ENCLOSURE 2

VOLUME 9

TURKEY POINT NUCLEAR GENERATING STATION UNIT 3 AND UNIT 4

IMPROVED TECHNICAL SPECIFICATIONS CONVERSION

ITS SECTION 3.4 REACTOR COOLANT SYSTEM (RCS)

Revision 0

LIST OF ATTACHMENTS

ATTACHMENT 1

ITS 3.4.1 – RCS PRESSURE, TEMPERATURE, AND FLOW DEPARTURE FROM NUCLEATE BOILING (DNB) LIMITS

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

POWER DISTRIBUTION LIMITS

3/4.2.5 DNB PARAMETERS

LIMITING CONDITION FOR OPERATION

LCO 3.4.1 3.2.5 The following DNB-related parameters shall be maintained within the following limits:

LCO 3.4.1 b a. Reactor Coolant System T_{avg} is less than or equal to the limit specified in the COLR

LCO 3.4.1 a b. Pressurizer Pressure is greater than or equal to the limit specified in the COLR*, and

LCO 3.4.1 c c. Reactor Coolant System Flow ≥ 270,000 gpm

Applicability APPLICABILITY: MODE 1.

ACTION:

ACTION A ACTION B With any of the above parameters exceeding its limit, restore the parameter to within its limit within 2 hours or reduce THERMAL POWER to less then 5% or equal to of RATED THERMAL POWER within the next ~~4~~ 6 hours. A02 L01

SURVEILLANCE REQUIREMENTS

SR 3.4.1.1, SR 3.4.1.2 4.2.5.1 Reactor Coolant System T_{avg} and Pressurizer Pressure shall be verified to be within their limits in accordance with the Surveillance Frequency Control Program

SR 3.4.1.3 4.2.5.2 RCS flow rate shall be monitored for degradation in accordance with the Surveillance Frequency Control Program.

~~4.2.5.3 The RCS flow rate indicators shall be subjected to a CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program.~~ LA01

A01 M01 SR NOTE

SR 3.4.1.4 4.2.5.4 ~~After each fuel loading, and~~ in accordance with the Surveillance Frequency Control Program, the RCS flow rate shall be determined by precision heat balance ~~after exceeding 90% RATED THERMAL POWER~~. ~~The measurement instrumentation shall be calibrated within 90 days prior to the performance of the calorimetric flow measurement.~~ ~~The provisions of 4.0.4 are not applicable for performing the precision heat balance flow measurement.~~ LA02 A03

Applicability Note * Limit not applicable during either a THERMAL POWER ramp in excess of 5% of RATED THERMAL POWER per minute or a THERMAL POWER step in excess of 10% of RATED THERMAL POWER. A01

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.2.5 ACTION requires the unit to reduce THERMAL POWER to "less than" 5% of RATED THERMAL POWER within the next 4 hours if the Departure from Nucleate Boiling (DNB) parameters are not restored to within limit in 2 hours. ITS 3.4.1 ACTION B requires the power reduction to "less than or equal to" 5% RATED THERMAL POWER (RTP) (MODE 2) within the next 6 hours if the DNB parameters are not restored to within limit in 2 hours. This changes the CTS by allowing the unit to be at 5% RTP instead of < 5% RTP. The change in the time period to reach 5% RTP is discussed in DOC L01.

This change is acceptable because it results in no technical change to the Technical Specifications. CTS 3.2.5 is applicable in MODE 1, which is greater than 5% RTP. CTS 3.0.1 states that compliance with the Limiting Condition for Operation (LCO) is required during the MODES or other conditions specified within the Specification, except that upon failure to meet the LCO, the associated ACTION requirements shall be met. Therefore, the CTS 3.2.5 ACTION to be less than 5% RTP is no longer applicable once the unit enters MODE 2, i.e., at 5% RTP, and the ACTION is exited. As a result, changing the ACTION to "be in MODE 2" results in no operational difference from the CTS Action. This change is designated as administrative as it results in no technical change to the CTS.

A03 CTS 4.2.5.4 requires a precision heat balance to determine Reactor Coolant System (RCS) flow rate following each fuel loading after exceeding 90% RTP and states "The provisions of 4.0.4 are not applicable for performing the precision heat balance flow measurement." ITS Surveillance Requirement (SR) 3.4.1.4 does not contain this statement. However, ITS SR 3.4.1.4 contains a Note that states, "Not required to be performed until 24 hours after ≥ 90% RTP." This changes the CTS by not adding the CTS 4.0.4 exception.

The CTS 4.0.4 exception allows entry into MODE 1 to perform CTS Surveillance 4.2.5.4 after exceeding 90% RTP. This exception is not required in ITS SR 3.4.1.4 because the SR Note in the ITS allows entry into MODE 1. This change is designated as administrative as it results in no technical change to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 4.2.5.4 states "…RCS flow rate shall be determined by precision heat balance after exceeding 90% RATED THERMAL POWER." ITS SR 3.4.1.4 provides a note stating "Not required to be performed until 24 hours after ≥ 90% RTP." This changes the CTS by requiring performance of a precision heat balance to determine RCS flow rate 24 hours after reaching 90% RTP.

The purpose of CTS 4.2.5.4 is to determine the RCS flow rate after each fuel loading in accordance with the Surveillance Frequency Control Program (SFCP) after exceeding 90% RTP. The CTS does not prescribe a time after reaching 90% to perform the Surveillance. ITS SR 3.4.1.4 requires performance after 24 hours after ≥ 90% RTP. This requirement is designated as More Restrictive because a time limit to perform the SR is being prescribed.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS Requirement to the TRM, UFSAR, ODCM, NQAP, CLRT Program, IST Program, or ISI Program)* CTS 4.2.5.3 requires that the indicators which are used to determine RCS flow rate be subjected to a CHANNEL CALIBRATION at least once per 18 months. ITS 3.4.1 does not include this surveillance requirement. This changes the CTS by relocating the SR to the Technical Requirements Manual (TRM).

