option B. The amendment change approved a Containment Leakage Rate Testing Program based on 10 CFR 50 Appendix J, Option B that was outside of the CTS, and did not include this specification in that program, but retained it in CTS 4.6.1.1.d. Since this specification contained specific testing requirements not contained in 10 CFR 50 Appendix J, Option B, it should be retained in the ITS as an SR in ITS 3.6.3. The STS does contain an SR on purge valve leakage. TSTF 52 Rev. 3 did not remove or relocate the purge valve leakage SR (STS SR 3.6.3.7). In fact, STS SR 3.6.3.7 was retained because the testing requirements went beyond the test requirements of 10 CFR 50 Appendix J. This STS SR deals with leakage testing of purge valves with resilient seals. It would seem that CTS 4.6.1.1.d was retained because the valves had resilient seals, but this is not stated in CTS 4.6.1.1.d, the Bases for ITS 3.6.3, or in the DOCs and JFDs. If these valves do have resilient seals, then CTS 4.6.1.1.d needs to be retained in the ITS. Even if they do not have resilient seals, the specification needs to be retained because of the special testing requirements which go beyond the requirements of 10 CFR 50 Appendix J. Thus, STS SR 3.6.3.7 needs to be used or modified to reflect plant-specific testing requirements. Since this STS SR is being added to the ITS, an appropriate ACTION needs to be provided for when the SR is not met. This ACTION would be STS 3.6.3 ACTION D or E as modified by TSTF-207 Rev. 5 and any plant-specific requirements. This may result in modifications/changes to CTS 3.6.1.1 ACTION. In addition, ITS 3.6.3 Conditions A and B will need to be revised to conform to TSTF-207, Rev. 5. **Comment:** Revise the CTS/ITS markup to retain CTS 4.6.1.1.d and provide the appropriate discussions and justifications for all the changes associated with this SR retention.

Response: The Company will take the action proposed in the Comment, with certain modifications.

NAPS Responses to NRC Requests for Additional Information
ITS Section 3.6, Containment Systems

The CTS 4.6.1.1.d markup is modified, adopting the requirement as modified and justified by DOC A.12, A.13, and LA.4, adopting ISTS SR 3.6.3.7, as modified and justified by JFD 10.

ITS 5.0 markups are modified, DOC A.26 is deleted, and DOC LA.12 is added to reflect these changes.

* The ITS Condition to be entered when ITS SR 3.6.3.7 is not met will be Condition A or B, depending on whether one or two valves in a penetration are inoperable. ISTS ACTIONS D and E for the purge valves are not necessary because leakage in the purge valves will be treated in the same manner as leakage or inoperability of other containment isolation valves, consistent with the current licensing basis.

The shield building bypass related portions of ISTS ACTIONS A, B and D are not adopted because NAPS does not have a shield building.

* The purge valve related portions of ISTS ACTIONS A, B and D are not adopted because the Required Actions and Completion Times for the purge valves are the same as for other containment isolation valves.

* ISTS ACTION E is not adopted because the Required Actions are the same as those for ISTS ACTION A, except the Required Action E.1 and E.2 Completion times are 24 hours, and ISTS Required Action E.3 requires that ISTS SR 3.6.2.7 be performed once per [92] days for the resilient seal purge valves closed to comply with Required Action E.1. ISTS SR 3.6.2.7 will not be performed at NAPS.

JFD 3 is modified to only address shield building bypass portions of ISTS 3.6.3 ACTIONS A, B and D.

* JFD 7 is added to address not adopting the purge valve portions of ISTS 3.6.3 ACTIONS A, B and D, and ISTS 3.6.3 ACTION E.

* TSTF-207 Rev 5 will be marked into the ISTS markup. However, because ISTS 3.6.3 ACTIONS D and E are not adopted, and the bracketed term "or more" in relation to isolation valves is not adopted, these changes to the ITS package will not result in a change to ITS 3.6.3.

JFD 8 addresses not adopting the term "or more."

Additional Response: Based on verbal comments from the NRC, the portions of the previous response marked with an asterisk are modified.

TSTF-207, Rev. 5, is adopted. Two deviations from TSTF-207, Rev. 5 are justified. The change to Conditions A and B in TSTF-207, which replaces the phrase, "two containment isolation valves" with "two or more containment isolation valves" is not adopted. As described in JFD 8, at North Anna, there are only two valves in each of the penetrations addressed by Conditions A and B. The STS Reviewer's Note added by TSTF-207, Rev. 5 states that Condition E is applicable to purge valve leakage which can

be measured separately for each purge valve, otherwise Condition D applies. Purge valve leakage cannot be measured separately for each purge valve at North Anna, so Condition D is adopted. However, the STS wording for Condition D, "Purge valve leakage not within limit," is misleading since the leakage for a single valve cannot be measured. Therefore, Condition D has been revised to state, "Purge valve penetration leakage not within limit." Corresponding changes are made to the Condition D Bases. This change is consistent with the application of Condition D as described in the Reviewer's Note. DOC L.15 is added to describe the change.

ITS JFD 7, which was inadvertently omitted from the previous response, is provided and has been revised to reflect the addition of Condition D.

The paragraph in the STS LCO Bases regarding purge valves with resilient seals is added to the ITS Bases.

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

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

ACTIONS

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

1. Penetration flow path(s) except for 36 inch purge and exhaust valves, 18 inch containment vacuum breaking valve, 8 inch purge bypass valve, and steam jet air ejector suction flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when leakage for a penetration flow path results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ---------NOTE--------- Only applicable to penetration flow paths with two or more containment isolation valves. --------------------- One or more penetration flow paths with one containment isolation valve inoperable for reasons other than Condition D.	A.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.	4 hours
	<u>AND</u>		
			(continued)

RAI 3.6.3-2 R14

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ---------NOTE--------- Only applicable to penetration flow paths with two containment isolation valves. --------------------- One or more penetration flow paths with two containment isolation valves inoperable for reasons other than Condition D.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour
C. ---------NOTE--------- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. --------------------- One or more penetration flow paths with one containment isolation valve inoperable.	C.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	72 hours
	<u>AND</u>		(continued)

RAI 3.6.3-2 R14

RAI 3.6.3-2 R14

RAI 3.6.3-2 R14

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME	
C. (continued)	C.2	--------NOTES-------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. -------------------- Verify the affected penetration flow path is isolated.	Once per 31 days	
D. Purge valve penetration leakage not within limit.	D.1	Restore leakage within limit.	24 hours	RAI 3.6.3-2 R14
E. Required Action and associated Completion Time not met.	E.1	Be in MODE 3.	6 hours	RAI 3.6.3-2 R14
	<u>AND</u>			
	E.2	Be in MODE 5.	36 hours	RAI 3.6.3-2 R14

BASES

APPLICABLE SAFETY ANALYSES (continued)

The containment isolation valves satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

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

The automatic power operated isolation valves are required to have isolation times within limits and to actuate on an automatic isolation signal. The 36, 18, and 8 inch purge valves must be maintained locked, sealed, or otherwise secured closed. The valves covered by this LCO are listed along with their associated stroke times in the Technical Requirements Manual (Ref. 2).

The normally closed isolation valves are considered OPERABLE when manual valves are closed, automatic valves are de-activated and secured in their closed position, blind flanges are in place, and closed systems are intact. These passive isolation valves/devices are those listed in Reference 2. RAI 3.6.3-13 R1

Purge valves with resilient seals must meet additional leakage rate requirements. The other containment isolation valve leakage rates are addressed by LCO 3.6.1, "Containment," as Type C testing. RAI 3.6.3-2 R14

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

APPLICABILITY

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

BASES

ACTIONS

The ACTIONS are modified by a Note allowing penetration flow paths, except for 36 inch purge and exhaust valve, 18 inch containment vacuum breaking valve, 8 inch purge bypass valve, and steam jet air ejector suction penetration flow paths, to be unisolated intermittently under administrative controls. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for containment isolation is indicated. Due to the fact that the 36 inch valves are not qualified for automatic closure from their open position under DBA conditions and that these and the other penetrations listed as excepted exhaust directly from the containment atmosphere to the environment, the penetration flow path containing these valves may not be opened under administrative controls.

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

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

In the event the leakage for a containment penetration flow path results in exceeding the overall containment leakage rate acceptance criteria, Note 4 directs entry into the applicable Conditions and Required Actions of LCO 3.6.1.

<u>A.1 and A.2</u>

In the event one containment isolation valve in one or more penetration flow paths is inoperable, except for purge valve leakage not within limit, the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and RAI 3.6.3-2 R14

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

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

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

Condition A has been modified by a Note indicating that this Condition is only applicable to those penetration flow paths with two containment isolation valves. For penetration flow paths with only one containment isolation valve and a closed system, Condition C provides the appropriate actions. RAI 3.6.3-2 R14

Required Action A.2 is modified by two Notes. Note 1 applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment of these devices once they have been verified to be in the proper position, is small.

B.1

With two containment isolation valves in one or more penetration flow paths inoperable, except for purge valve leakage not within limit, the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. In the event the affected penetration is isolated in accordance with Required Action B.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action A.2, which remains in effect. This periodic verification is necessary to assure leak tightness of containment and that penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative control and the probability of their misalignment is low. RAI 3.6.3-2 R14

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two containment isolation valves. Condition A of this LCO addresses the condition of one containment isolation valve inoperable in this type of penetration flow path. RAI 3.6.3-2 R14

BASES

ACTIONS

C.1 and C.2 (continued)

by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is small.

D.1

RAI 3.6.3-2 R14

With the purge valve penetration leakage rate (SR 3.6.3.4) not within limit, the assumptions of the safety analyses are not met. Therefore, the leakage must be restored to within limit. Restoration can be accomplished by isolating the penetration(s) that caused the limit to be exceeded by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. When a penetration is isolated the leakage rate for the isolated penetration is assumed to be the actual pathway leakage through the isolation device. If two isolation devices are used to isolate the penetration, the leakage rate is assumed to be the lesser actual pathway leakage of the two devices. The 24 hour Completion Time for purge valve penetration leakage is acceptable considering the purge valves remain closed so that a gross breach of containment does not exist.

E.1 and E.2

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

SURVEILLANCE REQUIREMENTS

SR 3.6.3.1

This SR requires verification that each containment isolation manual valve and blind flange located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the containment

(continued)

CTS

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves (Atmospheric, Subatmospheric, Ice Condenser, and Dual) ①

3.6.3.1 LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

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

ACTIONS

-----NOTES-----

3.8.A.2 footnote "*" 1. Penetration flow path(s) [except for [42] inch purge valve flow paths] may be unisolated intermittently under administrative controls. (36) 18 inch containment vacuum breaking valves, 8 inch purge bypass valve, and steam jet air ejector suction (and exhaust) (5) ②

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

New 3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves. ⑥

New 4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when isolation valve (for a penetration flowpath) leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
Action b Action c A. -----NOTE----- Only applicable to penetration flow paths with two containment isolation valves. [or more] ----- One or more penetration flow paths with one containment isolation valve inoperable [except for purge valve or shield building bypass leakage not within limit]. (for reasons other than Condition D)	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. AND	4 hours TSTF-207 ⑧ TSTF-207 (continued)

RAI 3.6.3-2 R1

RAI 3.6.3-? R14

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①

CTS

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
NEW	A. (continued) 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.	A.2 --------NOTE-------- ⑤ 1. Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment	TSTF-269
NEW	B. ---------NOTE--------- Only applicable to penetration flow paths with two containment isolation valves. --------------------- One or more penetration flow paths with two containment isolation valves inoperable [or more] for reasons other than Condition D [except for purge valve or shield building bypass leakage not within limit].	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour	TSTF-207 ⑧ RAI 3.6.3-2 R1 TSTF-207 RAI 3.6.3-2 R14

(continued)

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CTS

ACTIONS (continued)

CTS	CONDITION	REQUIRED ACTION	COMPLETION TIME
Action b Action c	C. --------NOTE-------- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. -------------------- One or more penetration flow paths with one containment isolation valve inoperable.	C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	[4] hours (72) TSTF-30 ②
NEW		AND C.2 --------NOTE-------- ⑤ (1.) Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. -------------------- Verify the affected penetration flow path is isolated.	Once per 31 days TSTF-269
New	D. ~~Shield building bypass leakage~~ Purge valve penetration leakage not within limit.	D.1 Restore leakage within limit.	[4] hours (24) TSTF-207 ③ ⑦ RAI 3.6.3-2 R1 R14
	~~E. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.~~	~~E.1 Isolate the affected penetration flow path by use of at least one [closed and de-activated automatic valve, closed manual valve, or blind flange].~~ AND	~~24 hours~~ ⑦ RAI 3.6.3-2 R1

(continued)

Rev. 14

①

CTS

ACTIONS

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

Action d

⑦ RAI 3.6.3-2 R1

⑦ RAI 3.6.3-2 R14

⑦

Rev. 14

1. The headings for ISTS 3.6.3 include the parenthetical expression (Atmospheric, Subatmospheric, Ice Condenser, and Dual). This identifying information is not included in the NAPS ITS. This information is provided in the NUREG to assist in identifying the appropriate specification to be used as a model for a plant specific ITS conversion, but serves no purpose in a plant specific implementation. Therefore, necessary editorial changes were made.

2. The brackets are removed and the proper plant specific information/value is provided.

3. Conditions, Surveillance Requirements and other references to shield building bypass are not retained. Shield building bypass is not part of the NAPS design. RAI 3.6.3-2 R1 RAI 3.6.3-12 R14

4. Not used.

5. ITS SR 3.6.3.6 requires each weight or spring loaded check valve used as a containment isolation valve that can be tested during operation to be tested through one complete cycle of travel every 92 days. North Anna CTS Surveillance 4.6.3.1.1 contains a similar requirement. ITS SR 3.6.3.6 is deleted as North Anna does not contain weight or spring loaded check valves used as containment isolation valves that are testable during operation. Therefore, this Surveillance does not apply.

6. ISTS 3.6.3 ACTIONS NOTE 4 is modified to clarify that entry is required into the applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when leakage for a penetration flow path, instead of when isolation valve leakage, results in exceeding the overall containment leakage rate acceptance criteria. The Containment is not inoperable if there is still an OPERABLE containment isolation valve in the affected flow path. This change is acceptable because ISTS 3.6.3 Required Action A.1 allows 4 hours to isolate the affected penetration flow with one or more penetration flow paths with one containment isolation valve inoperable. If Required Action A.1 and its associated Completion Time is not met, the unit is required to be placed in MODE 3 within 6 hours, and MODE 5 within 36 hours. This is consistent with ISTS 3.6.1 which requires an inoperable Containment be restored to OPERABLE status within 1 hour, or the unit is required to be placed in MODE 3 within 6 hours, and MODE 5 within 36 hours. This is also consistent with the current licensing basis.

7. ISTS 3.6.3 ACTION E is not adopted. ISTS 3.6.3 ACTION D is adopted and revised. The STS Reviewer's Note added by TSTF-207, Rev. 5 states that Condition E is applicable to purge valve leakage which can be measured separately for each purge valve. Purge valve leakage cannot be measured separately for each purge valve at North Anna, so Condition D is adopted. However, the STS wording for Condition D, "Purge valve leakage not within limit," is misleading since the leakage for a single valve cannot be measured. Therefore, Condition D has been revised to state, "Purge valve penetration leakage not within limit." Corresponding changes are made to the Condition D Bases. RAI 3.6.3-2 R1, R14

This change is consistent with the application of Condition D as described in the Reviewer's Note. Subsequent requirements are numbered and lettered accordingly. RAI 3.6.3-2 R1 R14

8. The bracketed term "or more," added to ISTS 3.6.3 Condition A Note, Condition B Note, and Condition B, is not adopted. At NAPS, only two valves in each penetration addressed by Conditions A and B are required. This consistent with the current licensing basis. RAI 3.6.3-2 R1

9. ISTS SR 3.6.3.1, SR 3.6.3.2, and SR 3.6.3.10 are not adopted. Purge valves are not opened in MODES 1, 2, 3 and 4, and do not automatically close. The CTS treat the purge valves in the same manner as other manually operated containment isolation valves. As stated in the ISTS SR 3.6.3.1, SR 3.6.3.2 and SR 3.6.3.10 Bases, the separate criteria applied to purge valves in the ISTS are related to use of the valves in MODES 1, 2, 3, and 4. Subsequent requirements are numbered and lettered accordingly. RAI 3.6.3-4 R1

10. The Frequency of 184 days and within 92 days after opening the valve in ISTS SR 3.6.3.7 is changed to, "Prior to entering MODE 4 from MODE 5 after containment vacuum has been broken." The NAPS containment is subatmospheric and testing the containment purge valves with resilient seals while in MODE 1, 2, 3, or 4 is not performed for industrial safety reasons. The Frequency which is proposed will test the valves before entering the MODE of Applicability each time containment vacuum is broken and the valves can be tested safely. Maintenance history supports this Frequency, and the Frequency is consistent with the current licensing basis. Subsequent requirements are numbered and lettered accordingly. RAI 3.6.3-2 R1

(2)

BASES (continued)

LCO

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

locked, , or otherwise secured 36, 18, and 8 (1)

The automatic power operated isolation valves are required to have isolation times within limits and to actuate on an automatic isolation signal. The [42] inch purge valves must be maintained sealed closed [or have blocks installed to prevent full opening]. [Blocked purge valves also actuate on an automatic signal.] The valves covered by this LCO are listed along with their associated stroke times in the FSAR (Ref. 2). (3) (3) (1)

Technical Requirements Manual

The normally closed isolation valves are considered OPERABLE when manual valves are closed, automatic valves are de-activated and secured in their closed position, blind flanges are in place, and closed systems are intact. These passive isolation valves/devices are those listed in Reference [2] (2). (1) RAI 3.6.3-13 R1

Purge valves with resilient seals [and secondary containment bypass valves] must meet additional leakage rate requirements. The other containment isolation valve leakage rates are addressed by LCO 3.6.1, "Containment," as Type C testing. (3) RAI 3.6.3-2 R14

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

APPLICABILITY

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

(continued)

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18 inch containment vacuum breaking valve, 8 inch purge bypass valve, and steam jet air ejector suction

(2)

BASES (continued)

(36) (1)

(and exhaust)

ACTIONS

The ACTIONS are modified by a Note allowing penetration flow paths, except for [42] inch purge valve penetration flow paths, to be unisolated intermittently under administrative controls. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for containment isolation is indicated. Due to the size of the containment purge line penetration and the fact that those penetrations exhaust directly from the containment atmosphere to the environment, the penetration flow path containing these valves may not be opened under administrative controls. A single purge valve in a penetration flow path may be opened to effect repairs to an inoperable valve, as allowed by SR 3.6.3.1. (3) (2) (1) (1)

the 36 inch valves are not qualified for automatic closure from their open position under DBA conditions and that these and the other penetrations listed as excepted

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

for a containment penetration flow path

The ACTIONS are further modified by a third Note, which ensures appropriate remedial actions are taken, if necessary, if the affected systems are rendered inoperable by an inoperable containment isolation valve. (2)

acceptance criteria

In the event the air lock leakage results in exceeding the overall containment leakage rate, Note 4 directs entry into the applicable Conditions and Required Actions of LCO 3.6.1. (5) (1)

A.1 and A.2

In the event one containment isolation valve in one or more penetration flow paths is inoperable (except for purge valve or shield building bypass leakage not within limit), the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active (3) TSTF-207 | A41 3.6.3-2 R14

(continued)

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(2)

BASES

ACTIONS

A.1 and A.2 (continued)

failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and (or) a check valve with flow through the valve secured. For a penetration flow path isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available one to containment. Required Action A.1 must be completed within 4 hours. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4. (5)

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

Condition A has been modified by a Note indicating that this Condition is only applicable to those penetration flow paths with two [or more] containment isolation valves. For penetration flow paths with only one containment isolation valve and a closed system, Condition C provides the appropriate actions. TSTF-207 (2) RAI 36.3-2 R14

(continued)

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(2)

BASES

ACTIONS

A.1 and A.2 (continued)

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

two (s) Note 1

TSTF-269

Note 2 applies to isolation devices that are locked, sealed or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned.

B.1

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

[or more]

, except for purge valve leakage not within limit

TSTF-207 RAI 3.6.3-2 R14

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

TSTF-207 RAI 3.6.3-2 R14

(continued)

Rev. 14

(2)

BASES

ACTIONS (continued)

D.1 purge valve penetration (SR 3.6.3.4)

TSTF-207

RAI 3.6.3-2 R14

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

TSTF-207

The 24 hour Completion Time for purge valve penetration leakage is acceptable considering the purge valves remain closed so that a gross breach of containment does not exist.

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

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

(2)

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

(continued)

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BASES

ACTIONS

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

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

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

F.1 and F.2

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

(continued)

ITS

CONTAINMENT SYSTEMS 4-22-94

3/4.6.3 CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.3 — 3.6.3.1 Each containment isolation valve shall be OPERABLE.*

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

ACTION: Insert proposed Action Note 3 / Insert proposed Action Note 4 (A.2) (A.3)

Actions Note 2, Condition A Note, Condition C Note — With one or more of the isolation valves inoperable, maintain at least one [the other] isolation valve OPERABLE in each affected penetration that is open and: (A.8) (A.11) R1 RAI 3.6.3-16

a. ~~Restore the inoperable valve(s) to OPERABLE status within 4 hours, or~~ (A.4) RAI 3.6.3-2 R14

Insert Action D (L.15)

Action A.1, Action C.1 — b. Isolate each affected penetration within ~~4~~ [72, only Action C.1] hours by use of at least one deactivated automatic valve secured in the isolation position, or (L.3) RAI 3.6.3-17 R1

Action A.1, Action C.1 — c. Isolate each affected penetration within ~~4~~ hours by use of at least one closed manual valve or blind flange [, or check valve with flow through the valve secured]; or

Insert proposed Condition B (A.5)

Action D.1, Action D.2 — d. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (L.10) RAI 3.6.3-18 R1

(only Action A.1) ~~The provisions of Specification 3.0.4 do not apply.~~ (A.6)

SURVEILLANCE REQUIREMENTS — Insert proposed ACTIONS A.2 and C.2 (M.1)

~~4.6.3.1.1 Each containment isolation valve shall be demonstrated OPERABLE:~~

~~a. At least once per 92 days by cycling each weight or spring loaded check valve testable during plant operation, through one complete cycle of full travel and verifying that each check valve remains closed when the differential pressure in the direction of flow is less than 1.2 psid and opens when the differential pressure in the direction of flow is greater than or equal to 1.2 psid but less than 5.0 psid.~~ (A.10)

Action Note 1 — * [, except for 36 inch purge and exhaust valves, 18 inch containment vacuum breaking valve, 8 inch purge bypass valve, and steam jet air ejector suction flowpaths,] ~~Locked or sealed closed valves~~ [Penetration flowpaths] may be opened on an intermittent basis under administrative control. (M.2) (L.9) R1 RAI 3.6.3-1[illegible]

(A.1) ITS 3.6.3

ITS

3/4.6.3 CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.3 3.6.3.1 Each containment isolation valve shall be OPERABLE.*

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

Insert proposed Action Note 3 (A.2)

ACTION: Insert proposed Action Note 4 (A.3)

Action NOTE 2 With one or more of the isolation valves inoperable, maintain at least one [the other] isolation valve OPERABLE in each affected penetration that is open and: (A.8) (A.11) RAI 3.6.3-16

a. Restore the inoperable valve(s) to OPERABLE status within 4 hours, or (A.4) RI

Action D.1 Insert Action D (L.15) RAI 3.6.3-2 R14

Action A.1, Action C.1 b. Isolate each affected penetration within (4) [72] hours by use of at least one deactivated automatic valve secured in the isolation position, or [only Action C.1] RAI 3.6.3-17 RI

Action A.1, Action C.1 c. Isolate each affected penetration within (4) [72] hours by use of at least one closed manual valve or blind flange; or (L.3)

INSERT proposed Condition B (A.5)

Action E.1, Action E.2 d. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (L.10) RAI 3.6.3-18 RI

[only Action A.1: , or check valve with flow through the valve secured]

The provisions of Specification 3.0.4 do not apply. (A.6)

SURVEILLANCE REQUIREMENTS

Insert proposed ACTIONS A.2 and C.2 (M.1)

4.6.3.1.1 Each containment isolation valve shall be demonstrated OPERABLE: (A.10)

a. At least once per 92 days by cycling each weight or spring loaded check valve testable during plant operation, through one complete cycle of full travel and verifying that each check valve remains closed when the differential pressure in the direction of flow is less than 1.2 psid and opens when the differential pressure in the direction of flow is greater than or equal to 1.2 psid but less than 5.0 psid.

(b.) Prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by performance of the applicable cycling test and verification of isolation time. (L.1)

Action Note 1 * Locked or sealed closed valves [Penetration flow path(s)] may be opened on an intermittent basis under administrative control. [except for 36 inch purge and exhaust valves, 18 inch containment vacuum breaking valve, 8 inch purge bypass valve, and steam jet air ejector suction flow paths.] (L.9) RAI 3.6.3-15 RI (M.2)

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specified actions. ITS 3.6.3 does not state the requirement to restore an inoperable isolation valve to OPERABLE status, but includes other Actions to take within 4 hours. ITS LCO 3.0.2 states, "If the LCO is met or no longer applicable prior to the expiration of the specified Completion time(s), completion of the Required Actions(s) is not required unless otherwise stated." This changes CTS by including the requirement as part of LCO 3.0.2, rather than explicitly stating the allowance.