The removal of requirements for indication-only instrumentation and alarms 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 RCS flow rate indicators are not required to be OPERABLE to determine whether the RCS total flow rate is within limit. The requirement to determine RCS total flow rate remains in the ITS. In addition, the majority of the instrumentation (e.g., sensor) remains in the ITS as part of ITS 3.3.1 (Table 3.3.1-1 Function 10). Also, this change is acceptable because the removed information will be adequately controlled in the TRM. Changes to the TRM are made under 10 CFR 50.59, thereby ensuring changes are properly evaluated. This change is designated as a less restrictive removal of detail change because performance requirements for indication-only instrumentation is being removed from the Technical Specifications.

LA02 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.2.5.4 states "…the RCS flow rate shall be determined by precision heat balance… The measurement instrumentation shall be calibrated within 90 days prior to the performance of the calorimetric flow measurement." ITS 3.2.5 does not have this information. This changes the CTS by not including the stated details.

The removal of these details for performing SRs 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 RCS flow rate determination requirement that continues to assure protection of public health and safety. Also, this change is acceptable because these types of procedural details 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 procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 3 – Relaxation of Completion Time)* CTS 3.2.5 ACTION requires THERMAL POWER to be reduced to less than 5% of RTP within the next 4 hours if the DNB parameters are not restored to within limit in 2 hours. ITS 3.4.1 ACTION B requires the power reduction to less than or equal to 5% RTP (MODE 2) within the next 6 hours if the DNB parameters are not restored to within limit in 2 hours. This changes the CTS by extending the time for the unit to be placed outside the MODE of Applicability. The change that allows the THERMAL POWER reduction to be only to 5% RTP is discussed in DOC A02.

The purpose of the CTS 3.2.5 ACTION is to limit the time the unit can be outside the DNB parameter limits and remain within the Applicability of the Specification. 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 Design Basis Accident (DBA) occurring during the allowed Completion Time. The change extends the time the unit is allowed to be outside the DNB parameter limits and be in the Applicability of the Specification. The time extension is from 4 hours to 6 hours. 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.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

LCO 3.2.5 LCO 3.4.1 RCS DNB parameters for pressurizer pressure, RCS average temperature, and RCS total flow rate shall be within the limits specified below:

LCO 3.2.5 b a. Pressurizer pressure is greater than or equal to the limit specified in the COLR~~,~~ ; 1

LCO 3.2.5 a b. RCS average temperature is less than or equal to the limit specified in the COLR~~,~~ ; and 1

LCO 3.2.5 c c. RCS total flow rate ≥ ~~[284,000]~~ 270,000 gpm and greater than or equal to the limit specified in the COLR. 2

Applicability APPLICABILITY: MODE 1.

---NOTE---
Pressurizer pressure limit does not apply during:

a. THERMAL POWER ramp > 5% RTP per minute ; or

b. THERMAL POWER step > 10% RTP.

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION	A. One or more RCS DNB parameters not within limits.	A.1 Restore RCS DNB parameter(s) to within limit.	2 hours
ACTION	B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
4.2.5.1	SR 3.4.1.1	Verify pressurizer pressure is greater than or equal to the limit specified in the COLR.	[~~12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]	2
4.2.5.1	SR 3.4.1.2	Verify RCS average temperature is less than or equal to the limit specified in the COLR.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]	2
4.2.5.2	SR 3.4.1.3	Verify RCS total flow rate is ≥ ~~[284,000]~~ 270,000 gpm and greater than or equal to the limit specified in the COLR.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]	2 2

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY
4.2.5.2	SR 3.4.1.4	-------------------------------NOTE------------------------------ Not required to be performed until 24 hours after ≥ ~~[~~90~~]~~% RTP. --- Verify by precision heat balance that RCS total flow rate is ≥ ~~[284,000]~~ 270,000 gpm and greater than or equal to the limit specified in the COLR.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

2

2

2

3

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.1, RCS PRESSURE, TEMPERATURE, AND FLOW DNB LIMITS

1. The punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

2. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. 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.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

BASES

BACKGROUND

These Bases address requirements for maintaining RCS pressure, temperature, and flow rate within limits assumed in the safety analyses. The safety analyses (Ref. 1) of normal operating conditions and anticipated operational occurrences assume initial conditions within the normal steady state envelope. The limits placed on RCS pressure, temperature, and flow rate ensure that the minimum departure from nucleate boiling ratio (DNBR) will be met for each of the transients analyzed.

The RCS pressure limit is consistent with operation within the nominal operational envelope. Pressurizer pressure indications are averaged to come up with a value for comparison to the limit. A lower pressure will cause the reactor core to approach DNB limits.

The RCS coolant average temperature limit is consistent with full power operation within the nominal operational envelope. Indications of temperature are averaged to determine a value for comparison to the limit. A higher average temperature will cause the core to approach DNB limits.

The RCS flow rate normally remains constant during an operational fuel cycle with all pumps running. The minimum RCS flow limit corresponds to that assumed for DNB analyses. Flow rate indications are averaged to come up with a value for comparison to the limit. A lower RCS flow will cause the core to approach DNB limits.

Operation for significant periods of time outside these DNB limits increases the likelihood of a fuel cladding failure in a DNB limited event.

APPLICABLE SAFETY ANALYSES

The requirements of this LCO represent the initial conditions for DNB limited transients analyzed in the plant safety analyses (Ref. 1). The safety analyses have shown that transients initiated from the limits of this LCO will result in meeting the DNBR criterion. This is the acceptance limit for the RCS DNB parameters. Changes to the unit that could impact these parameters must be assessed for their impact on the DNBR criteria. The transients analyzed for include loss of coolant flow events and dropped or ~~stuck~~ rod events. A key assumption for the analysis of these events is that the core power distribution is within the limits of LCO 3.1.6, "Control Bank Insertion Limits," LCO 3.2.3, "AXIAL FLUX DIFFERENCE (AFD)," and LCO 3.2.4, "QUADRANT POWER TILT RATIO (QPTR)."

misaligned 1

BASES

APPLICABLE SAFETY ANALYSES (continued)

The pressurizer pressure limit and RCS average temperature limit specified in the COLR correspond to the analytical limits used in the safety analyses, with allowance for measurement uncertainty.

The RCS DNB parameters satisfy Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

This LCO specifies limits on the monitored process variables - pressurizer pressure, RCS average temperature, and RCS total flow rate - to ensure the core operates within the limits assumed in the safety analyses. These variables (except for flow) are contained in the COLR to provide operating and analysis flexibility from cycle to cycle. However, the minimum RCS flow, usually based on ~~[~~maximum analyzed steam generator tube plugging~~]~~, is retained in the TS LCO. Operating within these limits will result in meeting the DNBR criterion in the event of a DNB limited transient. 1 2

RCS total flow rate contains a measurement error based on performing a precision heat balance and using the result to calibrate the RCS flow rate indicators. Potential fouling of the feedwater venturi, which might not be detected, could bias the result from the precision heat balance in a nonconservative manner. Therefore, a penalty for undetected fouling of the feedwater venturi raises the nominal flow measurement allowance for no fouling.

Any fouling that might bias the flow rate measurement greater than the penalty for undetected fouling of the feedwater venturi can be detected by monitoring and trending various plant performance parameters. If detected, either the effect of the fouling shall be quantified and compensated for in the RCS flow rate measurement or the venturi shall be cleaned to eliminate the fouling.

The numerical values for pressure, and, temperature~~, and flow rate~~ specified in the COLR are given for the measurement location and have been adjusted for instrument error. 1 3

APPLICABILITY

In MODE 1, the limits on pressurizer pressure, RCS coolant average temperature, and RCS flow rate must be maintained during steady state operation in order to ensure DNBR criteria will be met in the event of an unplanned loss of forced coolant flow or other DNB limited transient. In all other MODES, the power level is low enough that DNB is not a concern.

BASES

APPLICABILITY (continued)

A Note has been added to indicate the limit on pressurizer pressure is not applicable during short term operational transients such as a THERMAL POWER ramp increase > 5% RTP per minute or a THERMAL POWER step increase > 10% RTP. These conditions represent short term perturbations where actions to control pressure variations might be counterproductive. Also, since they represent transients initiated from power levels < 100% RTP, an increased DNBR margin exists to offset the temporary pressure variations.

The DNBR limit is provided in SL 2.1.1, "Reactor Core SLs." The conditions which define the DNBR limit are less restrictive than the limits of this LCO, but violation of a Safety Limit (SL) merits a stricter, more severe Required Action. Should a violation of this LCO occur, the operator must check whether or not an SL may have been exceeded.

ACTIONS

A.1

RCS pressure and RCS average temperature are controllable and measurable parameters. With one or both of these parameters not within LCO limits, action must be taken to restore parameter(s).

RCS total flow rate is not a controllable parameter and is not expected to vary during steady state operation. If the indicated RCS total flow rate is below the LCO limit, power must be reduced, as required by Required Action B.1, to restore DNB margin and eliminate the potential for violation of the accident analysis bounds.

The 2 hour Completion Time for restoration of the parameters provides sufficient time to adjust plant parameters, to determine the cause for the off normal condition, and to restore the readings within limits, and is based on plant operating experience.

B.1

If Required Action A.1 is not met within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 2 within 6 hours. In MODE 2, the reduced power condition eliminates the potential for violation of the accident analysis bounds. The Completion Time of 6 hours is reasonable to reach the required plant conditions in an orderly manner.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.1.1

~~[Since Required Action A.1 allows a Completion Time of 2 hours to restore parameters that are not within limits, the 12 hour Surveillance Frequency for pressurizer pressure is sufficient to ensure the pressure can be restored to a normal operation, steady state condition following load changes and other expected transient operations. The 12 hour interval has been shown by operating practice to be sufficient to regularly assess for potential degradation and to verify operation is within safety analysis assumptions.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 5
~~---]~~

SR 3.4.1.2

~~[Since Required Action A.1 allows a Completion Time of 2 hours to restore parameters that are not within limits, the 12 hour Surveillance Frequency for RCS average temperature is sufficient to ensure the temperature can be restored to a normal operation, steady state condition following load changes and other expected transient operations. The 12 hour interval has been shown by operating practice to be sufficient to regularly assess for potential degradation and to verify operation is within safety analysis assumptions.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 5
~~---]~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.1.3

~~[The 12 hour Surveillance Frequency for RCS total flow rate is performed using the installed flow instrumentation. The 12 hour interval has been shown by operating practice to be sufficient to regularly assess potential degradation and to verify operation within safety analysis assumptions.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 5
~~--]~~

SR 3.4.1.4

Measurement of RCS total flow rate by performance of a precision calorimetric heat balance allows the installed RCS flow instrumentation to be calibrated and verifies the actual RCS flow rate is greater than or equal to the minimum required RCS flow rate.

~~[The Frequency of [18] months reflects the importance of verifying flow after a refueling outage when the core has been altered, which may have caused an alteration of flow resistance.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 5
~~--]~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

This SR is modified by a Note that allows entry into MODE 1, without having performed the SR, and placement of the unit in the best condition for performing the SR. The Note states that the SR is not required to be performed until 24 hours after ≥ ~~[~~90%~~]~~ RTP. This exception is appropriate since the heat balance requires the plant to be at a minimum of ~~[~~90%~~]~~ RTP to obtain the stated RCS flow accuracies. The Surveillance shall be performed within 24 hours after reaching ~~[~~90%~~]~~ RTP. 2 2

REFERENCES

1. U FSAR, ~~Section [15]~~ Chapter 14. 1 2

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.1 Bases, RCS PRESSURE, TEMPERATURE, AND FLOW DNB LIMITS

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

2. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. Changes have been made to be consistent with changes made to the Specifications

4. Editorial/grammatical error corrected.

5. The Reviewer's Note has been deleted, because it is not meant to be retained in the plant specific Improved Technical Specifications (ITS) submittal.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.1, RCS PRESSURE, TEMPERATURE, AND FLOW DEPARTURE FROM NUCLEATE BOILING (DNB) LIMITS

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 2

ITS 3.4.2 – RCS MINIMUM TEMPERATURE FOR CRITICALITY

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

REACTIVITY CONTROL SYSTEMS

MINIMUM TEMPERATURE FOR CRITICALITY

LIMITING CONDITION FOR OPERATION

LCO 3.4.2 3.1.1.4 The Reactor Coolant System lowest operating loop temperature (T_{avg}) shall be greater than or equal to 541°F.