This change is acceptable because it retains an existing allowance in ITS format with ITS usage rules. This change is designated as administrative because it does not result in technical changes to the CTS.

A.5 CTS 3.6.3.1 and CTS 3.6.5.1 do not include any Condition and Required Actions for one or more penetration flow paths with two containment isolation valves inoperable. CTS 3.0.3 would be entered for this Condition. ITS 3.6.3 Condition B states, "One or more penetration flow paths with two containment isolation valves inoperable." ITS Required Action B.1 states, "Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange," within 1 hour. ITS 3.6.3 Condition E requires the unit be placed in MODE 3 in 6 hours, and MODE 5 in 36 hours if the Required Action and associated Completion Time is not met. This changes CTS by stating the Actions to be taken for two containment isolation valves inoperable, rather than relying on CTS 3.0.3, which contains the same Completion Times for placing the unit outside its MODE of Applicability. RAI 3.6.3-2 R14

This change is acceptable because it places CTS 3.0.3 requirements in ITS format. This change is designated as administrative because it does not result in technical changes to the CTS.

A.6 CTS 3.6.3.1 Action states, "The provisions of Specification 3.0.4 do not apply." CTS 3.0.4 states, "Entry into an OPERATIONAL MODE or other specified applicability condition shall not be made unless the conditions of the Limiting Condition for Operation are met without reliance on provision contained in the ACTION statements unless otherwise excepted." ITS 3.6.2 does not contain the exception to ITS 3.0.4. ITS 3.0.4 states, "When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall not be made except when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time." This changes CTS by incorporating an allowance into ITS LCO 3.0.4.

This change is considered acceptable because LCO 3.0.4 is changed in ITS such that the NOTE is not required to retain the same CTS requirement. ITS 3.6.2 Actions allow continued operation for an unlimited period of time, which together with ITS 3.0.4 result in the same technical requirements as the CTS. This change is designated as administrative because it does not result in technical changes to the CTS.

A.10 CTS 4.6.3.1.1.a requires testing of each containment isolation valve that is a weight or spring loaded check valve testable during unit operation every 92 days. The ITS does not contain this Surveillance. This changes the CTS by eliminating this Surveillance.

This change is acceptable because the technical requirements have not changed. North Anna does not contain any containment isolation valves that are weight or spring loaded check valves which are testable during unit operation. Therefore, this surveillance is never performed. This change is designated as administrative because it does not result in technical changes to the CTS.

A.11 CTS 3.6.3.1 Action states, "With one or more of the isolation valves inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open…" ITS Conditions A and B Notes state, "Only applicable to penetration flow paths with two containment isolation valves." ITS Condition C Note states, "Only applicable to penetration flow paths with only one containment isolation valve and a closed system." ITS Condition ITS 3.6.3 Required Actions A.1 and C.1 require the associated flow path be isolated by one of the means specified with one or more penetration flow paths with one containment isolation valve inoperable. ITS 3.6.3 Required Actions A.1 and C.1 both assume the other isolation valve or closed system are OPERABLE for the isolation function. If two valves in a penetration flow path with two containment isolation valves are inoperable, Required Action B.1 requires the penetration be isolated within one hour, or Condition E is entered, requiring the unit be placed in MODE 3 within 6 hours, and MODE 5 within 36 hours. In a penetration flow path with one containment isolation valve and a closed system, where the containment isolation valve and the closed system were not capable of performing the isolation function, ITS LCO 3.0.3 would be entered. This changes CTS by incorporating the concept of assuring that the second means of containment isolation for a penetration flow path is OPERABLE into the Conditions and Required Actions associated with ITS 3.6.3. RAI 3.6.3-16 R1 RAI 3.6.3-2 R14

This change is acceptable because when one means of isolating a containment flow path is inoperable, the other must be OPERABLE, or the ITS requires Required Actions be taken for two inoperable means of isolating a containment flow path, rather than allowing the Completion Times associated with one inoperable means of isolating a containment flow path. This retains the CTS 3.6.3.1 concept of maintaining at least one isolation valve OPERABLE in each affected penetration that is open when one or more isolation valves are inoperable. This change is designated as administrative because it does not result in technical changes to the CTS.

A.12 CTS 4.6.1.1.d states, "Each time containment integrity is established after vacuum has been broken by pressure testing the butterfly isolation valves in the containment purge lines and the containment vacuum ejector line." The Applicability is MODES 1, 2, 3, and 4. The Frequency for ITS SR 3.6.3.4 states, "Prior to entering MODE 4 from MODE 5 after containment vacuum has been broken. This changes the CTS by adopting the ISTS Frequency format for such a Surveillance Requirement, clarifying RAI 3.6.1-5 3.6.3-2 R1

misinterpreting the requirements of the Surveillance Requirement while maintaining the assumptions of the accident analysis. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS. RAI 3.6.3-21 R1 RAI 3.6.1-3 R14

L.14 Not used.

L.15 *(Category 3 – Relaxation of Completion Time)* CTS 3.6.3.1 states that with one or more isolation valves inoperable, maintain at least one isolation valve OPERABLE in each affected penetration and restore the inoperable valve to OPERABLE status within 4 hours. ITS 3.6.3, ACTION D, states that with purge valve penetration leakage not within limit, restore leakage within limit within 24 hours. This changes the CTS by relaxing the Completion Time for inoperable purge valve penetrations from 4 hours to 24 hours. RAI 3.6.3-2 R14

The purpose of CTS 3.6.3.1 is to ensure that containment penetration leakage is within the assumed limit. This change is acceptable because the Completion Time is consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the allowed Completion Time. Allowing 24 hours to repair a leaking purge valve penetration is appropriate because the valves are required to be closed and a gross breach of containment would fall under the requirement of LCO 3.6.1, "Containment." If the leakage through the purge valve penetration exceeds the LCO 3.6.1, "Containment," limit, then the ACTIONS of that Specification must be followed. This change is designated as less restrictive because additional time is allowed to restore parameters to within the LCO limits than was allowed in the CTS.

L.16 *(Category 4 – Relaxation of Required Action)* CTS 4.6.1.1.a requires verification that all non-automatic containment isolation valves that are required to be closed are closed every 31 days. If a non-automatic valve that is supposed to be closed is found open, CTS 3.6.1.1 Action applies. That Action states, "Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within one hour or be in at least Hot Standby within the next 6 hours and in Cold Shutdown within the following 30 hours." ITS 3.6.3 ACTIONS do not differentiate between automatic and non-automatic valves and allow 1 hour, 4 hours, or 72 hours to isolate the affected flow path. ITS 3.6.3 allows continued operation with the inoperable containment isolation valve, but if the Required Actions and associated Completion Times are not met, a shutdown to MODE 3 in 6 hours and MODE 5 in 36 hours is required. In addition, ITS 3.6.3 ACTIONS Notes 2, 3 and 4 allow separate condition entry for each penetration flow path, require entry into the applicable Conditions and Required Actions for systems made inoperable by containment isolation valves, and require entry into the applicable Conditions and Required Actions for LCO 3.6.1, "Containment," when leakage for a penetration flow path results in exceeding the RAI 3.6.3-3 3.6.3-6 R14

3.6.3 Containment Isolation Valves

DOC A.2
(3.6.3-3) DOC A.3
CTS 3.6.1.1 ACTIONS
CTS 4.6.1.1.a
ITS 3.6.1.3, ACTIONS, SR 3.6.3.1, 3.6.3.2 and Associated Bases

NRC RAI: CTS 4.6.1.1.a verifies that all penetrations not capable of being closed by OPERABLE automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in their positions. The corresponding ITS SRs for this CTS surveillance are ITS SR 3.6.3.1 for valves outside containment and ITS SR 3.6.3.2 for valves inside containment. If CTS 4.6.1.1.a cannot be met, the ACTIONS of CTS 3.6.1.1 are entered, which require restoration of valve OPERABILITY within 1 hour or shutdown within the following 36 hours. If ITS SR 3.6.3.1 or ITS SR 3.6.3.2 cannot be met, the ACTIONS of ITS 3.6.3 are entered, which allow for one valve inoperable between 4 hours and 72 hours depending on the type of penetration to restore valve OPERABILITY before shutdown commences. This Less Restrictive (L) change, along with the addition of ITS 3.6.3 Action Notes 3 and 4, to the CTS is not justified. Refer to Comment Number 3.6.3-6 for ACTION Note 2. **Comment:** Revise the CTS markup to show this Less Restrictive (L) change and provide the appropriate discussions and justifications.

Response: The Company does not agree with the action recommended in the Comment. The CTS allow 4 hours to restore a valve to OPERABLE status or isolate the penetration affected when there is one inoperable valve in a penetration.

CTS 4.6.1.1.a states, "At least once per 31 days by verifying that all penetrations* not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves, secured in their positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1." Specification 3.6.3.1 Actions a, b, and c allow 4 hours to restore the valve or isolate the affected penetration. There are no other administrative controls in 3.6.3.1 except for these, so one valve in a penetration is allowed to be inoperable for 4 hours. CTS 3.6.1.1 ACTION states, "Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours." This one hour Action criteria would only be applied if both valves in a penetration were inoperable, because CONTAINMENT INTEGRITY would have then been lost. CONTAINMENT INTEGRITY is still maintained when at least one valve in the affected penetration is OPERABLE.

Additional Response: The company agrees with the action recommended in the comment. This replaces the previous response.

CTS 3.6.1.1 Action is revised to eliminate the requirement to restore containment integrity within one hour when a non-automatic containment isolation valve that is required to be closed is found to be open and the ITS 3.6.3 ACTIONS are applied in this

circumstance. DOC L.16 is added to document the change. DOC L.16 also addresses the application of ITS 3.6.3 ACTION Notes 2, 3, and 4 to the requirements of CTS 3.6.1.1. These changes also respond to the concern in RAI 3.6.3-6.

A.1

ITS 3.6.3

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 CONTAINMENT

ITS

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained. <See ITS 3.6.1>

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

Cond E Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. L.16 RAI 3.6.3-3 R14

SURVEILLANCE REQUIREMENTS

<See ITS 3.6.1>

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

SR 3.6.3.1 a. At least once per 31 days by verifying that all penetrations* not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves, secured in their positions, except for valves that are locked, sealed, or otherwise secured, or are open under administrative control as permitted by Specification 3.6.3.1. L.5 L.6 RAI 3.6.3-9 R1

SR 3.6.3.2 INSERT Proposed SR 3.6.3.1 Note

b. By verifying that each containment air lock is OPERABLE per Specification 3.6.1.3. <See ITS 3.6.1>

c. After each closing of the equipment hatch, by leak rate testing the equipment hatch seals, with gas at P_a, greater than or equal to 44.1 psig. Results shall be evaluated against the criteria of Specification 3.6.1.2.b as required by 10 CFR 50, Appendix J, Option B, as modified by approved exemptions, and in accordance with the guidelines contained in Regulatory Guide 1.163, dated September 1995. <See ITS 5.0>

SR 3.6.3.4 d. ~~Each time containment integrity is established~~ Prior to entering MODE 4 from MODE 5 after vacuum has been broken by pressure testing the ~~butterfly~~ isolation valves with resilient seals in the containment purge lines and the containment vacuum ejector line. A.12 LA.4 A.13 RAI 3.6.3-2 3.6.1-5 R1

SR 3.6.3.1 * Except valves, blind flanges, and deactivated automatic valves which are located inside the containment and are not locked sealed or otherwise sealed in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except that such surveillance need not be performed more often than once per 92 days. L.7 RAI 3.6.3-9 R1

SR 3.6.3.2 INSERT Proposed SR 3.6.3.2 Note L.5

3/4.6 CONTAINMENT SYSTEMS

ITS

3/4.6.1 CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (L.16) RAI 3.6.3-3 R14

Cond E

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated: <See ITS 3.6.1>

SR 3.6.3.1
SR 3.6.3.2

a. At least once per 31 days by verifying that all penetrations* not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves, secured in their positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1. (locked, sealed, or otherwise secured, or) (Insert Proposed SR 3.6.3.1 Note) (L.5) (L.6) RAI 3.6.3-9 R1

b. By verifying that each containment air lock is OPERABLE per Specification 3.6.1.3. <See ITS 3.6.1>

c. After each closing of the equipment hatch, by leak rate testing the equipment hatch seals, with gas at P_a, greater than or equal to 44.1 psig. Results shall be evaluated against the criteria of Specification 3.6.1.2.b as required by 10 CFR 50, Appendix J, Option B, as modified by approved exemptions, and in accordance with the guidelines contained in Regulatory Guide 1.163, dated September 1995. <See ITS 5.0>

SR 3.6.3.4

d. Each time containment integrity is established after vacuum has been broken by pressure testing the butterfly isolation valves in the containment purge lines and the containment vacuum ejector line. (with resilient seals) (Prior to entering MODE 4 from MODE 5) (A.12) (LA.4) (A.13) RAI 3.6.3-2 3.6.1-5 R1

(L.7) RAI 3.6.3-9

SR 3.6.3.1
SR 3.6.3.2

* Except valves, blind flanges (not) and deactivated automatic valves which are located inside the containment and are locked sealed or otherwise sealed in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except that such surveillance need not be performed more often than once per 92 days. R1

(Insert proposed SR 3.6.3.2 Note) (L.5)

misinterpreting the requirements of the Surveillance Requirement while maintaining the assumptions of the accident analysis. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS. RAI 3.6.3-21 R1 RAI 3.6.1-3 R14

L.14 Not used.

L.15 *(Category 3 – Relaxation of Completion Time)* CTS 3.6.3.1 states that with one or more isolation valves inoperable, maintain at least one isolation valve OPERABLE in each affected penetration and restore the inoperable valve to OPERABLE status within 4 hours. ITS 3.6.3, ACTION D, states that with purge valve penetration leakage not within limit, restore leakage within limit within 24 hours. This changes the CTS by relaxing the Completion Time for inoperable purge valve penetrations from 4 hours to 24 hours. RAI 3.6.3-2 R14

The purpose of CTS 3.6.3.1 is to ensure that containment penetration leakage is within the assumed limit. This change is acceptable because the Completion Time is consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the allowed Completion Time. Allowing 24 hours to repair a leaking purge valve penetration is appropriate because the valves are required to be closed and a gross breach of containment would fall under the requirement of LCO 3.6.1, "Containment." If the leakage through the purge valve penetration exceeds the LCO 3.6.1, "Containment," limit, then the ACTIONS of that Specification must be followed. This change is designated as less restrictive because additional time is allowed to restore parameters to within the LCO limits than was allowed in the CTS.

L.16 *(Category 4 – Relaxation of Required Action)* CTS 4.6.1.1.a requires verification that all non-automatic containment isolation valves that are required to be closed are closed every 31 days. If a non-automatic valve that is supposed to be closed is found open, CTS 3.6.1.1 Action applies. That Action states, "Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within one hour or be in at least Hot Standby within the next 6 hours and in Cold Shutdown within the following 30 hours." ITS 3.6.3 ACTIONS do not differentiate between automatic and non-automatic valves and allow 1 hour, 4 hours, or 72 hours to isolate the affected flow path. ITS 3.6.3 allows continued operation with the inoperable containment isolation valve, but if the Required Actions and associated Completion Times are not met, a shutdown to MODE 3 in 6 hours and MODE 5 in 36 hours is required. In addition, ITS 3.6.3 ACTIONS Notes 2, 3 and 4 allow separate condition entry for each penetration flow path, require entry into the applicable Conditions and Required Actions for systems made inoperable by containment isolation valves, and require entry into the applicable Conditions and Required Actions for LCO 3.6.1, "Containment," when leakage for a penetration flow path results in exceeding the RAI 3.6.3-3 3.6.3-6 R14

overall containment leakage rate acceptance criteria. This changes the CTS by providing 1 hour, 4 hours or 72 hours to isolate a penetration flow path affected by an inoperable non-automatic containment isolation valve, and allowing continued operation with an inoperable non-automatic containment isolation valve. This also changes the CTS by allowing separate condition entry for each penetration flow path with an inoperable non-automatic containment isolation valve, requiring entry into the applicable Conditions and Required Actions for systems made inoperable by inoperable non-automatic containment isolation valves, and requiring entry into the applicable Conditions and Required Actions for LCO 3.6.1, "Containment," when leakage through a penetration flow path due to an inoperable non-automatic containment isolation valve results in exceeding the overall containment leakage rate acceptance criteria.

RAI 3.6.3-3 3.6.3-6 R14

The purpose of CTS 3.6.1.1 Actions is to ensure that overall containment leakage rate does not exceed the accident analysis assumptions. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the operability status of the redundant systems of required features, the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of a DBA occurring during the repair period. This change makes the actions for an inoperable non-automatic containment isolation valve consistent with the actions for all other types of containment isolation valves and ensures that leakage through a penetration flow path affected by an inoperable non-automatic containment isolation valve is isolated. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

3.6.3 Containment Isolation Valves

(3.6.3-6) DOC A.8
CTS 3.6.1.1 ACTION
CTS 3.6.3.1 ACTIONS
CTS 3.6.5.1 ACTION
ITS 3.6.3, ACTIONS NOTE 2

NRC RAI: CTS 3.6.3.1 ACTIONS and CTS 3.6.5.1 ACTION are modified by the addition of ITS 3.6.1.3 ACTIONS Note 2. This change is characterized as an Administrative change (DOC A.8). While this change is acceptable for CTS 3.6.3.1 and 3.6.5.1, it still needs to be addressed for the changes imposed on CTS 3.6.1.1 as a result of Comment Number 3.6.3-3. For that change, the addition of ITS 3.6.3 ACTIONS Note 2 becomes a Less Restrictive (L) change, because nothing in the ACTION statement of 3.6.1.1 implies separate condition entry. **Comment:** Revise the CTS markup and provide the appropriate discussions and justifications for this Less Restrictive (L) change. Refer to Comment Number 3.6.3-3.

Response: The Company does not agree with the action recommended in the Comment. The Company does not agree that this is a Less Restrictive change. CTS 4.6.1.1.a states, "At least once per 31 days by verifying that all penetrations* not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves, secured in their positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1." Specification 3.6.3.1 Actions a, b, and c allow 4 hours to restore the valve or isolate the affected penetration. There are no other administrative controls in 3.6.3.1 except for these, so the valves are allowed to be inoperable for 4 hours.

Additional Response: The company agrees with the action recommended in the comment. This replaces the previous response.

CTS 3.6.1.1 Action is revised to eliminate the requirement to restore containment integrity within one hour when a non-automatic containment isolation valve that is required to be closed is found to be open and the ITS 3.6.3 ACTIONS are applied in this circumstance. DOC L.16 is added to document the change. DOC L.16 also addresses the application of ITS 3.6.3 ACTION Note 2 to the requirements of CTS 3.6.1.1.

The revised submittal pages affected by this change are found in the response to RAI 3.6.3-3.

3.6.3 Containment Isolation Valves

JFD 4
(3.6.3-12) Bases JFD 2
Bases JFD 7
STS SR 3.6.3.8 and Associated Bases
ITS SR 3.6.3.4 and Associated Bases

NRC RAI: STS SR 3.6.3.8 verifies that each automatic containment isolation valve (CIV) that is not locked, sealed or otherwise secured in position actuates to its isolation position. ITS SR 3.6.3.4 modifies STS SR 3.6.3.8 by adding "power operated" between "automatic" and "containment." The justification used for this change (JFD 4) states that the change is to clarify that only power-operated CIVs are considered automatic. The implication of this change is that check valves are not considered as automatic valves. This reasoning is carried over to changes made to ITS B3.6.3 Bases - BACKGROUND and the associated Bases JFD 7. STS B3.6.3 - BACKGROUND states the following: "Check valves, or other automatic valves..." ITS B3.6.3 Bases - BACKGROUND deletes the words "Check valves, or other" by Bases JFD 7. The justification states that check valves are not considered active devices. The staff's position is that check valves, when used as CIVs, are considered as automatic valves and thus are active devices. STS 3.6.3 Bases - BACKGROUND states this position and the discussion in STS B3.6.3 Bases - LCO reaffirms it when it differentiates between automatic power-operated isolation valves and check valves. The Bases for this position can be found in 10 CFR 50 Appendix A, General Design Criteria 55, 56, and 57, which state that check valves may not be used as one of the automatic isolation valves for certain types of penetrations. Thus the staff finds these changes unacceptable. In addition, the change made in ITS SR 3.6.3.4 is considered generic and beyond the scope of review for this conversion. **Comment:** Delete these changes.

Response: The Company does not agree with the action recommended in the Comment. The North Anna design assumes that check valves are automatic, active devices for functional purposes, but are passive components from the standpoint of single failure and system design.

* ITS 3.6.3 JFD 4 is modified to state that for functional purposes, check valves are active or automatic devices, but do not receive an actuation signal. Adding the term "power operated" in ISTS SR 3.6.3.8 clarifies that only power-operated valves receive an actuation signal, and the automatic function of check valves is verified as part of ISTS SR 3.6.3.9.

* ITS 3.6.3 Bases JFD 7 is modified to explain that consistent with Information Report SECY-77-439, dated August 17, 1977, "Check valves are classified as active components for the purposes of functional specification, inservice inspection, testing, and valve design (re: Regulatory Guide 1.146). Check valves are classified as passive components for the purposes of single failure and system design." The reference in the ISTS 3.6.3 Bases that is deleted is part of a discussion that addresses failures of automatic valves for the purposes of single failure, which is not that case for check valves at NAPS.

NAPS Responses to NRC Requests for Additional Information
ITS Section 3.6, Containment Systems

Regarding the GDC 55, 56, and 57 references, North Anna is not licensed to these GDCs in 10 CFR 50 Appendix A, but the criteria in the North Anna UFSAR Chapter 3 read the same way. In the NAPS response to comments dated October 15, 1975, the valves identified as being containment penetration valves were shown to all be inside containment. North Anna UFSAR Chapter 3 and GDC 55, 56, and 57 references that exclude check valves from being used as automatic valves state that simple check valves may not be used as the automatic isolation valve outside containment.

Additional Response: Based on verbal comments from the NRC, the portions of the previous response marked with an asterisk are modified. The revisions to ITS JFD 4 and Bases JFD 7 discussed in the response were not provided in the updated pages. The revised pages are provided.

ITS SR 3.6.3.5 is revised to eliminate the added phrase "power operated." This eliminates ITS JFD 4. The Bases for SR 3.6.3.5 are revised to state that check valves which are containment isolation valves are not considered automatic valves for the purpose of the Surveillance as the check valves do not receive a containment isolation signal. Bases JFD 8 is added to explain this change. The change reflects the North Anna - specific allowance to credit some check valves as containment isolation valves.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY	
SR 3.6.3.5	Verify each automatic containment isolation valve that is not locked, sealed or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	18 months	RAI 3.6.3-2 RAI 3.6.1-5 R1 RAI 3.6.3-12 R14
SR 3.6.3.6	Cycle each weight or spring loaded check valve not testable during operation through one complete cycle of full travel, and verify each check valve remains closed when the differential pressure in the direction of flow is $<$ 1.2 psid and opens when the differential pressure in the direction of flow is $\geq$ 1.2 psid and $<$ 5.0 psid.	18 months	RAI 3.6.3-2 RAI 3.6.1-5 R1

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.3.5

RAI 3.6.3-2 RAI 3.6.1-5 R1 RAI 3.6.3-12 R14

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

RAI 3.6.3-12 R14

SR 3.6.3.6

RAI 3.6.3-2 RAI 3.6.1-5 R1

The check valves that serve a containment isolation function are weight or spring loaded to provide positive closure in the direction of flow. This ensures that these check valves will remain closed when the inside containment atmosphere returns to subatmospheric conditions following a DBA. SR 3.6.3.6 verifies the operation of the check valves that are not testable during unit operation. The Frequency of 18 months is based on such factors as the inaccessibility of these valves, the fact that the unit must be shut down to perform the tests, and the successful results of the tests on an 18 month basis during past unit operation.

REFERENCES

1. UFSAR, Chapter 15.
2. Technical Requirements Manual.
3. Standard Review Plan 6.2.4.
4. UFSAR, Section 6.2.4.2. RAI 3.6.3-14 R1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
SR 3.6.3.7 ④	Perform leakage rate testing for containment purge valves with resilient seals.	184 days AND Within 92 days after opening the valve — Prior to entering MODE 4 from MODE 5 after containment vacuum has been broken	⑤ ⑩ ② RAI 3.6.3-2 3.6.1-5 R1
4.6.3.1.2.a,b&c SR 3.6.3.8 ⑤	Verify each automatic containment isolation valve that is not locked, sealed or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	[18] months	⑤ ② RAI 3.6.3-12 R14
4.6.3.1.2.d SR 3.6.3.9 ⑥	Cycle each weight or spring loaded check valve not testable during operation through one complete cycle of full travel, and verify each check valve remains closed when the differential pressure in the direction of flow is ≤ [1.2] psid and opens when the differential pressure in the direction of flow is ≥ [1.2] psid and < [5.0] psid.	18 months	⑤ ② ②
SR 3.6.3.10	Verify each [ ] inch containment purge valve is blocked to restrict the valve from opening > [50]%.	[18] months	⑨ RAI 3.6.3-11 R1

(continued)

Rev. 14

1. The headings for ISTS 3.6.3 include the parenthetical expression (Atmospheric, Subatmospheric, Ice Condenser, and Dual). This identifying information is not included in the NAPS ITS. This information is provided in the NUREG to assist in identifying the appropriate specification to be used as a model for a plant specific ITS conversion, but serves no purpose in a plant specific implementation. Therefore, necessary editorial changes were made.