Applicability APPLICABILITY: MODES 1 and 2* ~~**~~. A02

ACTION:

ACTION A With a Reactor Coolant System operating loop temperature (T_{avg}) less than 541°F, ~~restore T_{avg} to within its limit within 15 minutes or~~ be in ~~HOT STANDBY~~ MODE 2 with k_{eff} < 1.0 within the next ~~15~~ 30 minutes. A03 A04

SURVEILLANCE REQUIREMENTS

SR 3.4.2.1 4.1.1.4 The Reactor Coolant System temperature (T_{avg}) shall be determined to be greater than or equal to 541°F:

~~a. Within 15 minutes prior to achieving reactor criticality, and~~

~~b. At least once per 30 minutes when the reactor is critical and the Reactor Coolant System T_{avg} is less than 547°F with the T_{avg} – T_{ref} Deviation Alarm not reset.~~ In accordance with the Surveillance Frequency Control Program L01

Applicability * With K_{eff} greater than or equal to 1.

~~** See Special Test Exceptions Specification 3.10.3.~~ A02

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 The Applicability of CTS 3.1.1.4 is modified by Footnote **, which states "See Special Test Exception 3.10.3." The ITS 3.4.2 Applicability does not contain the footnote or a reference to the Special Test Exception.

The purpose of the footnote reference is to alert the user that a Special Test Exception exists that may modify the Applicability of the Specification. It is an ITS convention to not include these types of footnotes or cross-references. This change is designated as administrative because it does not result in technical changes to the CTS.

A03 CTS 3.1.1.4 ACTION states, in part, "restore Tavg to within its limit within 15 minutes or be in HOT STANDBY within the next 15 minutes," when the RCS loop average temperature is not within limit. ITS 3.4.2 requires the unit to be in MODE 2 with $k_{eff} < 1.0$ within 30 minutes. This changes the CTS by eliminating the requirement to restore T_{avg} within 15 minutes, but retains the overall time limit of 30 minutes to be outside the mode of applicability. The change from HOT STANDBY to MODE 2 with $k_{eff} < 1.0$ is discussed in DOC A04.

The purpose of CTS 3.1.1.4 ACTION is to restore the Reactor Coolant System (RCS) lowest operating loop temperature (T_{avg}). ITS 3.4.2 deletes the option to restore in 15 minutes because the option to restore always exists. The 30-minute time requirement is unchanged because the CTS also requires 30 minutes, 15 minutes to restore plus 15 minutes to be in Mode 3. This change is acceptable because the time to reach the end state is unchanged. This change is designated as administrative, as it results in no technical change to the CTS.

A04 CTS 3.1.1.4 ACTION states that with an RCS operating loop temperature (T_{avg}) < 541 °F, restore Tavg to within its limit within 15 minutes or "be in HOT STANDBY within the next 15 minutes." ITS 3.4.2, ACTION A, states that with T_{avg} in one or more RCS loops not within limit, be in MODE 2 with $k_{eff} < 1.0$ within 30 minutes. This changes the CTS from requiring entry into HOT STANDBY to requiring entry into MODE 2 with $k_{eff} < 1.0$. Other changes to this CTS Action are discussed in DOC L01.

This change is acceptable because it results in no technical change to the Technical Specifications. CTS 3.1.1.4 is applicable in MODE 1 and MODE 2 with $k_{eff} \geq 1.0$. CTS 3.0.1 states that compliance with the Limiting Condition for Operation (LCO) is required during the MODES or other conditions specified therein, except that upon failure to meet the LCO, the associated Action requirements shall be met. Therefore, the CTS 3.1.1.4 ACTION to enter MODE 3 ceases to be applicable once the unit enters MODE 2 with $k_{eff} < 1.0$, and the Action is exited. As a result, changing the Action to "be in MODE 2 with $k_{eff} < 1.0$," results in no operational difference from the CTS Action. This change is designated as administrative, as it results in no technical change to the CTS.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

L01 *(Category 7 – Relaxation of Surveillance Frequency)* CTS 4.1.1.4 states that the RCS T_{avg} shall be determined to be ≥ 541 °F within 15 minutes prior to achieving reactor criticality, and every 30 minutes when the reactor is critical, RCS T_{avg} is less than 547°F, and the T_{avg} - T_{ref} deviation alarm is not reset. ITS Surveillance Requirement (SR) 3.4.2.1 requires RCS T_{avg} in each loop to be verified ≥ 541 °F "In accordance with the Surveillance Frequency Control Program." This changes the CTS by replacing the requirements for verifying RCS T_{avg} within limits 15 minutes prior to achieving criticality and every 30 minutes when the reactor is critical with "In accordance with the Surveillance Frequency Control Program" (the Frequency in the SFCP is 12 hours).

The purpose of CTS 4.1.1.4 is to ensure RCS T_{avg} is within limit when the reactor is critical. The requirement is that RCS T_{avg} be ≥ 541 °F when the unit is operating in MODE 1 and MODE 2 with $k_{eff} \geq 1.0$. Based on ITS SR 3.0.4, this would require the SR to be met within 12 hours prior to entry into MODE 2 with $k_{eff} \geq 1.0$ or before the reactor is critical. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of assurance. The 12*hour Frequency is sufficient to prevent an inadvertent violation of the LCO. In the approach to criticality, the reactor coolant pumps are adding heat to the RCS, so the conditions before and after criticality are similar. The approach to criticality is a carefully controlled evolution where RCS temperature is closely monitored. Therefore, 12 hours is sufficient for the Technical Specifications to require recording of T_{avg} prior to criticality, given that it is being carefully monitored. The inoperability of an alarm or with an alarm not reset does not increase the probability of RCS temperature (T_{avg}) being outside its limit. The alarms are for indication only and are not credited in any safety analyses. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 RCS Minimum Temperature for Criticality

LCO 3.1.1.4 LCO 3.4.2 Each RCS loop average temperature (T_{avg}) shall be ≥ [541]°F. 2

Applicability, Note * APPLICABILITY: MODE 1,
MODE 2 with k_{eff} ≥ 1.0.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_{avg} in one or more RCS loops not within limit.	A.1 Be in MODE 2 with K_{eff} < 1.0.	30 minutes

ACTION 3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_{avg} in each loop ≥ [541]°F.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]

4.1.1.4 2 2

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.2, RCS MINIMUM TEMPERATURE FOR CRITICALITY

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

2. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. Editorial/grammatical error corrected.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.2 RCS Minimum Temperature for Criticality

BASES

BACKGROUND

This LCO is based upon meeting several major considerations before the reactor can be made critical and while the reactor is critical.

The first consideration is moderator temperature coefficient (MTC), LCO 3.1.3, "Moderator Temperature Coefficient (MTC)." In the transient and accident analyses, the MTC is assumed to be in a range from slightly positive to negative and the operating temperature is assumed to be within the nominal operating envelope while the reactor is critical. The LCO on minimum temperature for criticality helps ensure the plant is operated consistent with these assumptions.

The second consideration is the protective instrumentation. Because certain protective instrumentation (e.g., excore neutron detectors) can be affected by moderator temperature, a temperature value within the nominal operating envelope is chosen to ensure proper indication and response while the reactor is critical.

The third consideration is the pressurizer operating characteristics. The transient and accident analyses assume that the pressurizer is within its normal startup and operating range (i.e., saturated conditions and steam bubble present). It is also assumed that the RCS temperature is within its normal expected range for startup and power operation. Since the density of the water, and hence the response of the pressurizer to transients, depends upon the initial temperature of the moderator, a minimum value for moderator temperature within the nominal operating envelope is chosen.

The fourth consideration is that the reactor vessel is above its minimum nil ductility reference temperature when the reactor is critical.

APPLICABLE SAFETY ANALYSES

Although the RCS minimum temperature for criticality is not itself an initial condition assumed in Design Basis Accidents (DBAs), the closely aligned temperature for hot zero power (HZP) is a process variable that is an initial condition of DBAs, such as the rod cluster control assembly (RCCA) withdrawal, RCCA ejection, and main steam line break accidents performed at zero power that either assumes the failure of, or presents a challenge to, the integrity of a fission product barrier.

BASES

APPLICABLE SAFETY ANALYSES (continued)

All low power safety analyses assume initial RCS loop temperatures ≥ the HZP temperature of 547°F (Ref. 1). The minimum temperature for criticality limitation provides a small band, 6°F, for critical operation below HZP. This band allows critical operation below HZP during plant startup and does not adversely affect any safety analyses since the MTC is not significantly affected by the small temperature difference between HZP and the minimum temperature for criticality.

The RCS minimum temperature for criticality satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

Compliance with the LCO ensures that the reactor will not be made or maintained critical (k_{eff} ≥ 1.0) at a temperature less than a small band below the HZP temperature, which is assumed in the safety analysis. Failure to meet the requirements of this LCO may produce initial conditions inconsistent with the initial conditions assumed in the safety analysis.

APPLICABILITY

In MODE 1 and MODE 2 with k_{eff} ≥ 1.0, LCO 3.4.2 is applicable since the reactor can only be critical (k_{eff} ≥ 1.0) in these MODES.

The special test exception of LCO 3.1.8, "PHYSICS TESTS Exceptions - MODE 2," permits PHYSICS TESTS to be performed at ≤ 5% RTP with RCS loop average temperatures slightly lower than normally allowed so that fundamental nuclear characteristics of the core can be verified. In order for nuclear characteristics to be accurately measured, it may be necessary to operate outside the normal restrictions of this LCO. For example, to measure the MTC at beginning of cycle, it is necessary to allow RCS loop average temperatures to fall below $T_{no\ load}$, which may cause RCS loop average temperatures to fall below the temperature limit of this LCO.

ACTIONS

A.1

If the parameters that are outside the limit cannot be restored, 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 MODE 2 with K_{eff} < 1.0 within 30 minutes. Rapid reactor shutdown can be readily and practically achieved within a 30 minute period. The allowed time is reasonable, based on operating experience, to reach MODE 2 with K_{eff} < 1.0 in an orderly manner and without challenging plant systems. 2 2

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.2.1

RCS loop average temperature is required to be verified at or above ~~[~~541~~]~~°F. ~~[The SR to verify RCS loop average temperatures every 12 hours takes into account indications and alarms that are continuously available to the operator in the control room and is consistent with other routine Surveillances which are typically performed once per shift. In addition, operators are trained to be sensitive to RCS temperature during approach to criticality and will ensure that the minimum temperature for criticality is met as criticality is approached.~~ 3

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~--]~~ 3

REFERENCES

1. U FSAR, ~~Section [15.0.3]~~ Chapter 14.1. 1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.2 BASES, RCS MINIMUM TEMPERATURE FOR CRITICALITY

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

2. Editorial/grammatical error corrected.

3. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

4. The Reviewer's Note has been deleted, because it is not meant to be retained in the plant specific Improved Technical Specifications (ITS) submittal.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.2, RCS MINIMUM TEMPERATURE FOR CRITICALITY

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 3

ITS 3.4.3 – RCS PRESSURE AND TEMPERATURE (P/T) LIMITS

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

REACTOR COOLANT SYSTEM

3/4.4.9 PRESSURE TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION

LCO 3.4.3 3.4.9.1 The Reactor Coolant System (except the pressurizer) temperature and pressure shall be limited in accordance with the limit lines shown on Figures 3.4-2 and 3.4-3 during heatup, cooldown, criticality, and inservice leak and hydrostatic testing with:

a. A maximum heatup of 100°F in any 1-hour period,

b. A maximum cooldown of 100°F in any 1-hour period, and

c. A maximum temperature change of less than or equal to 5°F in any 1-hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.