2. The brackets are removed and the proper plant specific information/value is provided.

3. Conditions, Surveillance Requirements and other references to shield building bypass are not retained. Shield building bypass is not part of the NAPS design. RAI 3.6.3-2 R1 RAI 3.6.3-12 R14

4. Not used.

5. ITS SR 3.6.3.6 requires each weight or spring loaded check valve used as a containment isolation valve that can be tested during operation to be tested through one complete cycle of travel every 92 days. North Anna CTS Surveillance 4.6.3.1.1 contains a similar requirement. ITS SR 3.6.3.6 is deleted as North Anna does not contain weight or spring loaded check valves used as containment isolation valves that are testable during operation. Therefore, this Surveillance does not apply.

6. ISTS 3.6.3 ACTIONS NOTE 4 is modified to clarify that entry is required into the applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when leakage for a penetration flow path, instead of when isolation valve leakage, results in exceeding the overall containment leakage rate acceptance criteria. The Containment is not inoperable if there is still an OPERABLE containment isolation valve in the affected flow path. This change is acceptable because ISTS 3.6.3 Required Action A.1 allows 4 hours to isolate the affected penetration flow with one or more penetration flow paths with one containment isolation valve inoperable. If Required Action A.1 and its associated Completion Time is not met, the unit is required to be placed in MODE 3 within 6 hours, and MODE 5 within 36 hours. This is consistent with ISTS 3.6.1 which requires an inoperable Containment be restored to OPERABLE status within 1 hour, or the unit is required to be placed in MODE 3 within 6 hours, and MODE 5 within 36 hours. This is also consistent with the current licensing basis.

7. ISTS 3.6.3 ACTION E is not adopted. The Reviewer's Note to TSTF-205, Rev. 5, states that either ACTION D or ACTION E is applicable. ACTION D is applicable to the North Anna design, therefore, ACTION E is not adopted. Subsequent requirements are numbered and lettered accordingly. RAI 3.6.3-2 R1, R14

8. The bracketed term "or more," added to ISTS 3.6.3 Condition A Note, Condition B Note, and Condition B, is not adopted. At NAPS, only two valves in each penetration addressed by Conditions A and B are required. This consistent with the current licensing basis. RAI 3.6.3-2 R1

(2)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.3.7 (4)

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

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

prior to entering MODE 4 from MODE 5 after containment vacuum has been broken. This

This Frequency will ensure that each time these valves are cycled they will be leak tested

TSTF-52 (2) (3) (2) (2)

RAI 3.6.3-2 3.6.1-4 3.6.1-5 R1

SR 3.6.3.8 (5)

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

Check valves which are containment isolation valves are not considered automatic valves for the purpose of this Surveillance as they do not receive a containment isolation signal.

(3) (1) (3) (8)

RAI 3.6.3-12 R14

(continued)

Rev. 14

1. Changes are made (additions, deletions, and/or changes) to the ISTS that reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. Changes are made to reflect those changes made to the ISTS. The following requirements are renumbered or revised, where applicable, to reflect the changes.

3. The brackets have been removed and the proper plant specific information/value has been provided.

4. The criteria of the NRC Final Policy Statement on Technical Specifications Improvements have been included in 10 CFR 50.36(c)(2)(ii). Therefore, references in the ISTS Bases to the NRC Final Policy Statement are revised in the ITS Bases to reference 10 CFR 50.36.

5. Typographical/grammatical error corrected.

6. The sentence in the ACTIONS C.1 and C.2 Bases, "A check valve may not be used to isolate the affected penetration flow path" is modified. The phrase, ", with the exception of valves specified in Reference 4" is added to the sentence. Reference 4, UFSAR section 6.4.2.1, is added to the References. UFSAR section 6.4.2.1 specifies four containment penetrations which use check valves outside of containment in conjunction with a closed system. RAI 3.6.3-14 R1

7. The Bases are changed to eliminate a statement classifying check valves as active devices. Information Report SECY-77-439, dated August 17, 1977, states, "Check valves are classified as active components for the purposes of functional specification, inservice inspection, testing, and valve design (re: Regulatory Guide 1.146). Check valves are classified as passive components for the purposes of single failure and system design." The reference in the ISTS 3.6.3 Bases that is deleted is part of a discussion that addresses failures of automatic valves for the purposes of single failure. This is not accurate for check valves at North Anna. RAI 3.6.3-12 R14

8. The Bases of SR 3.6.3.5 are revised to exclude check valves from the SR performance. SR 3.6.3.5 requires verification that automatic containment isolation valves close on a containment isolation signal. North Anna is allowed to utilize some check valves as containment isolation valves. These check valves are considered automatic containment isolation valves for the purpose functional specification, inservice inspection , testing and valves design. However, check valves serving as containment isolation valves do not receive a containment isolation signal. Therefore, this Surveillance cannot be performed on check valves. RAI 3.6.3-12 R14

3.6.7 Recirculation Spray (RS) System

(3.6.7-3)
DOC L.2
CTS 3.6.2.2 ACTION a
CTS 3.6.2.2 ACTION b
CTS 3.6.2.2 ACTION c
ITS 3.6.7 Required Action E.2 and Associated Bases

NRC RAI: CTS 3.6.2.2 ACTION a requires that after HOT STANDBY (MODE 3) is reached, the action is to "restore the inoperable subsystem to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the next 30 hours." CTS 3.6.2.2 ACTIONS b and c have been modified in the CTS markup by a similar statement. This modification is Insert 2 and justified by DOC L.2. The corresponding ITS ACTION is ITS 3.6.7 Required Action E.2, which requires the plant to be in MODE 5 within 84 hours. Even though the overall time to complete the CTS and ITS ACTIONS of 84 hours does not change (CTS 6to MODE 3 +48 + 30 = 84 hours), there is a change in converting the CTS to the ITS. This change relates to when the commencement of shutting down to MODE 5 begins or is declared. In the CTS it officially starts immediately after the 48-hour allowed outage time to restore the subsystem to OPERABLE status is completed. In the ITS it beings immediately after MODE 3 is reached. This change is not indicated or justified in the CTS markup for CTS 3.6.2.2 ACTION a, and Insert 2 is incorrect for CTS 3.6.2.2 ACTIONS b and c. The change associated with CTS 3.6.2.2 ACTION a is a More Restrictive change (Time for commencement of shutdown to MODE 5 declared earlier in ITS versus CTS). The change associated with CTS 3.6.2.2 ACTIONS b and c is still Less (L) Restrictive, but Insert 2 should be deleted, and the 30 hours changed to 84 hours, with the appropriate justification. **Comment:** Revise the CTS markup and provide the appropriate discussions and justifications for these More Restrictive and Less Restrictive (L) changes.

Response: The Company will take the action proposed in the Comment, with certain modifications. ITS 3.6.7 CTS Insert 2 is deleted, the CTS markup is modified, DOC L.2 is modified, and DOC M.1 is added to explain the change to the CTS. The time for declaring commencement of Action to place the unit in MODE 5 is changed from up to 54 hours after entering ACTIONS b and c to immediately.

Additional Response: CTS markup page 2 of 4 for Units 1 and 2, was modified by the deletion of Insert 2 as discussed in the previous response, but the revised page was not included. These pages have been provided.

RAI 3.6.7-3 R14

INSERT

or two inside RS subsystems inoperable,

RAI 3.6.7-3 R14

INSERT

or two inside RS subsystems inoperable,

3.6.7 Recirculation Spray (RS) System

Bases JFD 6
(3.6.7-4) STS B3.6.6E Bases - E.1
ITS B3.6.7 Bases - D.1

NRC RAI: The last sentence in STS B3.6.6E Bases - E.1 states the following: "The 72 hour Completion Time was chosen based on the same reasons as given in Required Action B.1." The ITS markup of ITS B3.6.7 Bases - D.1 deletes this sentence and replaces it with sentences on casing cooling tank and RS pump OPERABILITY. These new sentences do not provide a justification for the 72-hour Completion Time as does the STS statement. **Comment:** Revise the ITS markup to either retain the STS wording or provide plant-specific wording justifying the 72-hour Completion Time for ITS 3.6.7 Required Action D.1 and provide the appropriate discussions and justifications as necessary.

Response: The Company will take the action proposed in the Comment. The STS wording is retained.

Additional Response: The previous response is superceded. The STS wording in the Required Action D.1 Bases is not consistent with the North Anna design. The originally proposed wording describing the relationship between casing cooling tank inoperability and RS subsystem inoperability is restored. The STS Bases wording describing the basis for the 72 hour Completion Time is retained.

BASES

ACTIONS

D.1 (continued)

RAI 3.6.7-4 R1, R14

condition are capable of providing 100% of the heat removal needs after an accident. The casing cooling tank does not affect the OPERABILITY of the inside RS subsystem pumps. The effect on NPSH of the outside RS pumps must be assessed as part of outside RS pump OPERABILITY. The 72 hour Completion Time was chosen based on the same reasons as given in Required Action B.1.

E.1 and E.2

If the inoperable RS subsystem(s) or the casing cooling tank cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 84 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. The extended interval to reach MODE 5 allows additional time and is reasonable considering that the driving force for a release of radioactive material from the Reactor Coolant System is reduced in MODE 3.

F.1

With an inoperable inside RS subsystem in one train, and an inoperable outside RS subsystem in the other train, only 180° containment spray coverage is available. This condition is outside accident analysis. With three or more RS subsystems inoperable, the unit is in a condition outside the accident analysis. With two inoperable outside RS subsystems, less than 100% of required RS flow is available. Therefore, in all three cases, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.6.7.1

Verifying that the casing cooling tank solution temperature is within the specified tolerances provides assurance that the water injected into the suction of the outside RS pumps will increase the NPSH available as per design. The 24 hour Frequency of this SR was developed considering operating experience related to the parameter variations and instrument drift during the applicable MODES. Furthermore,

(continued)

BASES

ACTIONS

D.1 (continued)

chosen based on the same reasons as given in Required Action B.1.

D E.1

With both the casing cooling tank inoperable, the NPSH available to the outside RS subsystem pumps may not be sufficient. The inoperable casing cooling tank must be restored to OPERABLE status within 72 hours. The components in this degraded condition are capable of providing 100% of the heat removal needs after an accident. The 72 hour Completion Time was chosen based on the same reasons as given in Required Action B.1. The casing cooling tank does not affect the OPERABILITY of the inside RS subsystem pumps. The effect on NPSH of the outside RS subsystem pumps must be assessed as part of outside RS subsystem OPERABILITY.

RAI 3.6.7-4

R1, R14

E F.1 and F.2

If the inoperable RS subsystem(s) or the casing cooling tank cannot be restored to OPERABLE status within the required Completion Time, the plant unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 84 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant unit systems. The extended interval to reach MODE 5 allows additional time and is reasonable considering that the driving force for a release of radioactive material from the Reactor Coolant System is reduced in MODE 3.

F G.1

With three or more RS subsystems inoperable, the unit is in a condition outside the accident analysis. With an inoperable inside RS subsystem in one train, and an inoperable outside RS subsystem in the other train, only 180° containment spray coverage is available. This condition is outside accident analysis. With two inoperable outside RS subsystems, less than 100% of required RS flow is available. Therefore, in all three cases, LCO 3.0.3 must be entered immediately.

(continued)

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Changes to ITS Submittal Not Associated With RAIs
ITS Section 3.6, Containment Systems

1. The Background Bases of Specification 3.6.7, Recirculation Spray, are modified to clearly state the relationship between Quench Spray OPERABILITY and Recirculation Spray OPERABILITY.

BASES

BACKGROUND (continued)

cooling tank. The casing cooling pumps are considered part of the outside RS subsystems. Each casing cooling pump is powered from a separate ESF bus.

The inside RS subsystem pump NPSH is increased by reducing the temperature of the water at the pump suction. Flow is diverted from the QS system to the suction of the inside RS pump on the same safety train as the quench spray pump supplying the water. R14

The RS System provides a spray of subcooled water into the upper regions of containment to reduce the containment pressure and temperature during a DBA. Upon receipt of a High-High containment pressure signal, the two casing cooling pumps start, the casing cooling discharge valves open, and the RS pump suction and discharge valves receive an open signal to assure the valves are open. After a 195±9.75 second time delay, the inside RS pumps start, and after a 210±21 second time delay, the outside RS pumps start. The RS pumps take suction from the containment sump and discharge through their respective spray coolers to the spray headers and into the containment atmosphere. Heat is transferred from the containment sump water to service water in the spray coolers.

The Chemical Addition System supplies a sodium hydroxide (NaOH) solution to the RWST water supplied to the suction of the QS System pumps. The NaOH added to the QS System spray ensures an alkaline pH for the solution recirculated in the containment sump. The resulting alkaline pH of the RS spray (pumped from the sump) enhances the ability of the spray to scavenge iodine fission products from the containment atmosphere. The alkaline pH of the containment sump water minimizes the evolution of iodine and minimizes the occurrence of chloride and caustic stress corrosion on mechanical systems and components exposed to the fluid.

The RS System is a containment ESF system. It is designed to ensure that the heat removal capability required during the post accident period can be attained. Operation of the QS and RS systems provides the required heat removal capability to limit post accident conditions to less than the containment design values and depressurize the containment structure to subatmospheric pressure in < 60 minutes following a DBA.

The RS System limits the temperature and pressure that could be expected following a DBA and ensures that containment leakage is maintained consistent with the accident analysis.

B 3.6 CONTAINMENT SYSTEMS

B 3.6.6E Recirculation Spray (RS) System (Subatmospheric)

BASES

BACKGROUND

The RS System, operating in conjunction with the Quench Spray (QS) System, is designed to limit the post accident pressure and temperature in the containment to less than the design values and to depressurize the containment structure to a subatmospheric pressure in less than 60 minutes following a Design Basis Accident (DBA). The reduction of containment pressure and the removal of iodine from the containment atmosphere by the spray limit the release of fission product radioactivity from containment to the environment in the event of a DBA.

The RS System consists of two separate trains of equal capacity, each capable of meeting the design and accident analysis bases. Each train includes one RS subsystem outside containment and one RS subsystem inside containment. Each subsystem consists of one [approximately] 50% capacity spray pump, one spray cooler, one 180° coverage spray header, nozzles, valves, piping, instrumentation, and controls. Each outside RS subsystem also includes a casing cooling pump with its own valves, piping, instrumentation, and controls. The two outside RS subsystems' spray pumps are located outside containment and the two inside RS subsystems' spray pumps are located inside containment. Each RS train (one inside and one outside RS subsystem) is powered from a separate Engineered Safety Features (ESF) bus. Each train of the RS System provides adequate spray coverage to meet the system design requirements for containment heat and iodine fission product removal.

[Two spray pumps are required to provide the 360° of containment spray coverage assumed in the accident analysis. One train of RS or two outside RS subsystems will provide the containment spray coverage and required flow.]

The two casing cooling pumps and common casing cooling tank are designed to increase the net positive suction head (NPSH) available to the outside RS pumps by injecting cold water into the suction of the spray pumps. [They are also beneficial to the containment depressurization analysis.] The casing cooling water tank contains [at least] 116,500 gal of chilled and borated water. Each casing cooling pump supplies one outside spray pump with cold borated water from the casing cooling water tank. The casing cooling pumps are considered part of the outside RS subsystems. Each casing cooling pump is powered from a separate ESF bus.

[Insert]

(continued)

R14

Rev. 14

INSERT

The inside RS subsystem pump NPSH is increased by reducing the temperature of the water at the pump suction. Flow is diverted from the Quench Spray (QS) system to the suction of the inside RS pump on the same safety train as the quench spray pump supplying the water. R14

Attachment

Proposed Improved Technical Specifications
Changes Not Associated with RAIs

Virginia Electric and Power Company
(Dominion)

North Anna Power Station Units 1 and 2

Specifications Affected: ITS 1.1, SDM Definition

Description

TSTF-248 revised the SHUTDOWN MARGIN (SDM) definition to include the sentence, "However, with all RCCAs verified fully inserted by two independent means, it is not necessary to account for a stuck RCCA in the SDM calculation." TSTF-248 was added to the North Anna ITS in Supplement 2. Subsequent to its incorporation, it was determined that this sentence is not applicable to North Anna, as the plant design does not provide two independent means to verify that an RCCA is fully inserted. As the allowance cannot be used, it is removed to avoid confusion.

1.1 Definitions

PHYSICS TESTS (continued)

b. Authorized under the provisions of 10 CFR 50.59; or

c. Otherwise approved by the Nuclear Regulatory Commission.

QUADRANT POWER TILT RATIO (QPTR)

QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.

RATED THERMAL POWER (RTP)

RTP shall be a total reactor core heat transfer rate to the reactor coolant of 2893 MWt.

REACTOR TRIP SYSTEM (RTS) RESPONSE TIME

The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.

SHUTDOWN MARGIN (SDM)

SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming:

a. All rod cluster control assemblies (RCCAs) are fully inserted except for the single RCCA of highest reactivity worth, which is assumed to be fully withdrawn. With any RCCA not capable of being fully inserted, the reactivity worth of the RCCA must be accounted for in the determination of SDM; and R13

b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the nominal zero power design level.

CTS
Section 1.0

1.1 Definitions

SHUTDOWN MARGIN (SDM) (continued)

a. All rod cluster control assemblies (RCCAs) are fully inserted except for the single RCCA of highest reactivity worth, which is assumed to be fully withdrawn. With any RCCA not capable of being fully inserted, the reactivity worth of the RCCA must be accounted for in the determination of SDM; and TSTF-248 ③ R13

b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the [nominal zero power design level]. ①

SLAVE RELAY TEST

A SLAVE RELAY TEST shall consist of energizing ~~each slave relay~~ [all slave relays in the channel required for channel OPERABILITY] and verifying the OPERABILITY of each [required] slave relay. The SLAVE RELAY TEST shall include ~~, as a minimum,~~ a continuity check of associated [required] testable actuation devices. [The SLAVE RELAY TEST may be performed by means of any series of sequential, overlapping, or total steps.] TSTF-205

STAGGERED TEST BASIS

A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function.

THERMAL POWER

THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)

A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of ~~required alarm, interlock, display, and trip functions.~~ [all devices in the channel required for trip actuating device OPERABILITY.] The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the ~~required~~ [necessary] accuracy. [The TADOT may be performed by means of any series of sequential, overlapping, or total channel steps.] TSTF-205

Rev 13

1. The brackets are removed and the proper plant specific information/value is provided.

2. The Company does not propose to use a Pressure and Temperature Limits Report (PTLR) and will not relocate the Pressure and Temperature limits from the Technical Specifications. The current limits will be retained in the ITS. Therefore, the definition of PTLR was not incorporated in the ITS.

3. TSTF-248 was not incorporated into the ITS. TSTF-248 allows an exception to the SHUTDOWN MARGIN definition to not assume a stuck rod if all rods can be verified inserted by two independent means. The plant design does not provide two independent means to verify a rod is fully inserted. Therefore, the allowance cannot be used and is removed to avoid confusion. R13

INSERT 1

In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.

INSERT 2

The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

INSERT 3

With any RCCA not capable of being fully inserted, the reactivity worth of the RCCA must be accounted for in the determination of SDM; and | R13

b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the nominal zero power design level.

INSERT 1

In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.

INSERT 2

The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

INSERT 3

With any RCCA not capable of being fully inserted, the reactivity worth of the RCCA must be accounted for in the determination of SDM; and | R13

b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the nominal zero power design level.

This change is acceptable because ITS 3.8.1, AC Sources, contains ACTIONS (verification of redundant features) to ensure that a loss of function does not exist and that appropriate compensatory measures will be taken to respond to the loss of power. Similar evaluations are required by ITS LCO 3.0.6 and ITS Chapter 5.0, Safety Function Determination Program. This change is designated as less restrictive because under the ITS definition the loss of either the normal or emergency electrical power source for a system will not result in the system being declared inoperable when that component would be considered inoperable under the CTS.

L.4 The CTS Section 1.0 definitions of ENGINEERED SAFETY FEATURE RESPONSE TIME and REACTOR TRIP SYSTEM RESPONSE TIME require measurement of the response time from the sensor through the actuated equipment. The ITS definitions of ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME and REACTOR TRIP SYSTEM (RTS) RESPONSE TIME are modified to state, " In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC." This changes the CTS by eliminating the requirement to include all components in a response time test.

The purpose of response time testing is to ensure that the system response time, from measurement of a parameter to actuation of the appropriate device, is consistent with the assumptions in the safety analyses. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," dated January, 1996, justified the elimination of the pressure sensor response time testing requirements and allows the response time for selected components to be verified instead of measured. WCAP-14036-P, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," provides the basis for using allocated signal processing actuation logic response times in the overall verification of the protection system channel response time. This change is acceptable because the cited Topical Reports have demonstrated that modified response time tests will continue to provide assurance that the systems will perform their functions as assumed in the safety analysis. This change is designated as less restrictive because some components which must be response time tested under the CTS will not require response time testing under the ITS.

L.5 Not used. | R13

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS

10 CFR 50.92 EVALUATION
FOR
LESS RESTRICTIVE CHANGES

CHAPTER 1.0, CHANGE L.5

Not Used.

Not Used.

R13

Specifications Affected: SR 3.0.3 and SR 3.0.3 Bases

Description

TSTF-358, Revision 5 was included in Supplement 2 to the North Anna ITS license amendment. Revision 6 of TSTF-358 was approved by the NRC and the differences between Revision 5 and Revision 6 are incorporated into ITS SR 3.0.3, SR 3.0.3 Bases, the ISTS markup, and the ISTS Bases markup. DOC L.6 is revised to reflect the altered wording of SR 3.0.3.

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1

SRs shall 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. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits. Surveillances may be performed by any series of sequential, overlapping, or total steps.

SR 3.0.2

The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.

For Frequencies specified as "once," the above interval extension does not apply.

If a Completion Time requires periodic performance on a "once per . . ." basis, the above Frequency extension applies to each performance after the initial performance.

Exceptions to this Specification are stated in the individual Specifications.

SR 3.0.3

If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. This delay R2 period is permitted to allow performance of the Surveillance. A risk evaluation shall be performed for any R2 R13 Surveillance delayed greater than 24 hours and the risk impact shall be managed.

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

(continued)

BASES

SR 3.0.3 (continued)

performed is the verification of conformance with the requirements. R2

When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to entering MODE 1 after each fuel loading, or in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, SR 3.0.3 allows for the full delay period of up to the specified Frequency to perform the Surveillance. However, since there is not a time interval specified, the missed Surveillance should be performed at the first reasonable opportunity. R13

SR 3.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals. While up to 24 hours or the limit of the specified Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required to perform the Surveillance or shutting the plant down to perform the Surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the Surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants." This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action up to and including plant shutdown. The missed Surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation may use quantitative, qualitative, or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the R2 R13 R13

(continued)

CTS

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

4.0.1 SR 3.0.1

SRs shall 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. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits. [inserted: Surveillances may be performed by means of any series of sequential, overlapping, or total steps.] (3)

4.0.2 SR 3.0.2

The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.

For Frequencies specified as "once," the above interval extension does not apply.

If a Completion Time requires periodic performance on a "once per . . ." basis, the above Frequency extension applies to each performance after the initial performance.

Exceptions to this Specification are stated in the individual Specifications.

4.0.3 SR 3.0.3

If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is ~~less~~ greater. This delay period is permitted to allow performance of the Surveillance. [inserted: A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.] TSTF-358 | R2

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered. |R13

When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be

(continued)

Rev. 13

INSERT 1

When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to entering MODE 1 after each fuel loading, or in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, SR 3.0.3 allows for the full delay period of up to the specified Frequency to perform the Surveillance. However, since there is not a time interval specified, the missed Surveillance should be performed at the first reasonable opportunity. R13

SR 3.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

INSERT 2

While up to 24 hours or the limit of the specified Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required to perform the Surveillance or shutting the plant down to perform the Surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the Surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, 'Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants.' This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action up to and including plant shutdown. The missed Surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation may use quantitative, qualitative, or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the importance of the component. Missed Surveillances for important components should be analyzed quantitatively. If the results of the risk evaluation determine the risk increase is significant, this evaluation should be used to determine the safest course of action. All missed Surveillances will be placed in the licensee's Corrective Action Program. R2 R13 R13

L.5 CTS 4.0.2 states, "Each Surveillance Requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed 25 percent of the surveillance interval." ITS SR 3.0.2 states, "The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met. For Frequencies specified as 'once,' the above interval extension does not apply. If a Completion Time requires periodic performance on a 'once per . . .' basis, the above Frequency extension applies to each performance after the initial performance. Exceptions to this Specification are stated in the individual Specifications." This changes the CTS by adding, "If a Completion Time requires periodic performance on a 'once per . . .' basis, the above Frequency extension applies to each performance after the initial performance." The remaining changes to CTS 4.0.2 are discussed in DOC A.10 and DOC M.2.