Applicability APPLICABILITY: At all times.

ACTION:

within 72 hours

M01

ACTION A With any of the above limits exceeded, restore the temperature and/or pressure to within the limit within 30 minutes; perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the RCS

ACTION B T_{avg} and pressure to less than 200°F and 500 psig, respectively, within the following 30 hours.

L01

Add proposed ACTION C

SURVEILLANCE REQUIREMENTS

SR 3.4.3.1 4.4.9.1.1 The Reactor Coolant System temperature and pressure shall be determined to be within the limits in accordance with the Surveillance Frequency Control Program during system heatup, cooldown, and inservice

SR 3.4.3.1 Note leak and hydrostatic testing operations.

~~4.4.9.1.2 The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, as required by 10 CFR Part 50, Appendix H. The results of these examinations shall be used to update Figures 3.4-2 and 3.4-3~~.

LA01

A01

MATERIAL PROPERTY BASIS

LIMITING MATERIALS: Intermediate/Lower Shell Circumferential Weld Seams Ht. # 71249 and Upper Shell Forging

LIMITING ART VALUES AT 48 EFPY: 1/4 T, 231°F (Circ Flaw ART), 141°F (Axial Flaw ART)
3/4 T, 192°F (Circ Flaw ART), 124°F (Axial Flaw ART)

FPL/FLA 48 EFPY HEATUP CURVES

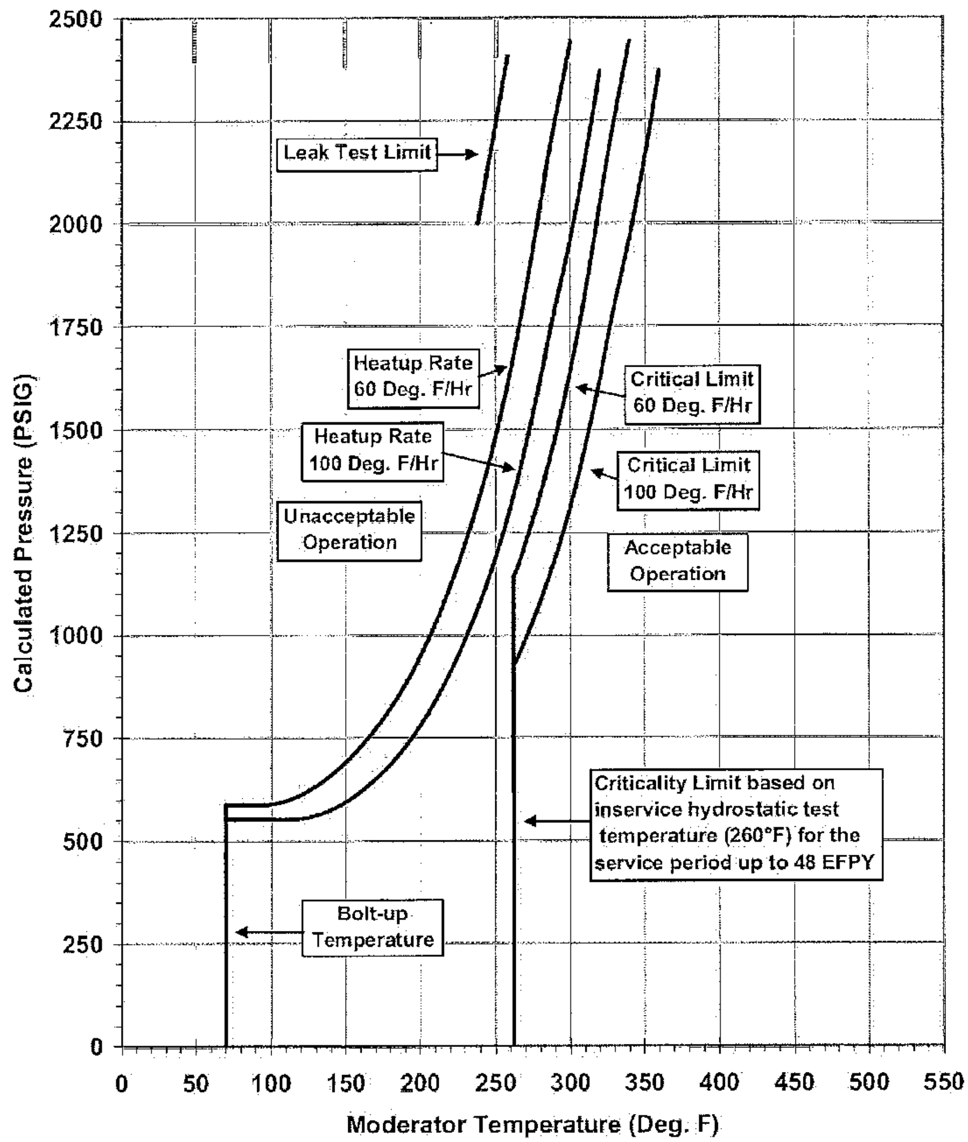

FIGURE 3.4-2 Turkey Point Units 3 & 4 Reactor Coolant System Heatup Limitations (Heatup Rates of 60 and 100°F/hr) Applicable for 48 EFPY (Without Margins for Instrumentation Errors)

A01

MATERIAL PROPERTY BASIS

LIMITING MATERIALS: Intermediate/Lower Shell Circumferential Weld Seams Ht. # 71249 and Upper Shell Forging

LIMITING ART VALUES AT 48 EFPY: 1/4 T, 231°F (Circ Flaw ART), 141°F (Axial Flaw ART)
3/4 T, 192°F (Circ Flaw ART), 124°F (Axial Flaw ART)