This change is acceptable because the 25% Frequency extension given to provide scheduling flexibility for Surveillances is equally applicable to Required Actions which must be performed periodically. The initial performance is excluded because the first performance demonstrates the acceptability of the current condition. Such demonstrations should be accomplished within the specified Completion Time without extension in order to avoid operation in unacceptable conditions. This change is designated as less restrictive because additional time is provided to perform some periodic Actions.

L.6 CTS 4.0.3 states, in part, "The time limits of the action statement requirements are applicable at the time it is identified that a surveillance requirement has not been performed. The action statement requirements may be delayed for up to 24 hours to permit the completion of the surveillance when the allowable outage time limits of the action statement requirements are less than 24 hours." ITS SR 3.0.3 states in part, "If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed." This changes the CTS by, 1) allowing a minimum of 24 hours and up to the specified Frequency to perform the missed Surveillance, provided a risk evaluation is performed for any Surveillance delayed greater than 24 hours, and 2) basing the time allowed to perform a missed Surveillance before taking the Required Actions on the Surveillance Frequency instead of the allowed outage time R2 | R13

- The purpose of CTS 4.0.3 is to permit the delay of the ACTIONS of the LCO when a required Surveillance has not been performed, if the allowed outage time of the action is less than 24 hours. For example, if the allowed outage

time is 12 hours, 24 hours is allowed to perform the Surveillance. If the allowed outage time is 72 hours, the exception does not apply and the Action is entered. In all cases, CTS 4.0.3 allows at least 24 hours to perform the missed Surveillance, but requires declaring the LCO not met and the ACTIONS be followed if the allowed outage time is greater than 24 hours. ITS SR 3.0.3 permits the delay of declaring the LCO not met (and taking the ACTIONS) for 24 hours, or up to the limit of the specified Frequency of the Surveillance, whichever is greater. For example, if the Surveillance Frequency is 12 hours, 24 hours is allowed. If the Surveillance Frequency is 30 days, 30 days is allowed. However, a risk evaluation must be performed and the risk managed for any Surveillance delayed greater than 24 hours. Therefore, the ITS allows additional time to perform a missed Surveillance and does not require the LCO to be declared not met and the ACTIONS to be followed if a Surveillance is not performed within 24 hours. R13

This change is acceptable because this longer delay period provides adequate time to complete Surveillances that have been missed while providing reasonable assurance that the subject equipment is OPERABLE. It is overly conservative to assume that systems or components are inoperable when a surveillance has not been performed because the vast majority of surveillances do in fact demonstrate that systems or components are OPERABLE. When a surveillance is missed, it is primarily a question of OPERABILITY that has not been verified by the performance of a Surveillance Requirement. As stated in the ITS Bases, "While up to 24 hours or the limit of the specified Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required to perform the Surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the Surveillance. . . . All missed Surveillances will be placed in the licensee's Corrective Action Program." Therefore, the missed Surveillance will be performed at the first reasonable opportunity, will be evaluated for the effect on plant risk, and will be investigated under the plant corrective action program. As a result, this less restrictive requirement has no detrimental effect on unit safety. R2

- The time allowed to perform a missed Surveillance prior to taking the ACTIONS is based on the allowed outage time in CTS 4.0.3 and on the Surveillance Frequency in ITS SR 3.0.3.

  This change is acceptable because the SR Frequency is more representative of the safety significance of the missed SR. Surveillance Frequencies less than 24 hours are frequent, easily performed tests. Therefore, a missed

Specifications Affected: CTS 3.3.3.1

<u>Description</u>

CTS Table 3.3-6, Action 35, was marked "See ITS 3.3.3." This Action is not dispositioned in ITS 3.3.3 and should have been relocated under DOC R.1 of CTS 3.3.3.1. The CTS markup for Unit 1 and 2 is revised to delete Action 35 and reference DOC R.1.

The ITS and Bases are unaffected.

TABLE 3.3-6 (Continued)

TABLE NOTATION

ACTION 19 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.

R.1

ACTION 20 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.

See ITS 3.4.15

ACTION 21 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.12.

ACTION 22 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9.

R.1

ACTION 35 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, initiate the preplanned alternate method of monitoring the appropriate parameter(s), within 72 hours, and:

1. Either restore the inoperable channel(s) to OPERABLE status within 7 days of the event, or

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

R1 R13

TABLE 3.3-6 (Continued)

TABLE NOTATION

ACTION 22 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.

R.1

ACTION 23 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.

See ITS 3.4.15

ACTION 24 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.12.

ACTION 25 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9.

R.1

ACTION 35 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, initiate the preplanned alternate method of monitoring the appropriate parameter(s), within 72 hours, and:

1. Either restore the inoperable channel(s) to OPERABLE status within 7 days of the event, or
2. Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

R.1 R13

Summary of Changes to the NAPS ITS Submittal
Miscellaneous Changes

Specifications Affected: ITS 3.4.3

Description

North Anna license amendment 226 (Unit 1) and 207 (Unit 2), dated May 2, 2001, revised the Unit 1 and Unit 2 heatup and cooldown curves. The revised curves are incorporated into the typed ITS, the ISTS markup, and the CTS markup.

R13

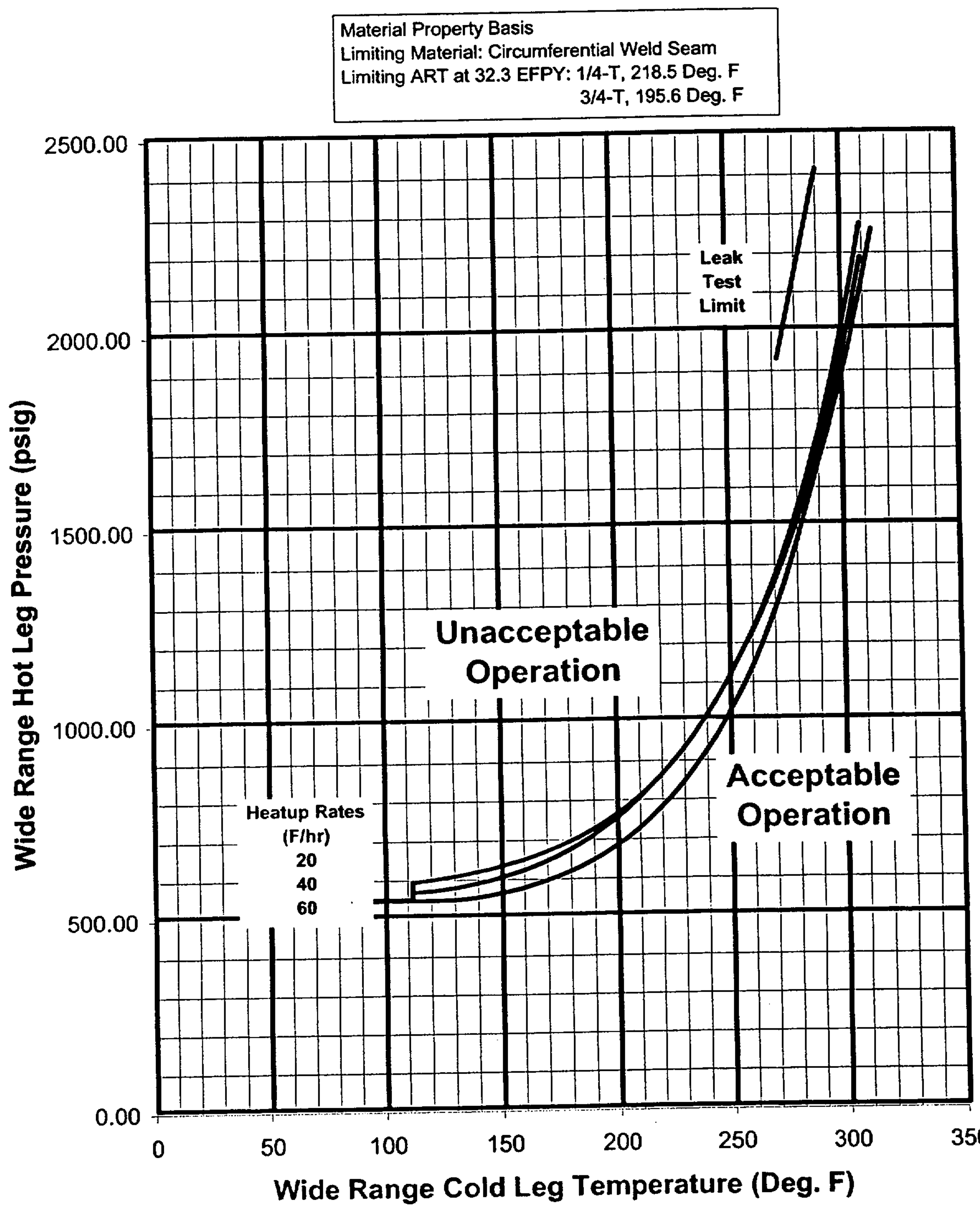


Figure 3.4.3-1 (page 1 of 1)
Unit 1 RCS Heatup Limitations
Heatup Rates up to 60°F/hr, Applicable for the first 32.3 EFPY,
Including Margins for Instrumentation Errors

R13

R13

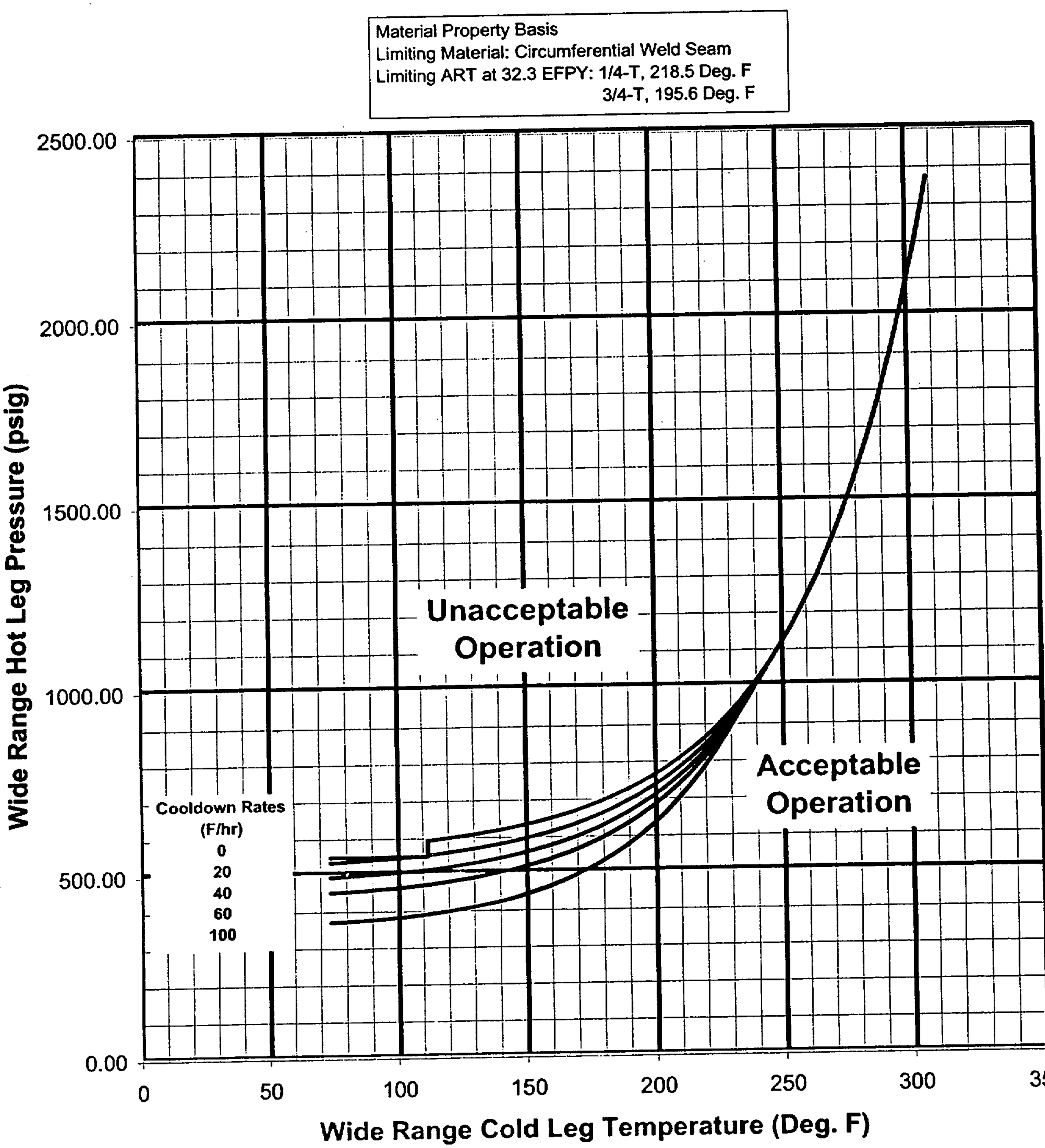


Figure 3.4.3-2 (page 1 of 1)
Unit 1 RCS Cooldown Limitations
Cooldown Rates up to 100°F/hr, Applicable for the first 32.3 EFPY, Including Margins for Instrumentation Errors

R13

R13

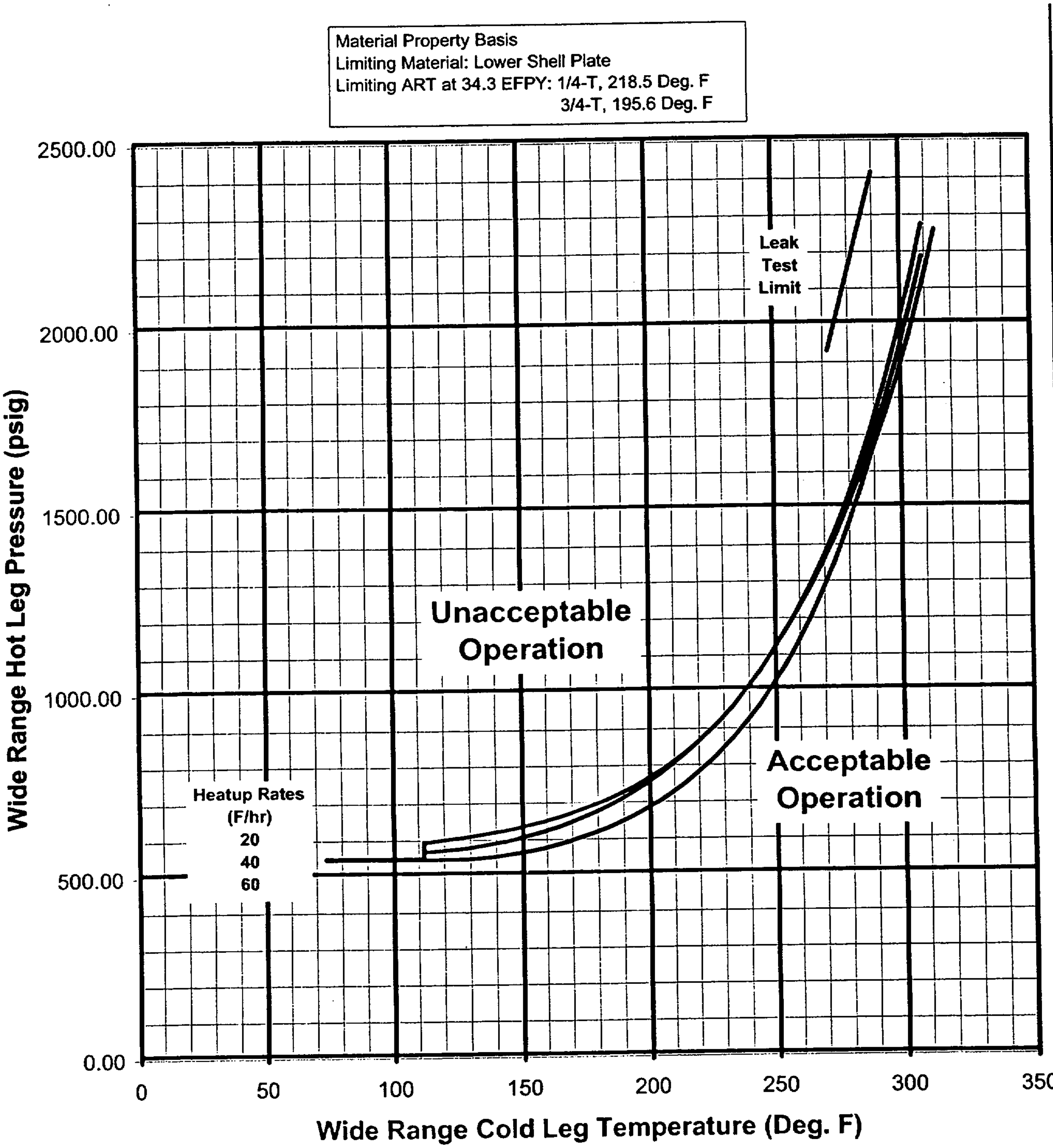


Figure 3.4.3-3 (page 1 of 1)
Unit 2 RCS Heatup Limitations
Heatup Rates up to 60°F/hr, Applicable for the first 34.3 EFPY,
Including Margins for Instrumentation Errors

R13

R13

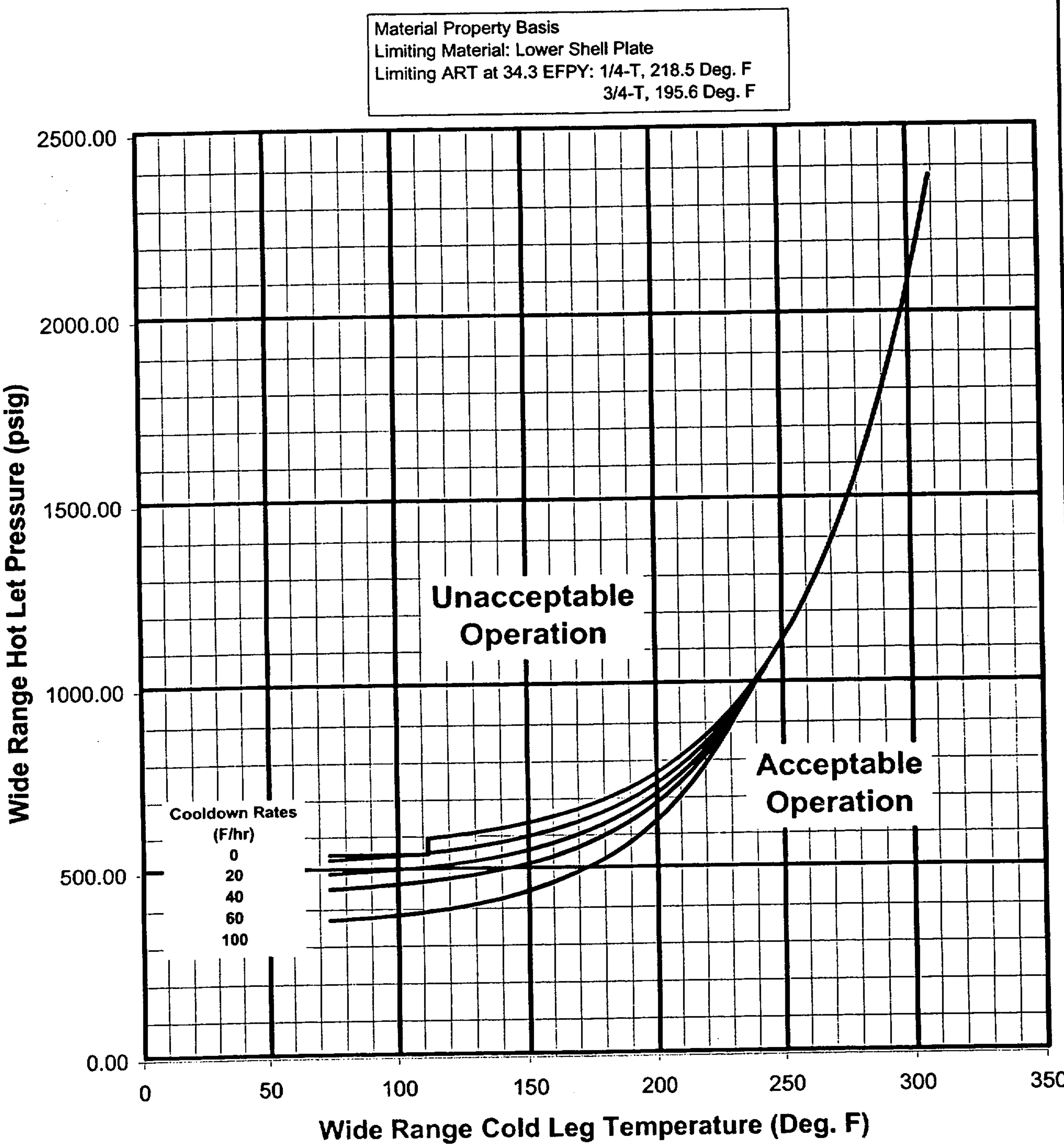
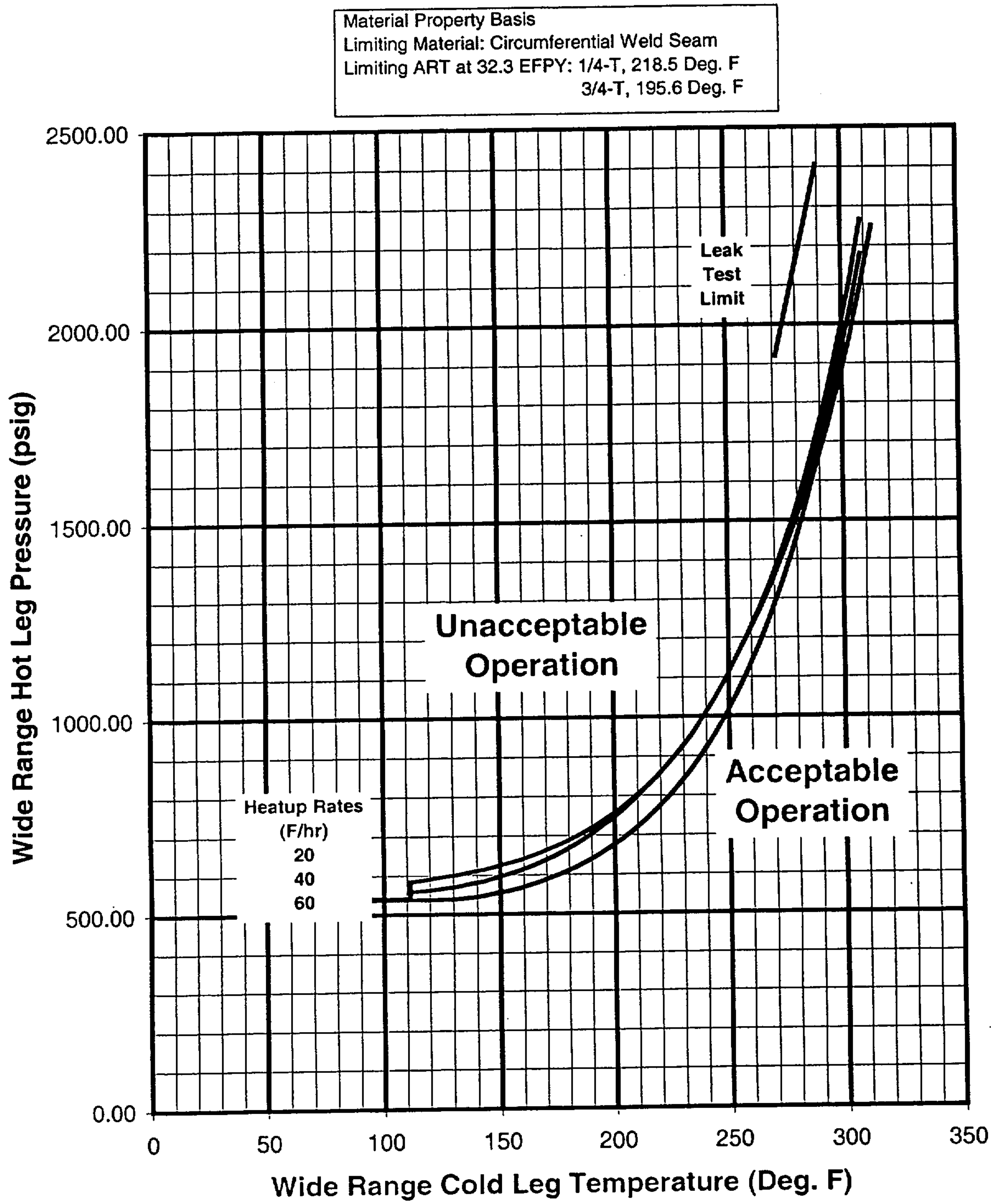