FPL 48 EFPY COOLDOWN CURVES

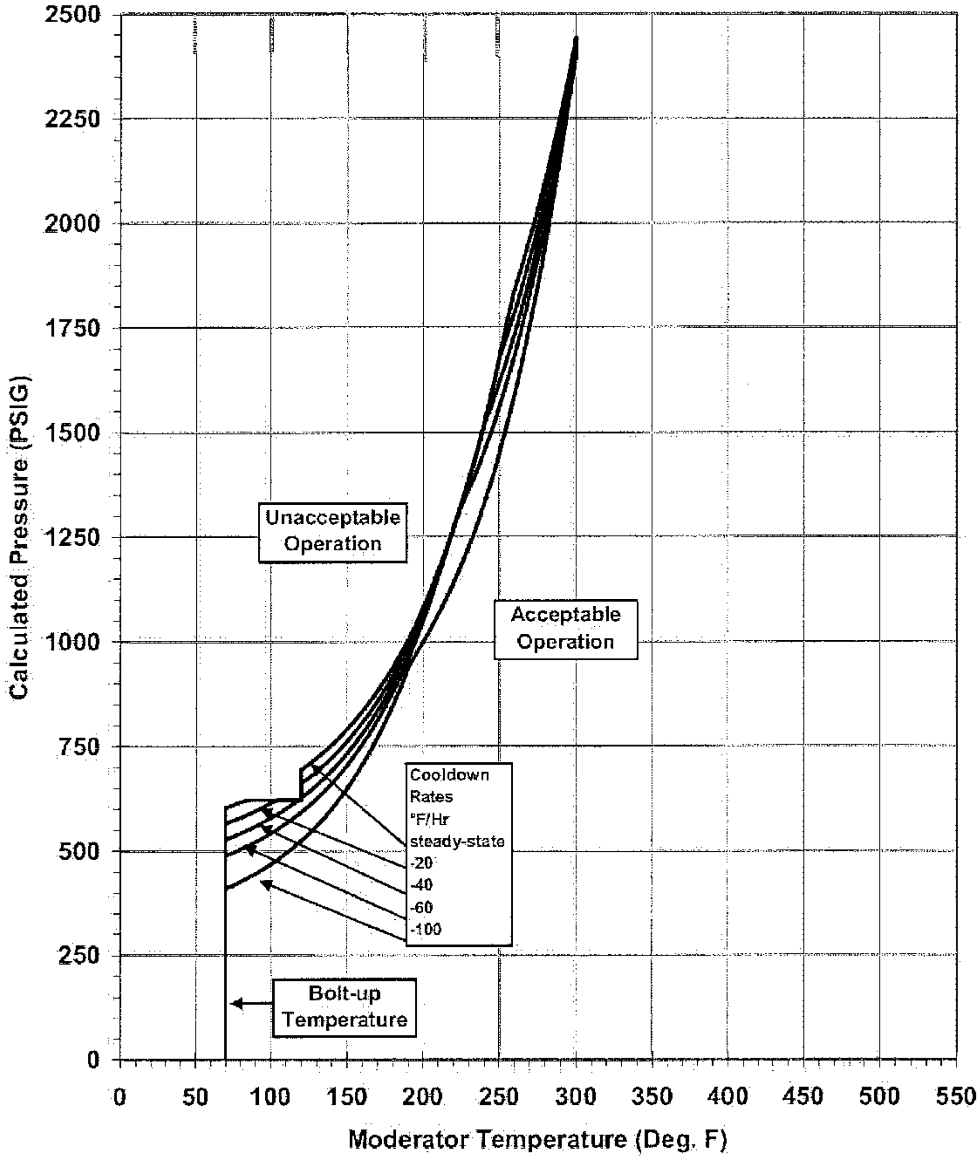

FIGURE 3.4-3 Turkey Point Units 3 & 4 Reactor Coolant System Cooldown Limitations (Cooldown Rates of 0, 20, 40, 60 and 100°F/hr) Applicable for 48 EFPY (Without Margins for Instrumentation Errors)

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications-Westinghouse Plants".

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 3.4.9.1 ACTION states, in part, to restore the temperature and/or pressure to within the limit within 30 minutes and "determine that the Reactor Coolant System (RCS) remains acceptable for continued operation" with no specified time. ITS 3.4.3 ACTION A.1 and A.2 state to "Restore parameter(s) to within limits within 30 minutes, and determine RCS is acceptable for continued operation within 72 hours." This changes the CTS by requiring with no specified time up to 72 hours for performing an engineering evaluation for continued operation.

The purpose of CTS 3.4.9.1 ACTION is to restore the temperature and/or pressure to within the limit and determine if the RCS is acceptable for continued operation. This change is acceptable because it is important to determine that the RCS remains acceptable for continued operation. This change is designated as more restrictive because the time to perform the evaluation is limited to 72 hours.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 4.4.9.1.2 states "The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, as required by 10 CFR Part 50, Appendix H. The results of these examinations shall be used to update Figures 3.4-2 and 3.4-3." ITS 3.4.3 does not contain this Surveillance Requirement (SR). This changes the CTS by moving this out of Technical Specifications.

The removal of these details for performing SRs 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. This change is acceptable because these types of procedural details will be adequately controlled in the Technical Requirements Manual (TRM). Changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive because the details of examining reactor vessel material irradiation surveillance specimens is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 3 – Relaxation of Completion Time)* CTS 3.4.9.1 Action requires restoration in 30 minutes if the LCO is not met. ITS 3.4.3 ACTION C.1 requires immediately initiating Action to restore. This changes the CTS by not providing a limit on when restoration has to be completed. ITS 3.4.3 ACTION C.2 requires evaluation of the RCS to be acceptable for continued operation prior to operation above MODE 4. The CTS requires evaluation for continued operation above MODE 5 with RCS T_{avg} greater or equal to 200 °F and pressure greater than or equal to 500 psig. This changes the CTS by allowing operation throughout MODE 5.