Figure 3.4.3-4 (page 1 of 1)
Unit 2 RCS Cooldown Limitations
Cooldown Rates up to 100°F/hr, Applicable for the first 34.3 EFPY,
Including Margins for Instrumentation Errors

R13

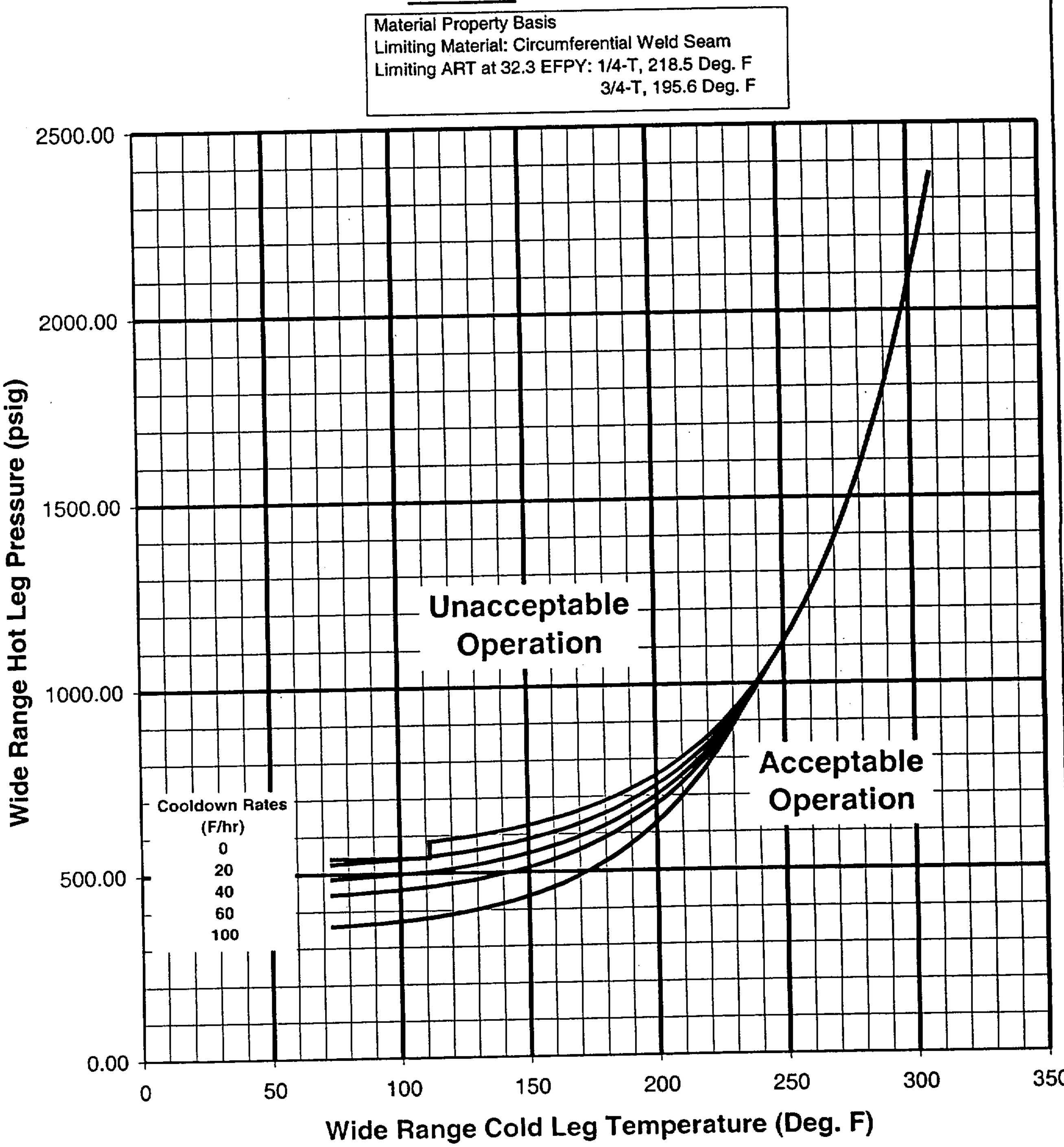
INSERT 1



R13

Figure 3.4.3-1 (page 1 of 1)
Unit 1 RCS Heatup Limitations
Heatup Rates up to 60°F/hr, Applicable for the first 32.3 EFPY,
Including Margins for Instrumentation Errors

INSERT 2

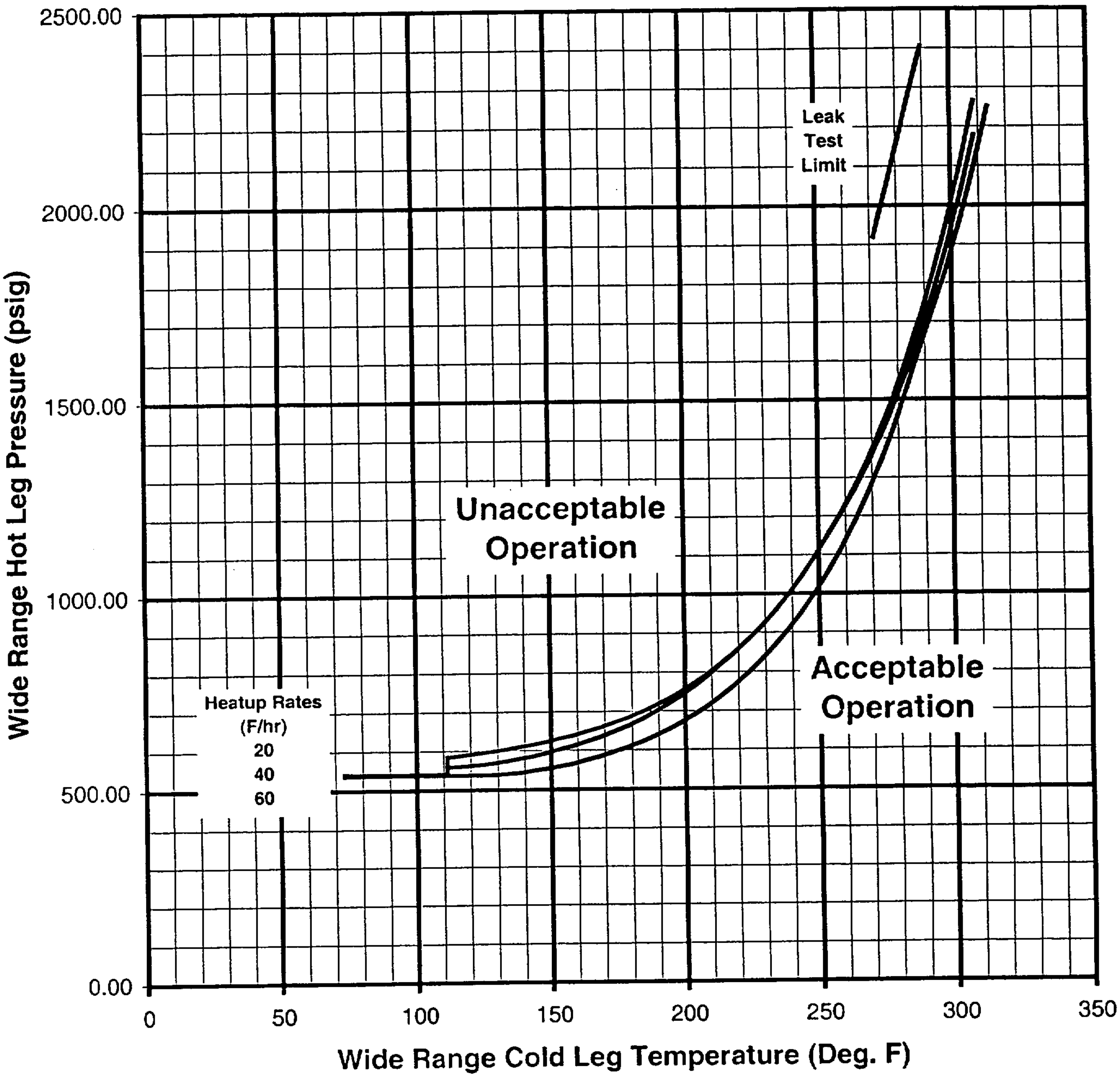


R13

Figure 3.4.3-2 (page 1 of 1)
Unit 1 RCS Cooldown Limitations
Cooldown Rates up to 100°F/hr, Applicable for the first 32.3 EFPY,
Including Margins for Instrumentation Errors

INSERT 3

Material Property Basis
Limiting Material: Lower Shell Plate
Limiting ART at 34.3 EFPY: 1/4-T, 218.5 Deg. F
3/4-T, 195.6 Deg. F



R13

Figure 3.4.3-3 (page 1 of 1)
Unit 2 RCS Heatup Limitations
Heatup Rates up to 60°F/hr, Applicable for the first 34.3 EFPY,
Including Margins for Instrumentation Errors

INSERT 4

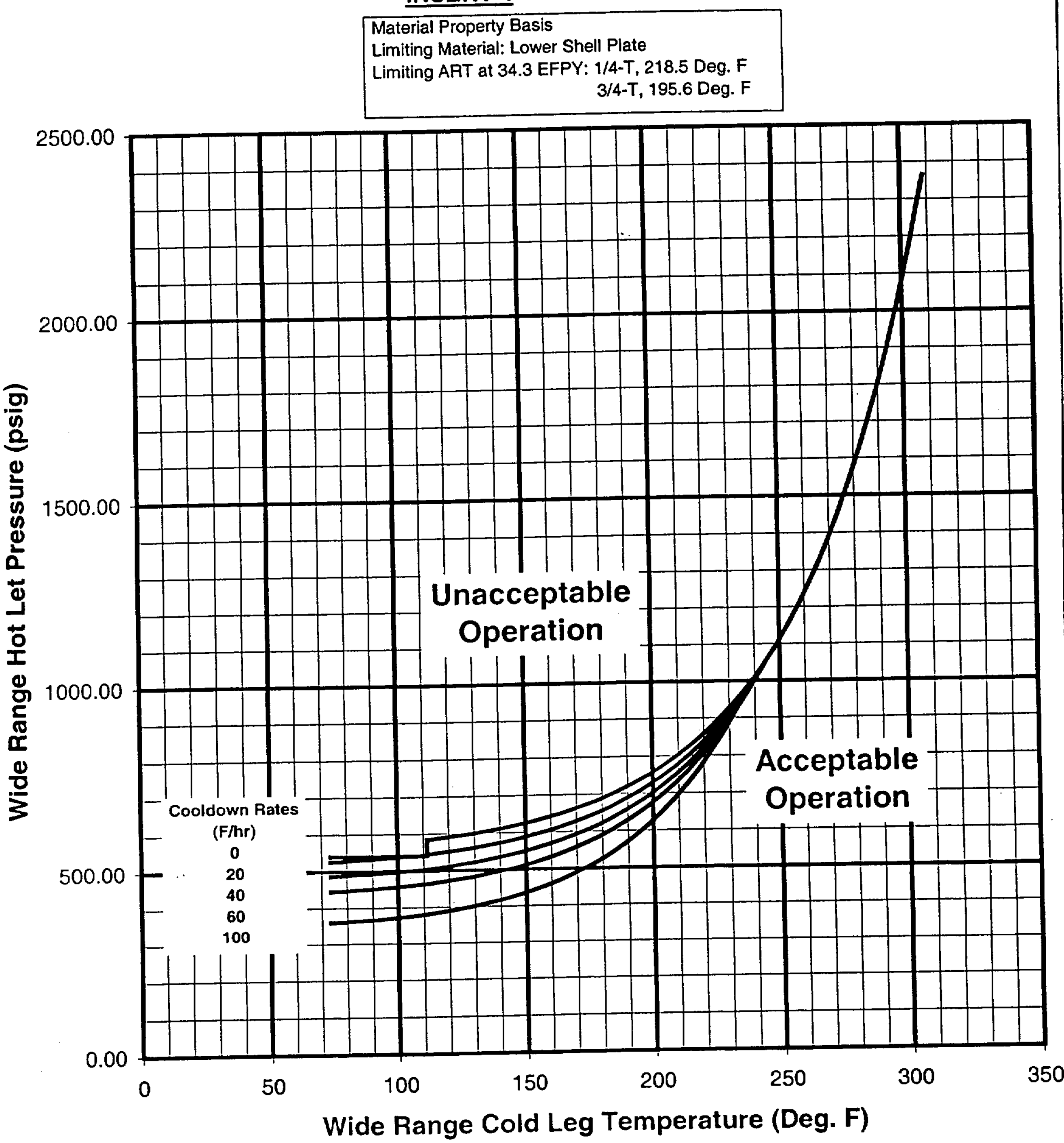


Figure 3.4.3-4 (page 1 of 1)
Unit 2 RCS Cooldown Limitations
Cooldown Rates up to 100°F/hr, Applicable for the first 34.3 EFPY,
Including Margins for Instrumentation Errors

R13

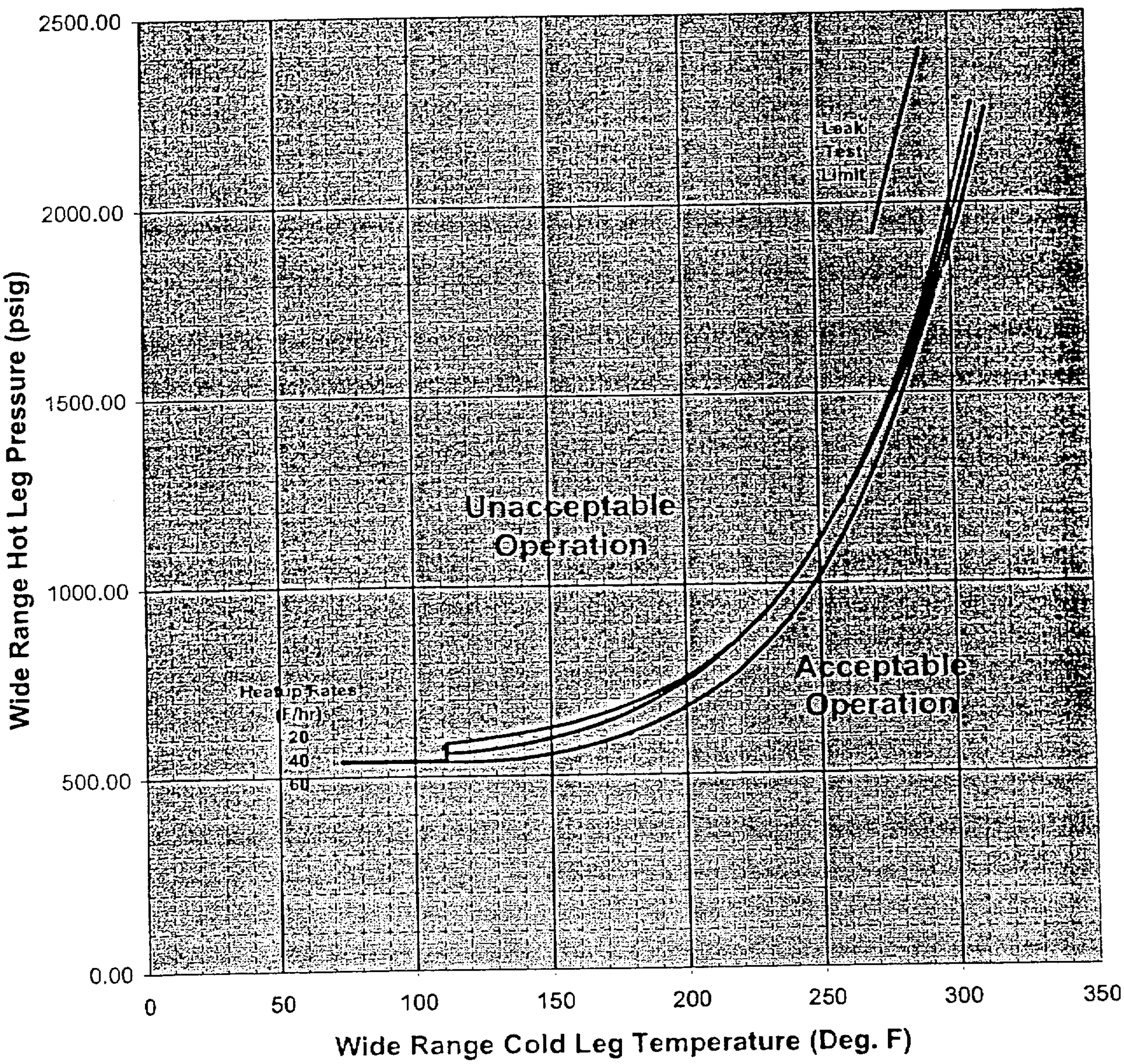
(A.1) ITS 3.4.3

ITS Fig 3.4.3-1

Figure 3.4-2

North Anna Unit 1
Reactor Coolant System Heatup Limitations

Material Property Basis
Limiting ART at 32.3 EFPY: 1/4-T, 218.5 deg. F
3/4-T, 195.6 deg. F



North Anna Unit 1 Reactor Coolant System Heatup Limitations (Heatup Rates up to 60 F/hr)
Applicable for the first 32.3 EFPY (Including Margins for Instrumentation Errors)

R13

ITS
Fig 3.4.3-2

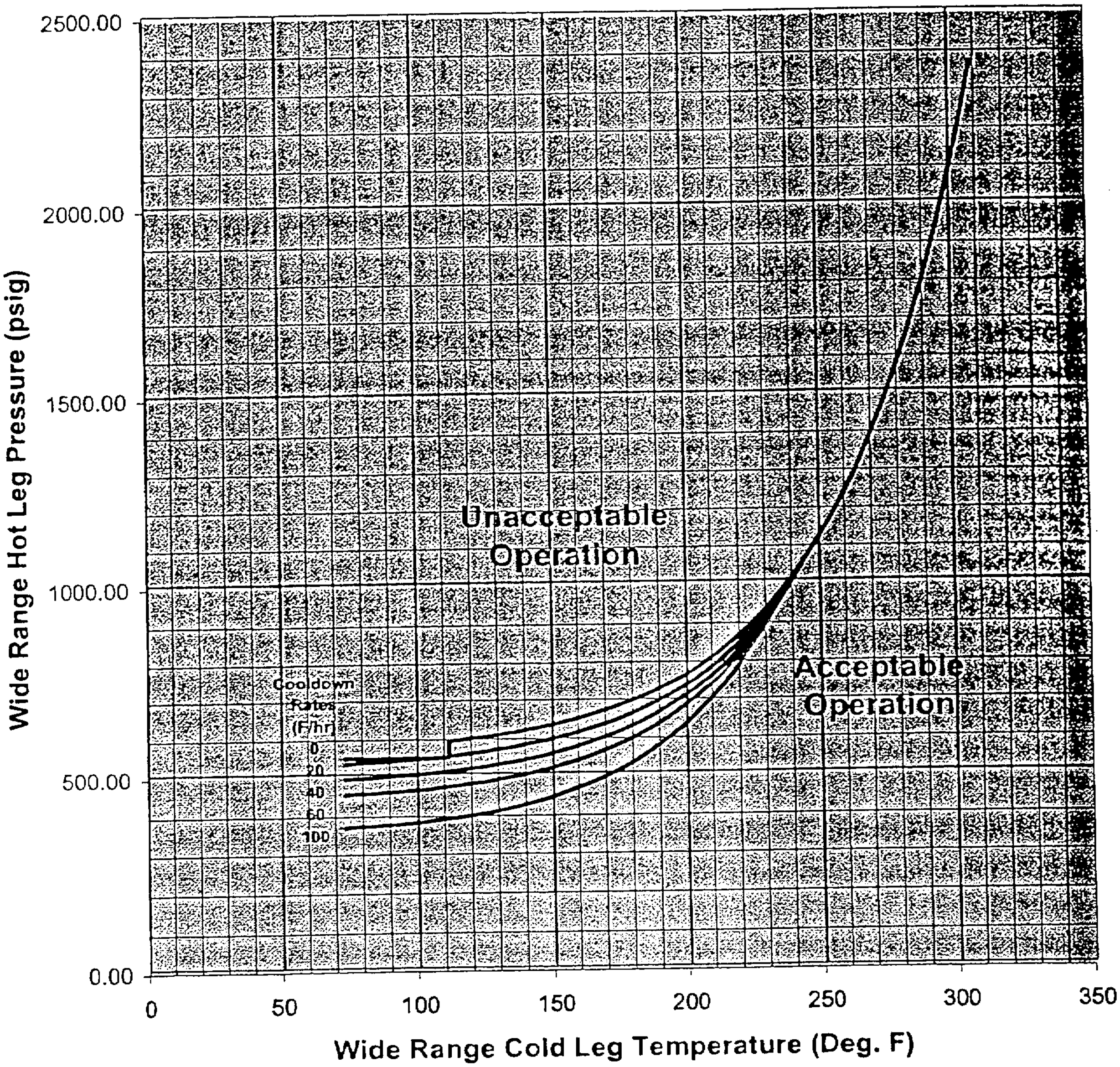
(A.1)

ITS 3.4.3

Figure 3.4-3

North Anna Unit 1
Reactor Coolant System Cooldown Limitations

Material Property Basis
Limiting ART at 32.3 EFPY: 1/4-T, 218.5 deg. F
3/4-T, 195.6 deg. F

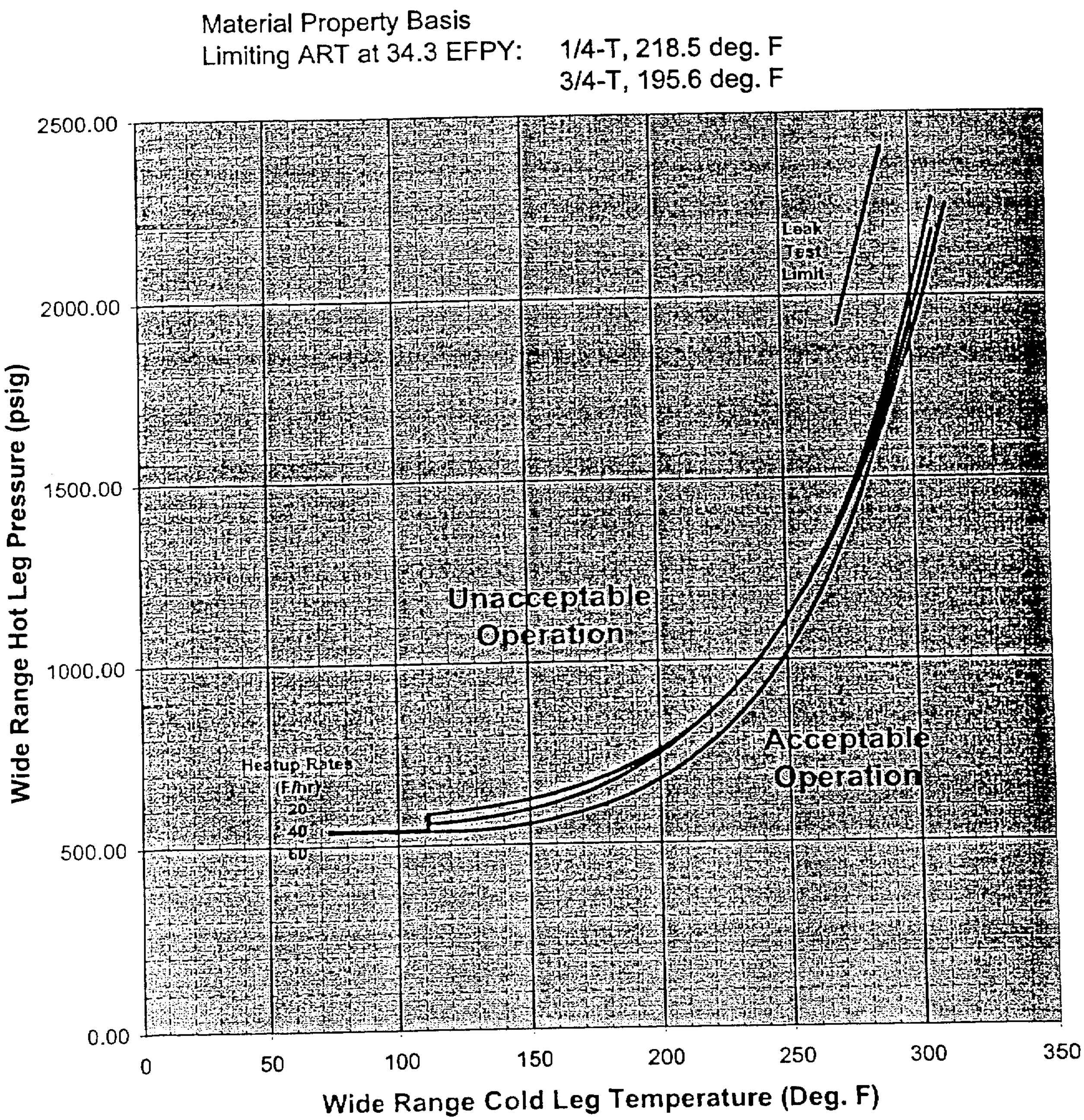


RB

North Anna Unit 1 Reactor Coolant System Cooldown Limitations (Cooldown Rates up to 100 F/hr)
Applicable for the first 32.3 EFPY (Including Margins for Instrumentation Errors)

Figure 3.4-2

North Anna Unit 2
Reactor Coolant System Heatup Limitations



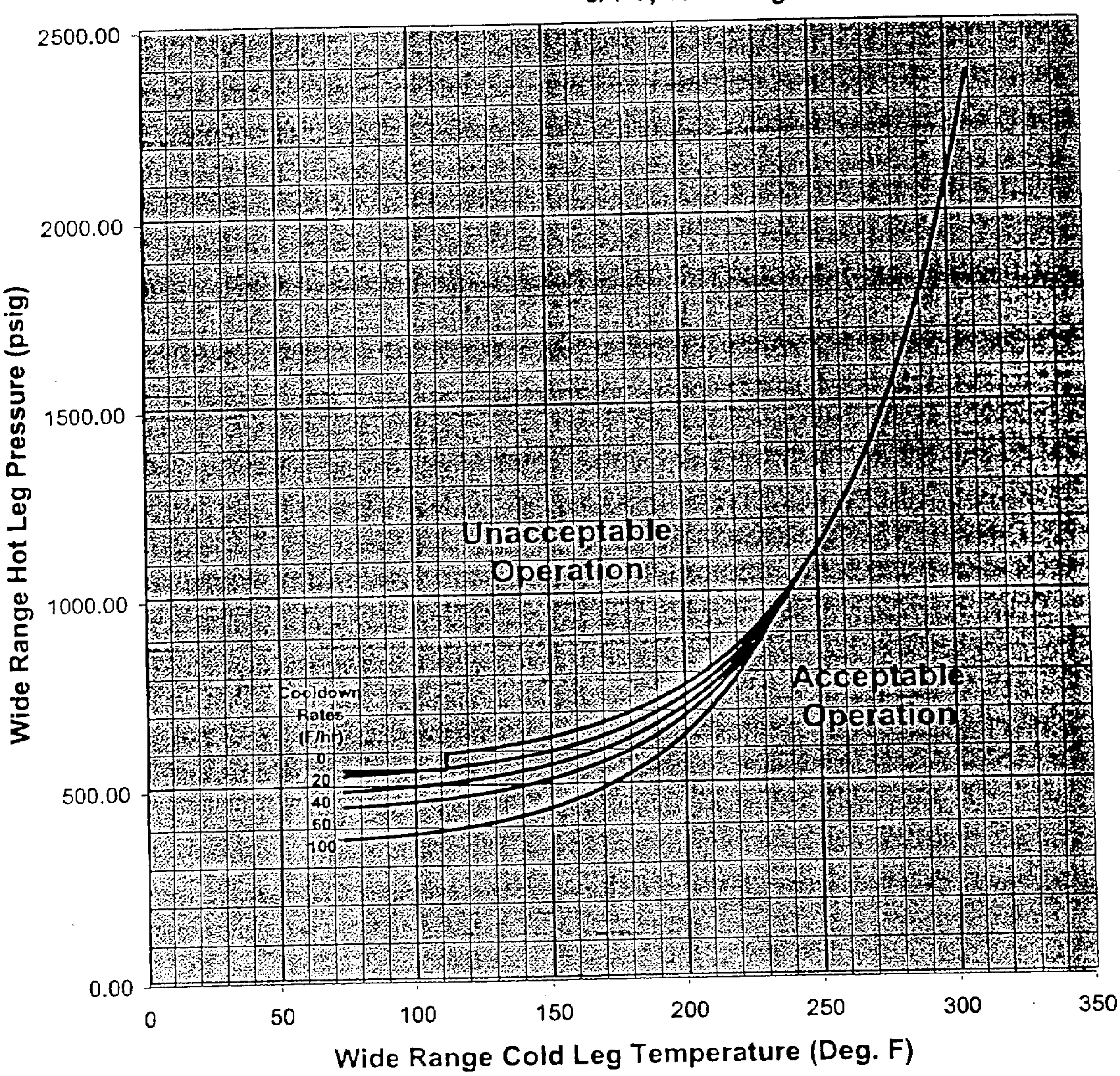
North Anna Unit 2 Reactor Coolant System Heatup Limitations (Heatup Rates up to 60 F/hr)
Applicable for the first 34.3 EFPY (Including Margins for Instrumentation Errors)

R13

Figure 3.4-3

North Anna Unit 2
Reactor Coolant System Cooldown Limitations

Material Property Basis
Limiting ART at 34.3 EFPY: 1/4-T, 218.5 deg. F
3/4-T, 195.6 deg. F



North Anna Unit 2 Reactor Coolant System Cooldown Limitations (Cooldown Rates up to 100 F/hr)
Applicable for the first 34.3 EFPY (Including Margins for Instrumentation Errors)

R13

Specifications Affected: ITS 3.4.3, 3.4.8, 3.4.12, and 3.4.18

Description

ITS LCOs 3.4.3, 3.4.8, 3.4.12, and 3.4.18 are revised to follow the punctuation rules for lists by adding semicolons and conjunctions as described in NEI 01-03, "Writer's Guide for the Improved Standard Technical Specifications," Section 2.1.3.c. The ITS and ISTS markup are affected.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.3 RCS pressure, RCS temperature, and RCS heatup and cooldown rates shall be maintained within the limits specified in Figures 3.4.3-1 and 3.4.3-2 (Unit 1) and Figures 3.4.3-3 and 3.4.3-4 (Unit 2) with:

a. A maximum heatup of 60°F in any one hour period; R13

b. A maximum cooldown of 100°F in any one hour period; and

c. A maximum temperature change of 10°F in any one hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE--------- Required Action A.2 shall be completed whenever this Condition is entered. --------------------- Requirements of LCO not met in MODE 1, 2, 3, or 4.	A.1 Restore parameter(s) to within limits. AND A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5 with RCS pressure < 500 psig.	6 hours 36 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops-MODE 5, Loops Not Filled

LCO 3.4.8 Two residual heat removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation.

------------------------------ NOTES ------------------------------ R13 RAI 3.9.5-1 R4

1. All RHR pumps may be removed from operation for ≤ 15 minutes when switching from one loop to another provided:

   a. The core outlet temperature is maintained > 10°F below saturation temperature; R13

   b. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1; and

   c. No draining operations to further reduce the RCS water volume are permitted.

2. One RHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required RHR loop inoperable.	A.1	Initiate action to restore RHR loop to OPERABLE status.	Immediately

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Low Temperature Overpressure Protection (LTOP) System

LCO 3.4.12 An LTOP System shall be OPERABLE with a maximum of one charging pump and one low head safety injection (LHSI) pump capable of injecting into the RCS and the accumulators isolated, with power removed from the isolation valve operators, and one of the following pressure relief capabilities: RAI 3.4-12 R1

a. Two power operated relief valves (PORVs) with lift settings of:

1. ≤ 500 psig (Unit 1), 415 psig (Unit 2) when any RCS cold leg temperature ≤ 235°F (Unit 1), 270°F (Unit 2); and R13

2. ≤ 395 psig (Unit 1), 375 psig (Unit 2) when any RCS cold leg temperature ≤ 150°F (Unit 1), 130°F (Unit 2). R13

b. The RCS depressurized and an RCS vent of ≥ 2.07 square inches.

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

1. Two charging pumps may be made capable of injecting for ≤ 1 hour for pump swapping operations.

2. Accumulator isolation with power removed from the isolation valve operators is only required when accumulator pressure is greater than the PORV lift setting.

APPLICABILITY: MODE 4 when any RCS cold leg temperature is ≤ 235°F (Unit 1), 270°F (Unit 2),
MODE 5,
MODE 6 when the reactor vessel head is on.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Two LHSI pumps capable of injecting into the RCS.	A.1 Initiate action to verify a maximum of one LHSI pump is capable of injecting into the RCS.	Immediately

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.18 RCS Isolated Loop Startup

LCO 3.4.18 Each RCS isolated loop shall remain isolated with both loop isolation valves closed and power removed from the valve operators unless:

a. The isolated loop is filled and:

1. The boron concentration of the isolated loop is ≥ the boron concentration required to meet SDM of LCO 3.1.1 or the boron concentration of LCO 3.9.1 prior to opening the hot leg isolation valve; R13

2. The hot leg isolation valve has been open with recirculation line flow of ≥ 125 gpm for ≥ 90 minutes prior to opening the cold leg isolation valve; and

3. The cold leg temperature of the isolated loop is ≤ 20°F below the highest cold leg temperature of the operating loops prior to opening the cold leg isolation valve; or

b. The isolated loop is drained and:

------------------------------ NOTE ------------------------------

Seal injection may be initiated to the RCP in the isolated, drained loop and continued during filling of the isolated loop from the active RCS volume provided:

1) The isolated loop is initially drained; and

2) The boron concentration of the seal injection source is ≥ the boron concentration required to meet the SDM of LCO 3.1.1 or the boron concentration of LCO 3.9.1.

----

1. Pressurizer water level is maintained ≥ 32% prior to and during the opening of the hot or cold leg isolation valves; and

2. The hot and cold leg isolation valves are fully open within 2 hours after the loop is filled.

INSERT

Figures 3.4.3-1 and 3.4.3-2 (Unit 1) and Figures 3.4.3-3 and 3.4.3-4 (Unit 2) with:

a. A maximum heatup of 60°F in any one hour period; | R13

b. A maximum cooldown of 100°F in any one hour period; and | R13

c. A maximum temperature change of 10°F in any one hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.

CTS

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops—MODE 5, Loops Not Filled

3.4.1.3

LCO 3.4.8 Two residual heat removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation.

Note ***

--NOTES--

1. All RHR pumps may be de-energized [removed from operation] for ≤ 15 minutes when switching from one loop to another provided: (3) RAI 3.9.5-1 R4

   a. (1)The core outlet temperature is maintained > 10°F below saturation temperature (1); (1) R13

   b. No operations are permitted that would cause a reduction of the RCS boron concentration; and [No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and] TSTF-286

   c. No draining operations to further reduce the RCS water volume are permitted.

New

2. One RHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] RHR loop inoperable.	A.1 Initiate action to restore RHR loop to OPERABLE status.	Immediately

Action a TSTF-263

(continued)

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RAI 3.4-12 R1

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Low Temperature Overpressure Protection (LTOP) System

LCO 3.5.3, Note #

LCO 3.4.9.3

LCO 3.4.12 An LTOP System shall be OPERABLE with a maximum of [one] [high pressure injection (HPI)] pump [and] one charging pump (1) and one low head safety injection (LHSI) pump capable of injecting into the RCS and the accumulators isolated, with power removed from the isolation valve operators, and either a or b below. TSTF-280 (1)

a. Two RCS relief valves, as follows: one of the following pressure relief capabilities:

[1.] a. Two power operated relief valves (PORVs) with lift settings within the limits specified in the PTLR, or (2) (7) of:

1. ≤ 500 psig (Unit 1), 415 psig (Unit 2) when any RCS cold leg temperature ≤ 235°F (Unit 1), 270°F (Unit 2); and
2. ≤ 395 psig (Unit 1), 375 psig (Unit 2) when any RCS cold leg temperature ≤ 150°F (Unit 1), 130°F (Unit 2).

or

[2. Two residual heat removal (RHR) suction relief valves with setpoints ≥ [436.5] psig and ≤ [463.5] psig, or] (1)

[3. One PORV with a lift setting within the limits specified in the PTLR and one RHR suction relief valve with a setpoint ≥ [436.5] psig and ≤ [463.5] psig]. TSTF-285

1. Two charging pumps may be made capable of injecting for ≤ 1 hour for pump swap operations.

Applicability 3.4.9.3

b. The RCS depressurized and an RCS vent of ≥ [2.07] 2.07 square inches. (3) TSTF-243

Applicability 3.4.9.3

APPLICABILITY: MODE 4 when [all] any RCS cold leg temperature is ≤ [275]°F 235°F (Unit 1), 270°F (Unit 2), (3)
MODE 5,
MODE 6 when the reactor vessel head is on. (6)

-------------------------------------NOTE (5)-------------------------------------

(2) Accumulator isolation, with power removed from the isolation valve operators, is only required when accumulator pressure is greater than or equal to the PORV lift setting [the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR]. TSTF-285 (6)

RAI 3.4-9 R1 R13

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INSERT 1

LCO 3.4.18
CTS 3.4.1.5.d
3.4.1.6

Each RCS isolated loop shall remain isolated with both loop isolation valves closed and power removed from the isolation valve operators unless:

3.4.1.4

a. The isolated loop is filled and:

3.4.1.4.a

1. The boron concentration of the isolated loop is ≥ the boron concentration required to meet the SDM of LCO 3.1.1 or the boron concentration of LCO 3.9.1 prior to opening the hot leg isolation valve; ~~and~~ 1R13

LCO 3.4.1.5.a

2. The hot leg isolation valve has been open with recirculation line flow of ≥ 125 gpm for ≥ 90 minutes prior to opening the cold leg isolation valve; and (3)

LCO 3.4.1.5.a

3. The cold leg temperature of the isolated loop is ≥ 20°F below the highest cold leg temperature of the operating loops prior to opening the cold leg isolation valve; or

b. The isolated loop is drained and:

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

LCO 3.4.1.6.a

Seal injection may be initiated to the RCP in the isolated, drained loop and continued during filling of the isolated loop from the active RCS volume provided:

1) The isolated loop is initially drained; and

2) The boron concentration of the seal injection source is ≥ the boron concentration required to meet the SDM of LCO 3.1.1 or the boron concentration of LCO 3.9.1.

LCO 3.4.1.6.c.1
3.4.1.6.b.2

1. Pressurizer water level is maintained ≥ 32% prior to and during the opening of the hot or cold leg isolation valves; and

LCO 3.4.1.6.d.2

2. The hot and cold leg isolation valves are fully open within 2 hours after the loop is filled.

------------------------ NOTE ------------------------

A hot or cold leg isolation valve may be closed for up to two hours for valve maintenance or testing. If the isolation valve is not opened within 2 hours, the loop shall be isolated.

Specifications Affected: ITS 3.4.6, 3.4.7, and 3.4.8 CTS markup and DOCs

Description

CTS Surveillance 4.4.1.3.2 requires verification of correct breaker alignment and indicated power availability for required reactor coolant pumps not in operation. ITS Surveillances 3.4.6.3, 3.4.7.3, and 3.4.8.2 require verification of correct breaker alignment and indicated power availability for reactor coolant pumps and residual heat removal pumps not in operation. This difference was not addressed in the submittal. The CTS markup for ITS 3.4.6, 3.4.7, and 3.4.8 is revised and DOC M.3 is added to ITS 3.4.6 and ITS 3.4.8, and DOC M.4 is added to ITS 3.4.7 to address the change.

The ITS and ITS Bases are unaffected.

ITS

A.1

REACTOR COOLANT SYSTEM

SHUTDOWN

SURVEILLANCE REQUIREMENTS

4.4.1.3.1 The required RHR subsystems shall be demonstrated OPERABLE per Specification 4.7.9.2. A.2

Insert proposed SR 3.4.6.3 Note L.2

SR 3.4.6.3 4.4.1.3.2 The required reactor coolant pump(s), if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignment and indicated power availability. M.3 R13

SR 3.4.6.2 4.4.1.3.3 The required steam generator(s) shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 17% at least once per 12 hours.

SR 3.4.6.1 4.4.1.3.4 At least once per 12 hours, verify at least one coolant loop to be in operation and circulating reactor coolant by: LA.2

a. Verifying at least one Reactor Coolant Pump is in operation.

or

b. Verifying at least one RHR Loop is in operation and,

1. if the RCS temperature > 140°F or the time since entry into MODE 3 is < 100 hours, circulating reactor coolant at a flow rate ≥ 3000 gpm.

or

2. if the RCS temperature ≤ 140°F and the time since entry into MODE 3 is ≥ 100 hours, circulating reactor coolant at a flow rate ≥ 2000 gpm to remove decay heat. LA.3

ITS 3.4.6

(A.1)

REACTOR COOLANT SYSTEM

ITS

SHUTDOWN

SURVEILLANCE REQUIREMENTS

4.4.1.3.1 The required RHR subsystems shall be demonstrated OPERABLE per Specification 4.7.9.2. (A.2) Insert proposed SR 3.4.6.3 note (L.2)

SR 3.4.6.3 4.4.1.3.2 The required reactor coolant pump(s), if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignment and indicated power availability. (M.3) R13

SR 3.4.6.2 4.4.1.3.3 The required steam generator(s) shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 17% at least once per 12 hours.

SR 3.4.6.1 4.4.1.3.4 At least once per 12 hours, verify at least one coolant loop to be in operation and circulating reactor coolant by: (LA.2)

a. Verifying at least one Reactor Coolant Pump is in operation.

or

b. Verifying at least one RHR Loop is in operation and,

1. if the RCS temperature > 140°F or the time since entry into MODE 3 is < 100 hours, circulating reactor coolant at a flow rate ≥ 3000 gpm.

or

2. if the RCS temperature ≤ 140°F and the time since entry into MODE 3 is ≥ 100 hours, circulating reactor coolant at a flow rate ≥ 2000 gpm to remove decay heat.

(LA.3)

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perform the cooldown. Requiring immediate actions to avoid boron stratification and to restore a loop to OPERABLE status are appropriate. This change is designated as more restrictive because is requires immediate action stop RCS boron concentration reductions in a condition for which the CTS allows 20 hours prior to completing a cooldown.

M.2 CTS 3.4.1.3 states that at least two coolant loops shall be OPERABLE and at least one must be in operation. This requirement is modified by a note that states that all reactor coolant pumps and residual heat removal pumps may not be in operation for up to 1 hour. ITS 3.4.6 contains the same allowance, but limits the use of the 1 hour exception to once per 8 hour period.

The purpose of the 1 hour allowance is to allow the performance of certain infrequent startup tests which require coolant flow to be stopped. This change is acceptable because it ensures that boron stratification or inadequate decay heat removal do not occur should multiple 1 hour periods be required to complete the tests. This change is designated as more restrictive because it limits an allowance to 1 hour per 8 hour period when that restriction does not currently exist.

M.3 CTS 4.4.1.3.2 states that the required reactor coolant pump(s), if not in operation, shall be determined OPERABLE by verifying correct breaker alignment and indicated power availability. ITS SR 3.4.6.3 requires verification that correct breaker alignment and indicated power are available to the required pump not in operation. LCO 3.4.6 allows a combination of reactor coolant pumps and RHR pumps. This changes the CTS by requiring verification of correct breaker alignment and indicated power availability on required RHR pumps which are not in operation. R13

The purpose of the CTS is to ensure a standby pump is available to provide RCS cooling should the operating pump fail. This change is acceptable because the verification of proper breaker alignment and power availability ensures that an additional RCS or RHR pump can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. This change is designated as more restrictive because it requires performance of the Surveillance on RHR pumps in addition to reactor coolant pumps.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.4.1.3 states that two coolant loops consisting of any combination of RCS loops and RHR loops shall be OPERABLE and contains a description of what constitutes an OPERABLE Reactor Coolant loop and Residual Heat Removal loop. ITS 3.4.5

ITS 3.4.7

(A.1)

ITS

REACTOR COOLANT SYSTEM

SHUTDOWN

SURVEILLANCE REQUIREMENTS

R13

4.4.1.3.1 The required RHR subsystems shall be demonstrated OPERABLE per Specification 4.7.9.2. (A.6)

SR 3.4.7.3 4.4.1.3.2 The required reactor coolant [RHR] pump(s), if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignment and indicated power availability. [Insert proposed SR 3.4.7.3 Note] (M.4) (L.3)

SR 3.4.7.2 4.4.1.3.3 The required steam generator(s) shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 17% at least once per 12 hours.

SR 3.4.7.1 4.4.1.3.4 At least once per 12 hours, verify at least one [required] coolant [RHR] loop to be in operation and circulating reactor coolant by: (L.1) (LA.1)

a. Verifying at least one Reactor Coolant Pump is in operation.

or (L.1)

b. Verifying at least one [required] RHR Loop is in operation and,

1. if the RCS temperature > 140°F or the time since entry into MODE 3 is < 100 hours, circulating reactor coolant at a flow rate ≥ 3000 gpm.

or (LA.2)

2. if the RCS temperature ≤ 140°F and the time since entry into MODE 3 is ≥ 100 hours, circulating reactor coolant at a flow rate ≥ 2000 gpm to remove decay heat.

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A.1

ITS

REACTOR COOLANT SYSTEM

SHUTDOWN

SURVEILLANCE REQUIREMENTS

4.4.1.3.1 The required RHR subsystems shall be demonstrated OPERABLE per Specification 4.7.9.2. A.6

R3.4.7.3 4.4.1.3.2 The required (RHR) reactor coolant pump(s), if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignment and indicated power availability. (Insert proposed SR 3.4.7.3 Note) M.4 / RB L.3

R 3.4.7.2 4.4.1.3.3 The required steam generator(s) shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 17% at least once per 12 hours. L.1

R 3.4.7.1 4.4.1.3.4 At least once per 12 hours, verify (required) at least one (RHR) coolant loop to be in operation and circulating reactor coolant by: LA.1

a. Verifying at least one Reactor Coolant Pump is in operation. L.1

or

(required) b. Verifying at least one RHR Loop is in operation and

1. if the RCS temperature > 140°F or the time since entry into MODE 3 is < 100 hours, circulating reactor coolant at a flow rate ≥ 3000 gpm.

or

2. if the RCS temperature ≤ 140°F and the time since entry into MODE 3 is ≥ 100 hours, circulating reactor coolant at a flow rate ≥ 2000 gpm to remove decay heat. LA.2

M.2 CTS 3.4.1.3, Action a, states that when less than the two required coolant loops are OPERABLE, immediate action must be taken to return the required loops to OPERABLE status as soon as possible and the unit must be in cold shutdown within 20 hours. CTS 3.4.1.3, Action b , states that when no coolant loops are in operation, all operations involving a reduction in boron concentration of the RCS must be suspended and action must be initiated to return the required coolant loop to operation. ITS 3.4.7, Action A applies when one required RHR loop is inoperable and one RHR loop is OPERABLE or when the required steam generator secondary side water level is not within limits and one RHR loop is OPERABLE and requires immediate action to restore the RHR or steam generator. ITS 3.4.7, Action B states that when the required SG secondary side water level is not within limit and one RHR loop is OPERABLE, action must be taken to restore a second RHR loop to OPERABLE status or to restore the SG secondary side water level within limit immediately. ITS 3.4.7, Action C, states that if no required RHR loops are OPERABLE or if the required RHR loop is not in operation, suspend all operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1 and action must be immediately initiated to restore one RHR loop to OPERABLE status and operation. This changes the CTS by revising the actions to be taken if both RHR loops are inoperable. The change in the action from suspending reductions in boron concentration to suspending introduction of coolant with a boron concentration less than required to meet LCO 3.1.1 is described in DOC L.4. R13

This change is acceptable because it provides appropriate actions for a loss of one or more required RHR loops or SG. If both required RHR loops are inoperable, suspending all operations involving a reduction of RCS boron concentration is appropriate because all forced flow used to ensure proper mixing of RCS boron is lost. This change is designated as more restrictive because it adds an additional action to the CTS. R13

M.3 CTS 3.4.1.3 states that at least two coolant loops shall be OPERABLE and at least one must be in operation. This requirement is modified by a note that states that all reactor coolant pumps and residual heat removal pumps may be de-energized for up to 1 hour. ITS 3.4.7 also allows the RHR pumps to be stopped for 1 hour, but limits the use of the 1 hour exception to once per 8 hour period.

The purpose of the 1 hour allowance is to allow the performance of certain infrequent startup tests which require coolant flow to be stopped. This change is acceptable because it ensures that boron stratification or inadequate decay heat removal do not occur should multiple 1 hour periods be required to complete the tests. This change is designated as more restrictive because it limits an allowance to 1 hour per 8 hour period when that restriction does not currently exist.

M.4 CTS 4.4.1.3.2 states that the required reactor coolant pump(s), if not in operation, shall be determined OPERABLE by verifying correct breaker alignment and indicated power availability. ITS SR 3.4.7.3 requires verification that correct breaker alignment and indicated power are available to the required RHR pump not in operation. This changes R13

the CTS by requiring verification of correct breaker alignment and indicated power availability on required RHR pumps which are not in operation.

The purpose of the CTS is to ensure a standby pump is available to provide RCS cooling should the operating pump fail. This change is acceptable because the verification of proper breaker alignment and power availability ensures that an additional RHR pump can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. This change is designated as more restrictive because it requires performance of the Surveillance on RHR pumps in addition to reactor coolant pumps. R13

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 3 – Removing Procedural Details for Meeting TS)* CTS Surveillance 4.4.1.3.4 states that at least one Reactor Coolant pump or RHR loop shall be verified to be in operation and circulating reactor coolant at least once per 12 hours. ITS SR 3.4.7.1 states that an RHR loop shall be verified to be in operation every 12 hours. This changes the CTS by moving the requirement to verify that the RHR loop is circulating reactor coolant to the Bases. Other related changes are described in LA.3 and L.1.

The removal of this detail for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be in the Technical Specifications in order to provide adequate protection of the public health and safety. The ITS retains the requirement that a reactor coolant loop be in operation, and a loop that is in operation will be circulating reactor coolant. As described in the ITS Bases, verification that a reactor coolant loop is in operation includes flow rate, temperature, or pump status monitoring. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed form the Technical Specifications.

LA.2 *(Type 3 - Removing Procedural Details for Meeting TS Requirements)* CTS Surveillance 4.4.1.3.4.b states that at least once per 12 hours it must be verified that one RHR loop is in operation. It goes on to provide minimum RHR flow rates dependent on RCS temperature or time since entry into MODE 3. ITS Surveillance 3.4.7.1 requires verification that one RHR loop is in operation every 12 hours. This changes the CTS by moving the RHR minimum flow requirements to the Technical Requirements Manual.

The removal of these details for performing surveillance requirements from the Technical Specifications is acceptable because this type of information is not necessary to be

REACTOR COOLANT SYSTEM

SHUTDOWN

(A.1)

ITS

SURVEILLANCE REQUIREMENTS

4.4.1.3.1 The required RHR subsystems shall be demonstrated OPERABLE per Specification 4.7.9.2. (A.6)

SR 3.4.8.2 4.4.1.3.2 The required ~~reactor coolant~~ RHR pump(s), if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignment and indicated power availability. (Insert proposed SR 3.4.8.2 Note) (M.3) (L.2)

4.4.1.3.3 The required steam generator(s) shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 17% at least once per 12 hours. (A.2)

SR 3.4.8.1 4.4.1.3.4 At least once per 12 hours, verify ~~at least one coolant~~ required RHR loop to be in operation ~~and circulating reactor coolant~~ by: (A.2) (LA.1)

a. Verifying at least one Reactor Coolant Pump is in operation. or (A.2)

b. Verifying at least one RHR Loop is in operation and,

1. if the RCS temperature > 140°F or the time since entry into MODE 3 is < 100 hours, circulating reactor coolant at a flow rate ≥ 3000 gpm.

   or

2. if the RCS temperature ≤ 140°F and the time since entry into MODE 3 is ≥ 100 hours, circulating reactor coolant at a flow rate ≥ 2000 gpm to remove decay heat. (LA.2)

ITS 3.4.8

(A.1)

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REACTOR COOLANT SYSTEM

SHUTDOWN

ITS

SURVEILLANCE REQUIREMENTS

4.4.1.3.1 The required RHR subsystems shall be demonstrated OPERABLE per Specification 4.7.9.2. (A.6)

SR 3.4.8.2 4.4.1.3.2 The required reactor coolant (RHR) pump(s), if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignment and indicated power availability. (Insert proposed SR 3.4.8.2 Note) (M.3) R13 (L.2)

4.4.1.3.3 The required steam generator(s) shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 17% at least once per 12 hours. (A.2)

SR 3.4.8.1 4.4.1.3.4 At least once per 12 hours, verify (required) at least one coolant (RHR) loop to be in operation and circulating reactor coolant by: (A.2) (LA.1)

a. Verifying at least one Reactor Coolant Pump is in operation.

or (A.2)

b. Verifying at least one RHR Loop is in operation and;

1. if the RCS temperature > 140°F or the time since entry into MODE 3 is < 100 hours, circulating reactor coolant at a flow rate ≥ 3000 gpm.

or

2. if the RCS temperature ≤ 140°F and the time since entry into MODE 3 is ≥ 100 hours, circulating reactor coolant at a flow rate ≥ 2000 gpm to remove decay heat. (LA.2)

Rev 13

RCS boron concentration is appropriate because all forced flow used to ensure proper mixing of RCS boron is lost. This change is designated as more restrictive because it adds an additional action to the CTS.

M.2 CTS 3.4.1.3 contains an allowance for all reactor coolant pumps or RHR pumps to be de-energized for up to one hour. ITS 3.4.8 allows all RHR pumps to be removed from operation for ≤ 15 minutes for switching from one loop to the other only and also requires that no draining operations to further reduce the RCS water volume are permitted. R4

This change is acceptable because the Note provides sufficient time to perform loop switching operations and provide adequate controls. The startup tests performed using the CTS Note allowance in MODE 4 or 5 with loops filled are not performed with the RCS loops not filled. Therefore, the 1 hour allowance for performing those tests are not needed in this condition. Stopping all operating RHR loops when the RCS is not filled should be limited to short periods of time because of the reduced inventory of water available to absorb decay heat. Stopping all RHR pumps during loop swapping operations is necessary to ensure that pump vortexing does not occur if both pumps are run simultaneously. Fifteen minutes is sufficient time to perform the loop swapping operation without excessive increases in RCS average temperature due to lack of decay heat removal. Adding the additional condition that no draining operations be performed when the pumps are stopped is reasonable given the low RCS water level and the unavailability of the RHR pumps to add inventory to the RCS if needed.

M.3 CTS 4.4.1.3.2 states that the required reactor coolant pump(s), if not in operation, shall be determined OPERABLE by verifying correct breaker alignment and indicated power availability. ITS SR 3.4.8.3 requires verification that correct breaker alignment and indicated power are available to the required RHR pump not in operation. This changes the CTS by requiring verification of correct breaker alignment and indicated power availability on required RHR pumps which are not in operation. R13

The purpose of the CTS is to ensure a standby pump is available to provide RCS cooling should the operating pump fail. This change is acceptable because the verification of proper breaker alignment and power availability ensures that an additional RHR pump can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. This change is designated as more restrictive because it requires performance of the Surveillance on RHR pumps in addition to reactor coolant pumps.

RELOCATED SPECIFICATIONS

None

Summary of Changes to the NAPS ITS Submittal
Miscellaneous Changes

Specifications Affected: ITS 3.4.7 and ITS 3.4.7 Bases

Description

ITS LCO 3.4.7 requires two RHR loops be OPERABLE or one RHR loop be OPERABLE with the secondary side water level of one Steam Generator (SG) $\geq$ 17%. Condition B states "One or more required SGs" and Required Actions A.2 and B.2 require action to restore required SGs. The reference to more than one required SG in Condition B and Required Actions A.2 and B.2 is inconsistent with the LCO. Condition B and Required Actions A.2 and B.2 are revised to refer to a single required SG. The ACTION Bases are also revised. This change affects ITS 3.4.7, the ITS 3.4.7 Bases, the ISTS markup, and the ISTS Bases markup. DOC M.2 is revised to reflect the new ACTION wording.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME	
A. One required RHR loop inoperable. AND One RHR loop OPERABLE.	A.1 Initiate action to restore a second RHR loop to OPERABLE status. OR A.2 Initiate action to restore required SG secondary side water level to within limits.	Immediately Immediately	RAI 3.4-22 R1 R13 RAI 3.4-22 R1
B. Required SG with secondary side water level not within limits. AND One RHR loop OPERABLE.	B.1 Initiate action to restore a second RHR loop to OPERABLE status. OR B.2 Initiate action to restore required SG secondary side water level to within limits.	Immediately Immediately	R13 RAI 3.4-22 R1 RAI 3.4-22 R1 R13
C. No required RHR loops OPERABLE. OR Required RHR loop not in operation.	C.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1. AND C.2 Initiate action to restore one RHR loop to OPERABLE status and operation.	Immediately Immediately	R1

BASES

APPLICABILITY

In MODE 5 with the unisolated portion of the RCS loops filled, this LCO requires forced circulation of the reactor coolant to remove decay heat from the core and to provide proper boron mixing. One loop of RHR provides sufficient circulation for these purposes. However, one additional RHR loop is required to be OPERABLE, or the secondary side water level of at least one SG is required to be ≥ 17% with the associated loop isolation valves open.

Operation in other MODES is covered by:

LCO 3.4.4, "RCS Loops—MODES 1 and 2";
LCO 3.4.5, "RCS Loops—MODE 3";
LCO 3.4.6, "RCS Loops—MODE 4";
LCO 3.4.8, "RCS Loops—MODE 5, Loops Not Filled";
LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation—High Water Level" (MODE 6); and
LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation—Low Water Level" (MODE 6).

If all RCS loops are isolated, an SG cannot be used for decay heat removal and RCS water inventory is substantially reduced. In this circumstance, LCO 3.4.8 applies.

ACTIONS

A.1, A.2, B.1, and B.2

If one RHR loop is OPERABLE and the required SG has secondary side water level < 17%, redundancy for heat removal is lost. Action must be initiated immediately to restore a second RHR loop to OPERABLE status or to restore the required SG secondary side water level. Either Required Action will restore redundant heat removal paths. The immediate Completion Time reflects the importance of maintaining the availability of two paths for heat removal. R13

C.1 and C.2

If a required RHR loop is not in operation, except during conditions permitted by Note 1 and Note 4, or if no required RHR loop is OPERABLE, all operations involving introduction of coolant into the RCS with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 must be suspended and action to restore one RHR loop to OPERABLE status and operation must be initiated. Suspending the introduction of coolant into the RCS of coolant with boron concentration less than required to meet the minimum SDM of RAI 3.4-22 R1

(continued)

INSERT

A.	One required RHR loop inoperable. AND One RHR loop OPERABLE.	A.1 OR A.2	Initiate action to restore a second RHR loop to OPERABLE status. Initiate action to restore required SGs secondary side water level to within limits.	Immediately Immediately	(2) | R13 | RAI 3.4-22 R1
B.	One or more required SGs with secondary side water level not within limits. AND One RHR loop OPERABLE.	B.1 OR B.2	Initiate action to restore a second RHR loop to OPERABLE status. Initiate action to restore required SGs secondary side water level to within limits.	Immediately Immediately	(2) | R13 | RAI 3.4-22 R1 (2) | R13 | RAI 3.4-22 R1

BASES

APPLICABILITY (continued)

or the secondary side water level of at least [two] SGs is required to be ≥ [17]%.

Operation in other MODES is covered by:

LCO 3.4.4, "RCS Loops—MODES 1 and 2";
LCO 3.4.5, "RCS Loops—MODE 3";
LCO 3.4.6, "RCS Loops—MODE 4";
LCO 3.4.8, "RCS Loops—MODE 5, Loops Not Filled";
LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation—High Water Level" (MODE 6); and
LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation—Low Water Level" (MODE 6).

ACTIONS

A.1 and A.2

If one RHR loop is inoperable and the required SGs have secondary side water levels < [17]%, redundancy for heat removal is lost. Action must be initiated immediately to restore a second RHR loop to OPERABLE status or to restore the required SG secondary side water levels. Either Required Action A.1 or Required Action A.2 will restore redundant heat removal paths. The immediate Completion Time reflects the importance of maintaining the availability of two paths for heat removal.

B.1 and B.2

If no RHR loop is in operation, except during conditions permitted by Note 1, or if no loop is OPERABLE, all operations involving a reduction of RCS boron concentration must be suspended and action to restore one RHR loop to OPERABLE status and operation must be initiated. To prevent boron dilution, forced circulation is required to provide proper mixing and preserve the margin to criticality in this type of operation. The immediate Completion Times reflect the importance of maintaining operation for heat removal.

(continued)

M.2 CTS 3.4.1.3, Action a, states that when less than the two required coolant loops are OPERABLE, immediate action must be taken to return the required loops to OPERABLE status as soon as possible and the unit must be in cold shutdown within 20 hours. CTS 3.4.1.3, Action b , states that when no coolant loops are in operation, all operations involving a reduction in boron concentration of the RCS must be suspended and action must be initiated to return the required coolant loop to operation. ITS 3.4.7, Action A applies when one required RHR loop is inoperable and one RHR loop is OPERABLE or when the required steam generator secondary side water level is not within limits and one RHR loop is OPERABLE and requires immediate action to restore the RHR or steam generator. ITS 3.4.7, Action B states that when the required SG secondary side water level is not within limit and one RHR loop is OPERABLE, action must be taken to restore a second RHR loop to OPERABLE status or to restore the SG secondary side water level within limit immediately. ITS 3.4.7, Action C, states that if no required RHR loops are OPERABLE or if the required RHR loop is not in operation, suspend all operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1 and action must be immediately initiated to restore one RHR loop to OPERABLE status and operation. This changes the CTS by revising the actions to be taken if both RHR loops are inoperable. The change in the action from suspending reductions in boron concentration to suspending introduction of coolant with a boron concentration less than required to meet LCO 3.1.1 is described in DOC L.4. R13

This change is acceptable because it provides appropriate actions for a loss of one or more required RHR loops or SG. If both required RHR loops are inoperable, suspending all operations involving a reduction of RCS boron concentration is appropriate because all forced flow used to ensure proper mixing of RCS boron is lost. This change is designated as more restrictive because it adds an additional action to the CTS. R13

M.3 CTS 3.4.1.3 states that at least two coolant loops shall be OPERABLE and at least one must be in operation. This requirement is modified by a note that states that all reactor coolant pumps and residual heat removal pumps may be de-energized for up to 1 hour. ITS 3.4.7 also allows the RHR pumps to be stopped for 1 hour, but limits the use of the 1 hour exception to once per 8 hour period.

The purpose of the 1 hour allowance is to allow the performance of certain infrequent startup tests which require coolant flow to be stopped. This change is acceptable because it ensures that boron stratification or inadequate decay heat removal do not occur should multiple 1 hour periods be required to complete the tests. This change is designated as more restrictive because it limits an allowance to 1 hour per 8 hour period when that restriction does not currently exist.

M.4 CTS 4.4.1.3.2 states that the required reactor coolant pump(s), if not in operation, shall be determined OPERABLE by verifying correct breaker alignment and indicated power availability. ITS SR 3.4.7.3 requires verification that correct breaker alignment and indicated power are available to the required RHR pump not in operation. This changes R13

Summary of Changes to the NAPS ITS Submittal
Miscellaneous Changes

Specifications Affected: ITS 3.4.11 CTS markup

Description

CTS Surveillances 4.4.3.2.1a and 4.4.3.2.1.b.3 were marked as "See ITS 3.3.1." These Surveillances were not addressed in ITS 3.3.1. The CTS markups for Unit 1 and 2 are revised to remove these Surveillances and DOC L.3 is revised to address the change.

CTS Surveillance 4.4.3.2.2 does not require operating the block valve through one complete cycle of full travel when the block valve is closed to meet the requirements of ACTION A.4 and A.5. ITS 3.4.11 does not require operating the block valve through one complete cycle of full travel (SR 3.4.11.2) when the block valve is closed to meet any Required Action. This change was not addressed. The CTS markups for Unit 1 and 2 are revised to indicate the change and DOC L.4 is added to address this difference between the CTS and the ITS.

The ITS and Bases are unaffected.

A.1

ITS 3.4.11

ITS

REACTOR COOLANT SYSTEM

SAFETY AND RELIEF VALVES – OPERATING

RELIEF VALVES

LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

B. Block Valves: Insert proposed Action D Note (L.2)

Action D, E

1. With one block valve inoperable, within 1 hour either restore the block valve to OPERABLE status or place its associated PORV in manual control; restore the block valve to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. Insert proposed Action G Note (L.2)

Action G,

2. With both block valves inoperable, within 1 hour either restore the block valves to OPERABLE status or place the PORVs in manual control; restore at least one block valve to OPERABLE status within the next hour(s); restore the remaining inoperable block valve to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. (2) (A.4) (A.4)

3. The provisions of Specification 3.0.4 are not applicable. (M.2) R2

SURVEILLANCE REQUIREMENTS

4.4.3.2.1 In addition to the requirements of Specification 4.0.5, each PORV shall be demonstrated OPERABLE: (A.1)

a. At least once per 31 days by performing a CHANNEL FUNCTIONAL TEST, excluding valve operation, and (L.3) R13

b. At least once per 18 months by:

SR 3.4.11.3

1. Operating the PORV through one complete cycle of full travel during MODES 3 or 4, and (LA.1)

SR 3.4.11.4

2. Operating the solenoid air control valves and check valves on the associated accumulators in the PORV control systems through one complete cycle of full travel, and (M.1) RAI 3.4-08 R1

3. Performing a CHANNEL CALIBRATION of the actuation instrumentation. (L3) R11

SR 3.4.11.1

c. At least once per 7 days by verifying that the pressure in the PORV nitrogen accumulators is greater than the surveillance limit.

SR 3.4.11.2

4.4.3.2.2 Each block valve shall be (S) demonstrated OPERABLE at least once per 92 days by operating the valve through one complete cycle of full travel unless the block valve is closed in order to meet the requirements of ACTION A.4 or A.5 in Specification 3.4.3.2. L.4 R13

This surveillance is only required to be met in MODES 1 and 2 (L.1)

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(A.1) ITS 3.4.11

REACTOR COOLANT SYSTEM

SAFETY AND RELIEF VALVES – OPERATING

RELIEF VALVES

ITS LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

B. Block Valves: Insert proposed Action D Note (L.2)

Action D, E

1. With one block valve inoperable, within 1 hour either restore the block valve to OPERABLE status or place its associated PORV in manual control; restore the block valve to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. (L.2)

Insert proposed Action G Notes

Action G, H

2. With both block valves inoperable, ~~within 1 hour either restore the block valves to OPERABLE status or place the PORVs in manual control;~~ restore at least one block valve to OPERABLE status within ~~the next hour~~ 2 hours; ~~restore the remaining inoperable block valve to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.~~ (A.4) (A.4)

3. ~~The provisions of Specification 3.0.4 are not applicable.~~ (M.2) R2

SURVEILLANCE REQUIREMENTS

4.4.3.2.1 ~~In addition to the requirements of Specification 4.0.5,~~ each PORV shall be demonstrated OPERABLE: (A.1)

a. ~~At least once per 31 days by performing a CHANNEL FUNCTIONAL TEST, excluding valve operation, and~~ (L.3) RB

SR 3.4.11.3

b. At least once per 18 months by:

1. Operating the PORV through one complete cycle of full travel ~~during MODES 3 or 4, and~~ (LA.1)

SR 3.4.11.4

2. Operating the solenoid ~~air~~ control valves and check valves on the associated accumulators in the PORV control systems through one complete cycle of full travel, and (M.1) RAI 3.4-08 R1

3. ~~Performing a CHANNEL CALIBRATION of the actuation instrumentation.~~ (L.3) RB

SR 3.4.11.1

c. At least once per 7 days be verifying that the pressure in the PORV nitrogen accumulators is greater than the surveillance limit.

SR 3.4.11.2

4.4.3.2.2 Each block valve shall be (S) demonstrated OPERABLE at least once per 92 days by operating the valve through one complete cycle of full travel unless the block valve is closed in order to meet the requirements of ACTION ~~A.4 or A.5~~ in Specification 3.4.3.2. (L.4) R13

This Surveillance is only required to be met in MODES 1 and 2. (L.1)

L.3 *(Category 1 – Relaxation of LCO Requirements)* CTS 3.4.3.2, Action A.3, states, "With one or both PORV(s) inoperable due to a malfunction in the PORV automatic control system, within 1 hour restore the affected automatic control system(s) to OPERABLE status or place and maintain the affected PORV(s) in manual control. CTS 4.4.3.2.1.a required performance of a Channel Functional Test every 31 days and CTS 4.4.3.2.1.b.3 requires a Channel Calibration of the actuation instrumentation every 18 months. ITS 3.4.11 does not require the PORV automatic control system for OPERABILITY. This changes the CTS by eliminating the LCO requirement and SRs for the PORV automatic control system. R13

The purpose of CTS 3.4.3.2 is to ensure the PORVs are available to perform their accident mitigation function. This change is acceptable because the LCO requirements continue to ensure that the structures, systems, and components are maintained consistent with the safety analyses and licensing basis. In the applicable MODES for ITS 3.4.11, the PORVs are only credited for manual operator action in the event of a steam generator tube rupture. The PORV automatic control system is not needed to perform this function and, therefore, is not required for PORV OPERABILITY. This change is designated as less restrictive because less stringent LCO requirements and SRs are being applied in the ITS than were applied in the CTS.

L.4 *(Category 7 – Relaxation of Surveillance Frequency)* CTS 4.4.3.2.2 states that each block valve shall be cycled unless the block valve is closed in order to meet the requirements of ACTION A.4 or A.5. ACTIONS A.4 and A.5 require the block valve to be closed for reasons other than excessive PORV seat leakage. ITS SR 3.4.11.2 states that each block valve shall be cycled, but it is modified by a Note stating that the SR is not required to be performed with the block valve closed in accordance with the Required Actions. This changes the CTS by not requiring a cycle of the block valve when the block valve is closed due to excessive PORV seat leakage. R13

The purpose of CTS 4.4.3.2.2 is to verify the block valve can be cycled if needed. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. With the block valve closed in order to isolate a PORV with excessive seat leakage, opening the block valve increases the risk of an unisolable RCS leak as the PORV is already inoperable. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

Summary of Changes to the NAPS ITS Submittal
Miscellaneous Changes

Specifications Affected: ITS 3.4.12 Bases

Description

The North Anna PORVs are powered by the Instrument Air system during normal operation, with nitrogen accumulators acting as a backup. However, during operation in the LTOP range, the PORVs are only powered by the backup nitrogen accumulators. This design feature was not reflected in the submittal. The ITS 3.4.12 LCO Bases, the Bases for SR 3.4.12.6, the ISTS and ISTS Bases markup, and JFD 8 are revised to reflect this design

BASES

LCO (continued)

Note 2 states that accumulator isolation is only required when the accumulator pressure is more than the PORV lift setting. This Note permits the accumulator discharge isolation valves to be open if the accumulator cannot challenge the LTOP limits.

The elements of the LCO that provide low temperature overpressure mitigation through pressure relief are:

a. Two OPERABLE PORVs; or

A PORV is OPERABLE for LTOP when its block valve is open, its lift setpoint is set to the limits provided in the LCO and testing proves its ability to open at this setpoint, and backup nitrogen motive power is available to the PORVs and their control circuits. R13

b. A depressurized RCS and an RCS vent.

An RCS vent is OPERABLE when open with an area of ≥ 2.07 square inches.

Each of these methods of overpressure prevention is capable of mitigating the limiting LTOP transient.

APPLICABILITY

This LCO is applicable in MODE 4 when any RCS cold leg temperature is ≤ 235°F (Unit 1), 270°F (Unit 2), in MODE 5, and in MODE 6 when the reactor vessel head is on. The pressurizer safety valves provide overpressure protection that meets the Reference 1 P/T limits above 235°F (Unit 1), 270°F (Unit 2). When the reactor vessel head is off, overpressurization cannot occur.

LCO 3.4.3 provides the operational P/T limits for all MODES. LCO 3.4.10, "Pressurizer Safety Valves," requires the OPERABILITY of the pressurizer safety valves that provide overpressure protection during MODES 1, 2, and 3, and MODE 4 above 235°F (Unit 1), 270°F (Unit 2).

Low temperature overpressure prevention is most critical during shutdown when the RCS is water solid, and a mass or heat input transient can cause a very rapid increase in RCS pressure when little or no time allows operator action to mitigate the event.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.12.5

The PORV block valve must be verified open every 72 hours to provide the flow path for each required PORV to perform its function when actuated. The valve may be remotely verified open in the main control room. In addition, the PORV keyswitch must be verified to be in the proper position to provide the appropriated trip setpoints to the PORV actuation logic. This Surveillance is performed if the PORV is used to satisfy the LCO.

The block valve is a remotely controlled, motor operated valve. The power to the valve operator is not required removed, and the manual operator is not required locked in the inactive position. Thus, the block valve can be closed in the event the PORV develops excessive leakage or does not close (sticks open) after relieving an overpressure situation.

The 72 hour Frequency is considered adequate in view of other administrative controls available to the operator in the control room, such as valve position indication and alarms, that verify that the PORV block valve remains open and the keyswitch in the proper position.

SR 3.4.12.6

SR 3.4.12.6 requires verification that the pressure in the PORV backup nitrogen system is sufficient to provide motive force for the PORVs to cope with an overpressure event. The Frequency of 7 days is based on operating experience. R13

SR 3.4.12.7

Performance of a COT is required within 12 hours after decreasing RCS temperature to ≤ 235°F (Unit 1), 270°F (Unit 2) and every 31 days on each required PORV to verify and, as necessary, adjust its lift setpoint. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The COT will

(continued)

BASES

APPLICABLE SAFETY ANALYSES

RCS Vent Performance (continued)

The LTOP System satisfies Criterion 2 of the NRC Policy Statement. 10 CFR 50.36(c)(2)(ii) (7)

LCO

This LCO requires that the LTOP System is OPERABLE. The LTOP System is OPERABLE when the minimum coolant input and pressure relief capabilities are OPERABLE. Violation of this LCO could lead to the loss of low temperature overpressure mitigation and violation of the Reference 1 limits as a result of an operational transient. Insert 1

(9) With power removed from the isolation valve operator

To limit the coolant input capability, the LCO requires a maximum of (3) TSTF-285 [one] LHSI [HPI] pump [and one charging pump] capable of injecting into the RCS and all accumulator discharge isolation valves closed and immobilized when accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed in the PTLR. the PORV lift setting (8) TSTF-285

(2) Insert 2

Insert from page B 3.4-66

The elements of the LCO that provide low temperature overpressure mitigation through pressure relief are: (3)

a. Two RCS relief valves, as follows:

1. Two OPERABLE PORVs; or

A PORV is OPERABLE for LTOP when its block valve is open, its lift setpoint is set to the limit(s) required by the PTLR provided in the LCO (1) and testing proves its ability to open at this setpoint, and motive power is available to the two valves PORVs and their control circuits. (9) backup nitrogen (8) |R13

[2. Two OPERABLE RHR suction relief valves; or]

An RHR suction relief valve is OPERABLE for LTOP when its RHR suction isolation valve and its RHR suction valve are open, its setpoint is at or between [436.5] psig and [463.5] psig, and testing has proven its ability to open at this setpoint. (3)

(continued)

Rev. 13

INSERT 1

SR 3.4.12.6

SR 3.4.12.6 requires verification that the pressure in the PORV backup nitrogen system is sufficient to provide motive force for the PORVs to cope with an overpressure event. The Frequency of 7 days is based on operating experience. R13

INSERT 2

A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

The ISTS requires the accumulators to be isolated when accumulator pressure is greater than the maximum RCS pressure for the existing cold leg temperature as allowed by the P/T limit curves. The ISTS is revised to require the accumulators to be isolated when accumulator pressure is greater than the PORV lift setpoint pressure given in the LCO. The North Anna LTOP analysis does not address the situation of an accumulator injecting with the accumulator pressure above the PORV lift setting but below the maximum RCS pressure for the existing cold leg temperature as allowed by the P/T limit curves. The analysis does not address a PORV being used to relieve pressure from accumulator injection. If the accumulator pressure is below the PORV lift setpoint (which is also below the limiting pressure for the existing cold leg temperature), injection of an accumulator cannot exceed the maximum RCS pressure for the existing conditions. This revised allowance is stated in an LCO Note, a Note to Condition C, and a Note to SR 3.4.12.3.

TSTF-285 modified the ISTS Applicability Note to state that the accumulator may be unisolated when accumulator pressure is less than the maximum RCS pressure for the existing cold leg temperature as allowed by the P/T limit curves provided in the PTLR, and moved the Applicability Note to an LCO Note. The movement of the Note to an LCO Note has been adopted in the North Anna ITS. However, the wording changes made to the Note in TSTF-285 are not consistent with the North Anna LTOP analysis, as described in the previous paragraph. Therefore, the Note has been revised to be consistent with the North Anna LTOP analysis. RAI 3.4.09 R1

These more stringent controls on accumulator pressure and accumulator isolation will ensure that the assumptions of the North Anna LTOP design are met.

7. Portions of TSTF-280, Revision 1, are not adopted. The revisions to LCO 3.4.12 made by TSTF-280, Revision 1, to clarify the application of the available options are not needed due to the changes made to the LCO to reflect the North Anna analysis and design.

8. The North Anna PORVs are supplied from both the Instrument Air System and backup nitrogen accumulators during power operation and from the backup nitrogen accumulators in the LTOP conditions. Therefore, the backup nitrogen accumulators are needed for PORV OPERABILITY. A Surveillance is added to verify the OPERABILITY of the backup nitrogen supply. Subsequent items are renumbered as needed. R 13

Specifications Affected: ITS 3.4.8

Description

The title for the ITS 3.4.8 LCO Notes is revised from "NOTE" to "NOTES" to reflect that there are two LCO Notes. The ISTS markup is correct.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops—MODE 5, Loops Not Filled

LCO 3.4.8 Two residual heat removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation.

R13

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

1. All RHR pumps may be removed from operation for ≤ 15 minutes when switching from one loop to another provided: RAI 3.9.5-1 R4
    a. The core outlet temperature is maintained > 10°F below saturation temperature; R13
    b. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1; and
    c. No draining operations to further reduce the RCS water volume are permitted.
2. One RHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required RHR loop inoperable.	A.1 Initiate action to restore RHR loop to OPERABLE status.	Immediately

Specifications Affected: ITS 3.4.18 Bases

Description

The LCO Bases for ITS 3.4.18 contained the statements, "Because the water in the RCS is used to fill the loop, it is not necessary to establish limits on the isolated loop water boron concentration or temperature. However, if both isolation valves are not opened within two hours, changes in water boron concentration in the isolated portion of the loop may occur and it is necessary to verify the boron concentration or close the hot leg and cold leg isolation valves and follow the requirements of the LCO to reopen them." These statements are not in the ISTS. These statements are not consistent with the Required Actions and Surveillance Requirements and have been deleted.

A typographical error is corrected in the first paragraph of the LCO Bases for ITS 3.4.18. The word "values" is changed to the correct word "valves." The ISTS Bases markup does not require correction.

BASES

LCO

Loop isolation valves are used for performing maintenance when the unit is in MODE 5 or 6. This LCO governs the return to operation of an isolated loop (i.e., the hot and cold leg loop isolation valves are initially closed) and ensures that the loop isolation valves remain closed unless acceptable conditions for opening the valves are established. R13

There are two methods for returning an isolated loop to operation. The first method is used when the isolated loop is filled with water. When using the filled loop method, the hot leg isolation valve (e.g., the inlet valve to the isolated portion of the loop) is opened first. As described in LCO 3.4.18.a, the water in the isolated loop must be borated to at least the boron concentration needed to provide the required shutdown margin prior to opening the hot leg isolation valve. This ensures that the RCS boron concentration is not reduced below that required to maintain the required shutdown margin. The water in the isolated loop is then mixed with the water in the RCS by establishing flow through the recirculation line (which bypasses the cold leg isolation valve). After the flow through the recirculation line has thoroughly mixed the water in the isolated loop with the water in the RCS and it is verified that the isolated loop temperature is no more than 20°F below the temperature of the RCS (to avoid reactivity additions due to reduced RCS temperature), the cold leg isolation valve may be opened.

The second method for returning an isolated loop to operation is described in LCO 3.4.18.b and is used when the isolated loop is drained of water. In the drained loop method, the water in the RCS is used to fill the isolated portion of the loop. The LCO also requires that the pressurizer water level be established sufficiently high prior to and during the opening of the isolation valves to ensure that the inadvertent opening of all three sets of loop isolation valves on three drained and isolated loops would not result in loss of net positive suction head for the Residual Heat Removal system. R13

The LCO is modified by a Note which allows Reactor Coolant Pump (RCP) seal injection to be initiated to a RCP in a drained, isolated loop. This is to support vacuum assisted backfill of the loop. In this method, a vacuum is drawn on the isolated loop prior to opening the cold leg isolation valve in order to minimize the amount of trapped air in the loop and to minimize the need to run the RCP in the isolated loop to clear out air pockets. In order to draw a vacuum on

(continued)

INSERT 4

There are two methods for returning an isolated loop to operation. The first method is used when the isolated loop is filled with water. When using the filled loop method, the hot leg isolation valve (e.g., the inlet valve to the isolated portion of the loop) is opened first. As described in LCO 3.4.18.A, the water in the isolated loop must be borated to at least the boron concentration needed to provide the required shutdown margin prior to opening the hot leg isolation valve. This ensures that the RCS boron concentration is not reduced below that required to maintain the required shutdown margin. The water in the isolated loop is then mixed with the water in the RCS by establishing flow through the recirculation line (which bypasses the cold leg isolation valve). After the flow through the recirculation line has thoroughly mixed the water in the isolated loop with the water in the RCS and it is verified that the isolated loop temperature is no more than 20 °F below the temperature of the RCS (to avoid reactivity additions due to reduced RCS temperature), the cold leg isolation valve may be opened.

The second method for returning an isolated loop to operation is described in LCO 3.4.18.B and is used when the isolated loop is drained of water. In the drained loop method, the water in the RCS is used to fill the isolated portion of the loop. The LCO also requires that the pressurizer water level be established sufficiently high prior to and during the opening of the isolation valves to ensure that the inadvertent opening of all three sets of loop isolation valves on three drained and isolated loops would not result in loss of net positive suction head for the Residual Heat Removal system. | R13

The LCO is modified by a Note which allows Reactor Coolant Pump (RCP) seal injection to be initiated to a RCP in a drained, isolated loop. This is to support vacuum assisted backfill of the loop. In this method, a vacuum is drawn on the isolated loop prior to opening the cold leg isolation valve in order to minimize the amount of trapped air in the loop and to minimize the need to run the RCP in the isolated loop to clear out air pockets. In order to draw a vacuum on the isolated loop, the RCP seals must be filled with water. The boron concentration of the water used for seal injection must meet the same requirements as the reactor coolant system and the loop must be drained prior to starting seal injection in order to be sure that no water at a boron concentration less than required remains in the isolated loop.

The LCO is modified by a Note which allows a hot or cold leg isolation valve to be closed for up to two hours without considering the loop isolated and meeting the LCO requirements when opening the closed valve. This allows for necessary maintenance and testing on the valves and the valve operators. If the closed valve is not reopened with two hours, it is necessary to close both isolation valves on the affected loop and follow the requirements of the LCO when reopening the isolation valves. This is required because there is a possibility that the water in the isolated loop has become diluted or cooled to the point that reintroduction of the water into to the reactor vessel could result in a significant reactivity change.

Summary of Changes to the NAPS ITS Submittal
Miscellaneous Changes

Specifications Affected: ITS 3.5.2 Bases

Description

The Bases Background of ITS 3.5.2 state that the shift from cold leg recirculation to hot leg recirculation occurs approximately 10 hours after an accident. The analyses have been revised and the swap to hot leg recirculation now occurs within approximately 5 hours. The ITS Bases and ISTS Bases markup are revised to reflect this value.

B 3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

B 3.5.2 ECCS—Operating

BASES

BACKGROUND

The function of the ECCS is to provide core cooling and negative reactivity to ensure that the reactor core is protected after any of the following accidents:

a. Loss of coolant accident (LOCA), coolant leakage greater than the capability of the normal charging system;

b. Rupture of a control rod drive mechanism-control rod assembly ejection accident;

c. Loss of secondary coolant accident, including uncontrolled steam release or loss of feedwater; and

d. Steam generator tube rupture (SGTR).

The addition of negative reactivity is designed primarily for the MSLB where primary cooldown could add enough positive reactivity to achieve criticality and return to significant power.

There are three phases of ECCS operation: injection, cold leg recirculation, and hot leg recirculation. In the injection phase, water is taken from the refueling water storage tank (RWST) and injected into the Reactor Coolant System (RCS) through the cold legs. When sufficient water is removed from the RWST to ensure that enough boron has been added to maintain the reactor subcritical and the containment sumps have enough water to supply the required net positive suction head to the ECCS pumps, suction is switched to the containment sump for cold leg recirculation. Within approximately 5 hours, the ECCS flow is shifted to the hot leg recirculation phase to provide a backflush, which would reduce the boiling in the top of the core and any resulting boron precipitation. R13

The ECCS consists of two separate subsystems: High Head Safety Injection (HHSI) and Low Head Safety Injection (LHSI). Each subsystem consists of two redundant, 100% capacity trains. The ECCS accumulators and the RWST are also part of the ECCS, but are not considered part of an ECCS flow path as described by this LCO.

(continued)

B 3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

B 3.5.2 ECCS—Operating

BASES

BACKGROUND

The function of the ECCS is to provide core cooling and negative reactivity to ensure that the reactor core is protected after any of the following accidents:

a. Loss of coolant accident (LOCA), coolant leakage greater than the capability of the normal charging system; Rupture of a control rod drive mechanism - control (2)

b. Rod ejection accident; assembly

c. Loss of secondary coolant accident, including uncontrolled steam release or loss of feedwater; and

d. Steam generator tube rupture (SGTR).

The addition of negative reactivity is designed primarily for the loss of secondary coolant accident where primary cooldown could add enough positive reactivity to achieve criticality and return to significant power. Main Steam Line Break (MSLB) (2)

There are three phases of ECCS operation: injection, cold leg recirculation, and hot leg recirculation. In the injection phase, water is taken from the refueling water storage tank (RWST) and injected into the Reactor Coolant System (RCS) through the cold legs. When sufficient water is removed from the RWST to ensure that enough boron has been added to maintain the reactor subcritical and the containment sumps have enough water to supply the required net positive suction head to the ECCS pumps, suction is switched to the containment sump for cold leg recirculation. After approximately 24 hours, the ECCS flow is shifted to the hot leg recirculation phase to provide a backflush, which would reduce the boiling in the top of the core and any resulting boron precipitation. Within (5) (2) | R13

The ECCS consists of three two separate subsystems: centrifugal charging (high head), safety injection (SI) (intermediate head), and residual heat removal (RHR) (low head). Each subsystem consists of two redundant, 100% capacity trains. The ECCS accumulators and the RWST are also part of the (1)

High Head Safety Injection (HHSI)

Low Head Safety Injection (LHSI)

(continued)

Rev 13

Specifications Affected: ITS 3.5.6 Bases

Description

The ITS and ISTS LCO Bases for ITS 3.5.6 state, "It should be noted, however, that changes to applicable MODES cannot be made until the BIT is restored to OPERABLE status pursuant to the provisions of LCO 3.0.4." The changes made to LCO 3.0.4 by TSTF-359, which is incorporated in the North Anna ITS, make this statement inaccurate. It is revised to state, "It should be noted, however, that changes to applicable MODES cannot be made until the BIT is restored to OPERABLE status, except as provided by LCO 3.0.4." This affects the ITS Bases and ISTS markup. Bases JFD 9 is added to discuss the change.

BASES

ACTIONS (continued)

B.1, B.2, and B.3

When Required Action A.1 cannot be completed within the required Completion Time, a controlled shutdown should be initiated. Six hours is a reasonable time, based on operating experience, to reach MODE 3 from full power conditions and to be borated to the required SDM without challenging unit systems or operators. Borating to the required SDM assures that the unit is in a safe condition, without need for any additional boration.

After determining that the BIT is inoperable and the Required Actions of B.1 and B.2 have been completed, the tank must be returned to OPERABLE status within 7 days. These actions ensure that the unit will not be operated with an inoperable BIT for a lengthy period of time. It should be noted, however, that changes to applicable MODES cannot be made until the BIT is restored to OPERABLE status, except as provided by LCO 3.0.4. R13

C.1

Even though the RCS has been borated to a safe and stable condition as a result of Required Action B.2, either the BIT must be restored to OPERABLE status (Required Action C.1) or the unit must be placed in a condition in which the BIT is not required (MODE 4). The 12 hour Completion Time to reach MODE 4 is reasonable, based on operating experience and normal cooldown rates, and does not challenge unit safety systems or operators.

SURVEILLANCE REQUIREMENTS

SR 3.5.6.1

Verification every 24 hours that the BIT water temperature is at or above the specified minimum temperature is frequent enough to identify a temperature change that would approach the acceptable limit. The solution temperature is also monitored by an alarm that provides further assurance of protection against low temperature. This Frequency has been shown to be acceptable through operating experience.

BASES

ACTIONS

A.1 (continued)

minimum, prompt action must be taken to raise the temperature and declare the tank OPERABLE, or the plant must be placed in a MODE in which the BIT is not required.

The 1 hour Completion Time to restore the BIT to OPERABLE status is consistent with other Completion Times established for loss of a safety function and ensures that the plant will not operate for long periods outside of the safety analyses.

B.1, B.2, and B.3

When Required Action A.1 cannot be completed within the required Completion Time, a controlled shutdown should be initiated. Six hours is a reasonable time, based on operating experience, to reach MODE 3 from full power conditions and to be borated to the required SDM without challenging plant systems or operators. Borating to the required SDM assures that the plant is in a safe condition, without need for any additional boration.

After determining that the BIT is inoperable and the Required Actions of B.1 and B.2 have been completed, the tank must be returned to OPERABLE status within 7 days. These actions ensure that the plant will not be operated with an inoperable BIT for a lengthy period of time. It should be noted, however, that changes to applicable MODES cannot be made until the BIT is restored to OPERABLE status pursuant to the provisions of LCO 3.0.4.

C.1

Even though the RCS has been borated to a safe and stable condition as a result of Required Action B.2, either the BIT must be restored to OPERABLE status (Required Action C.1) or the plant must be placed in a condition in which the BIT is not required (MODE 4). The 12 hour Completion Time to reach MODE 4 is reasonable, based on operating experience and normal cooldown rates, and does not challenge plant safety systems or operators.

(continued)

1. North Anna does not use the system name, "Boron Injection System" and it has been removed from the Bases.

2. Changes are made (additions, deletions, and/or changes) to the ISTS which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

3. Editorial change made for enhanced clarity or to be consistent with the ISTS Writers Guide.

4. The brackets have been removed and the proper plant specific information/value has been provided.

5. The Boron Injection Tank volume and usable volume are the same. Changes are made to the Bases to reflect the design.

6. The criteria of the NRC Final Policy Statement on Technical Specifications Improvements have been included in 10 CFR 50.36(c)(2)(ii). Therefore, references in the ISTS Bases to the NRC Final Policy Statement are revised in the ITS Bases to reference 10 CFR 50.36.

7. Changes are made to describe specific assumptions made regarding Boron Injection Tank boron concentration for specific analyses.

8. The LCO paragraph, "If the equipment used to verify BIT parameters (temperature, volume, and boron concentration) is determined to be inoperable, then the BIT is also inoperable," is not adopted. Surveillances use this equipment to verify these parameters are within limits at appropriate frequencies. They are required to verify that the BIT is OPERABLE, but their inoperability does not render the BIT inoperable. The BIT is considered capable of performing it's safety function as long as the Surveillance Requirements for these parameters have been met within the required Frequencies. This is consistent with the use of equipment used to perform surveillances in other sections of NUREG-1431.

9. The Bases to ACTIONS B.1, B.2, and B.3 ends with the statement, "It should be noted, however, that changes to applicable MODES cannot be made until the BIT is restored to OPERABLE status pursuant to the provisions of LCO 3.0.4." Revisions made to LCO 3.0.4 have made this statement incorrect. The statement is revised to state, " It should be noted, however, that changes to applicable MODES cannot be made until the BIT is restored to OPERABLE status, except as provided by LCO 3.0.4." This statement is consistent with LCO 3.0.4 requirements. R13

Summary of Changes to the NAPS ITS Submittal
Miscellaneous Changes

Specifications Affected: ITS 3.6.7 Bases

Description

The LCO Bases of ITS 3.6.7 do not describe what constitutes an OPERABLE Recirculation Spray (RS) system. A description of what constitutes an OPERABLE RS System is added to the ITS 3.6.7 LCO Bases for consistency with NEI 01-03, "Writer's Guide for the Improved Standard Technical Specifications," section 4.2.4. A discussion of the impact of the Quench Spray System and casing cooling inoperability on RS OPERABILITY is also added to the LCO Bases. The information added to the LCO Bases is taken from the Background section of the Bases. This affects the ITS Bases, the ISTS Bases markup, and added JFD 12.

BASES

APPLICABLE SAFETY ANALYSES (continued)

the containment atmosphere temperature exceeds the containment design temperature is short enough that there would be no adverse effect on equipment inside containment. Therefore, it is concluded that the calculated transient containment atmosphere temperatures are acceptable for the SLB and LOCA.

The RS System actuation model from the containment analysis is based upon a response time associated with exceeding the High-High containment pressure signal setpoint to achieving full flow through the RS System spray nozzles. A delay in response time initiation provides conservative analyses of peak calculated containment temperature and pressure. The RS System's total response time is determined by the delay timers and system startup time.

For certain aspects of accident analyses, maximizing the calculated containment pressure is not conservative. In particular, the cooling effectiveness of the Emergency Core Cooling System during the core reflood phase of a LOCA analysis increases with increasing containment backpressure. For these calculations, the containment backpressure is calculated in a manner designed to conservatively minimize, rather than maximize, the calculated transient containment pressures in accordance with 10 CFR 50, Appendix K (Ref. 3).

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

LCO

During a DBA, one train (one inside and one outside RS subsystem in the same train) or two outside RS subsystems of the RS System are required to provide the minimum heat removal capability assumed in the safety analysis. To ensure that this requirement is met, four RS subsystems and the casing cooling tank must be OPERABLE. This will ensure that at least one train will operate assuming the worst case single failure occurs, which is no offsite power and the loss of one emergency diesel generator. Inoperability of the casing cooling tank, the casing cooling pumps, the casing cooling valves, piping, instrumentation, or controls, or of the QS System requires an assessment of the effect on RS subsystem OPERABILITY. R13

Each RS train consists of one RS subsystem outside containment and one RS subsystem inside containment. Each RS subsystem includes one spray pump, one spray cooler, one

(continued)

BASES

LCO (continued)

180° coverage spray header, nozzles, valves, piping, instrumentation, and controls to ensure an OPERABLE flow path capable of taking suction from the containment sump. R13

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause an increase in containment pressure and temperature requiring the operation of the RS System.

In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Thus, the RS System is not required to be OPERABLE in MODE 5 or 6.

ACTIONS

A.1

With one of the RS subsystems inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days. The components in this degraded condition are capable of providing at least 100% of the heat removal needs (i.e., approximately 150% when one RS subsystem is inoperable) after an accident. The 7 day Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the RS and QS systems and the low probability of a DBA occurring during this period.

B.1 and C.1

With two of the required RS subsystems inoperable either in the same train, or both inside RS subsystems, at least one of the inoperable RS subsystems must be restored to OPERABLE status within 72 hours. The components in this degraded condition are capable of providing 100% of the heat removal needs and 360° containment spray coverage after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal capability afforded by the OPERABLE subsystems, a reasonable amount of time for repairs, and the low probability of a DBA occurring during this period.

D.1

With the casing cooling tank inoperable, the NPSH available to both outside RS subsystem pumps may not be sufficient. The inoperable casing cooling tank must be restored to OPERABLE status within 72 hours. The components in this degraded RAI 3.6.7-4 R1

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

The RS System actuation model from the containment analysis is based upon a response time associated with exceeding the High-High containment pressure signal setpoint to achieving full flow through the RS System spray nozzles. A delay in response time initiation provides conservative analyses of peak calculated containment temperature and pressure. The RS System's total response time of 300 seconds comprises the signal delay, diesel generator startup time, and system startup time. (8)

is determined by the delay timers

For certain aspects of accident analyses, maximizing the calculated containment pressure is not conservative. In particular, the cooling effectiveness of the Emergency Core Cooling System during the core reflood phase of a LOCA analysis increases with increasing containment backpressure. For these calculations, the containment backpressure is calculated in a manner designed to conservatively minimize, rather than maximize, the calculated transient containment pressures in accordance with 10 CFR 50, Appendix K (Ref. 3).

The RS System satisfies Criterion 3 of the NRC Policy Statement. 10 CFR 50.36 (c)(2)(ii). (5)

LCO

During a DBA, one train (two subsystems) or two outside RS subsystems of the RS System is are required to provide the minimum heat removal capability assumed in the safety analysis. To ensure that this the requirement is met, four RS subsystems and a casing cooling tank must be OPERABLE. This will ensure that at least one train will operate assuming the worst case single failure occurs, which is in the ESF power supply. Insert (12) RCB (6) (2) (2)

one inside and one outside RS subsystem in the same train

no offsite power and the loss of one emergency diesel generator. (2)

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause an increase in containment pressure and temperature requiring the operation of the RS System.

In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Thus, the RS System is not required to be OPERABLE in MODE 5 or 6.

(continued)

INSERT

Inoperability of the casing cooling tank, the casing cooling pumps, the casing cooling valves, piping, instrumentation, or controls, or of the QS system requires an assessment of the effect on RS subsystem OPERABILITY. R13

Each RS train consists of one RS subsystem outside containment and one RS subsystem inside containment. Each RS subsystem includes one spray pump, one spray cooler, one 180° coverage spray header, nozzles, valves, piping, instrumentation, and controls to ensure an OPERABLE flow path capable of taking suction from the containment sump.

generator. References to the worst case single active failure are modified to reflect this plant specific assumption.

10. In ISTS 3.6.6E Background and Action A.1 Bases sections, the word "approximately" is added to "50%" and "150%," respectively. This is in reference to the RS heat removal capability of one RS subsystem and 3 RS subsystems, respectively. The exact capacity for each RS subsystem varies, but is approximately 50%. Adding this change makes the statements more accurate.

11. Information is added to the Bases for ITS Required Action D.1 to clarify available RS cooling capability when the casing cooling tank is inoperable.

12. Information is added to the LCO Bases to clearly define what is required for an OPERABLE RS subsystem in accordance with the ITS Writer's Guide. R13

13. The Bases are revised to refer to the ASME Code and reference the "ASME Code for Operation and Maintenance of Nuclear Power Plants" when discussing the Inservice Testing Program, instead of referencing Section XI of the ASME Code and "ASME, Boiler and Pressure Vessel Code, Section XI." North Anna has adopted the ASME Code for Operation and Maintenance of Nuclear Power Plants, the 1995 Edition and the 1996 Addenda, as required by 10 CFR 50.55a(b)(3). With this adoption, references to Section XI and to the ASME Boiler and Pressure Vessel Code are incorrect when discussing the Inservice Testing Program in the North Anna ITS and Bases. R13