The purpose of ITS 3.4.3 ACTION C is to address the requirements of the LCO not met any time in other than MODE 1, 2, 3, or 4. This change is acceptable because the requirement to immediately initiate action to restore will ensure the reactor coolant pressure boundary (RCPB) is returned to a condition that has been verified by stress analysis. In addition, the requirement to complete the evaluation for continued operation prior to entering MODE 4 will continue to ensure the RCPB integrity remains acceptable. This change is acceptable because of the low probability of a Design Basis Accident (DBA) occurring this period. ITS 3.4.3 ACTION C.1 changes the CTS by not providing a limit on when restoration has to be completed. ITS 3.4.3 ACTION C.2 changes the CTS by allowing operation throughout MODE 5. 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.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 RCS Pressure and Temperature (P/T) Limits

3.4.9.1 LCO 3.4.3 RCS pressure, RCS temperature, and RCS heatup and cooldown rates shall be ~~maintained within the limits specified in the PTLR.~~

INSERT 1

4

Applicability APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ------------NOTE------------ Required Action A.2 shall be completed whenever this Condition is entered. -------------------------------- ACTION a 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
ACTION b 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
C. ------------NOTE------------ Required Action C.2 shall be completed whenever this Condition is entered. -------------------------------- ACTION b Requirements of LCO not met any time in other than MODE 1, 2, 3, or 4.	C.1 Initiate action to restore parameter(s) to within limits. AND C.2 Determine RCS is acceptable for continued operation.	Immediately Prior to entering MODE 4

2

3

INSERT 1

limited in accordance with the limit lines shown on Figures 3.4.3-1 and 3.4.3-2 during heatup, cooldown, criticality, and inservice leak and hydrostatic testing with:

a. A maximum heatup of 100 °F in any 1 hour period;

b. A maximum cooldown of 100 °F in any 1 hour period;

c. A maximum temperature change of 5 °F in any 1-hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
4.4.9.1.1 SR 3.4.3.1	------------------------------NOTE----------------------------- Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. --- Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates are within ~~the~~ limits ~~specified in the PTLR~~.	~~[30 minutes~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

3

2

INSERT 2

3

1

3

INSERT 2

MATERIAL PROPERTY BASIS

LIMITING MATERIALS: Intermediate/Lower Shell Circumferential Weld Seams Ht. # 71249 and Upper Shell Forging

LIMITING ART VALUES AT 48 EFPY: 1/4 T, 231°F (Circ Flaw ART), 141°F (Axial Flaw ART)

3/4 T, 192°F (Circ Flaw ART), 124°F (Axial Flaw ART)

FPL/FLA 48 EFPY HEATUP CURVES

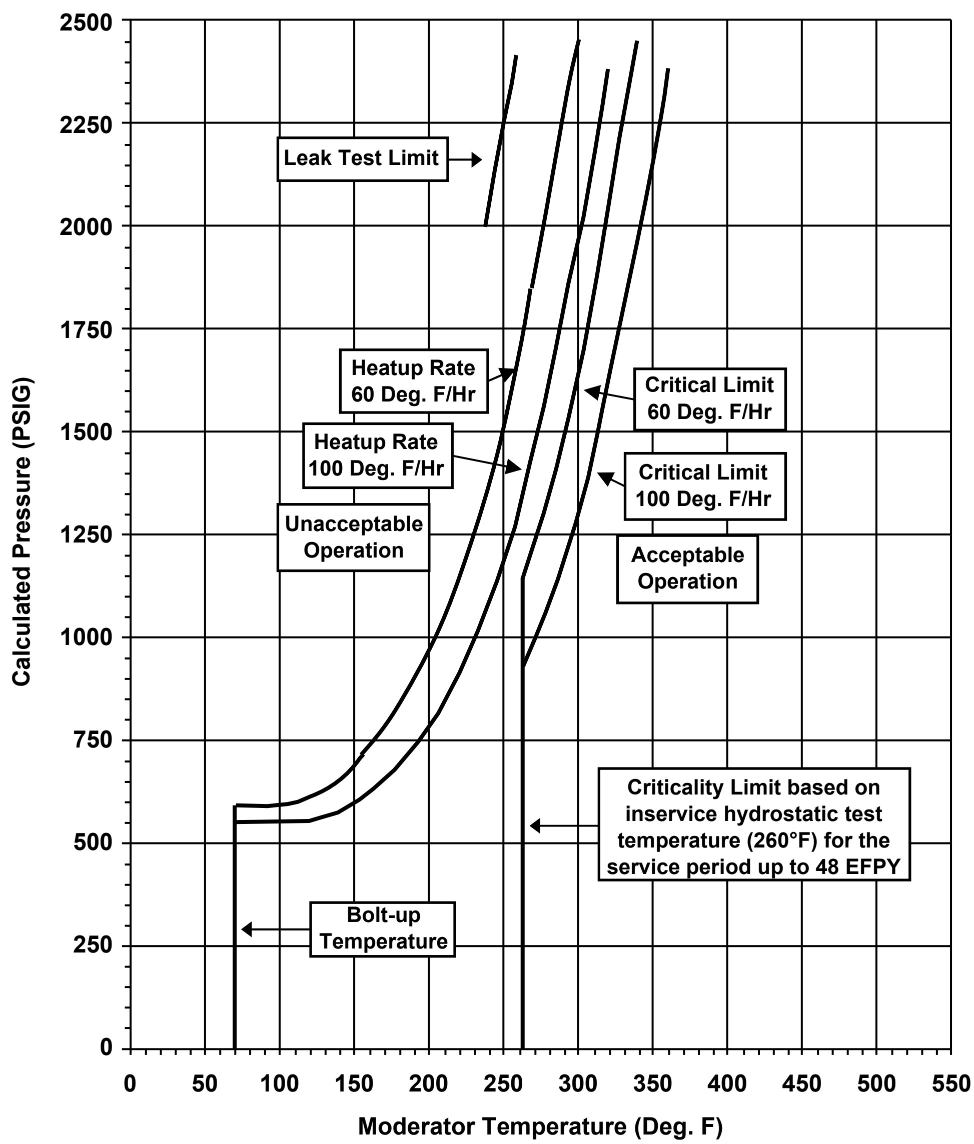

FIGURE ~~3.4-2~~ 3.4.3-1 Turkey Point Units 3 & 4 Reactor Coolant System Heatup Limitations (Heatup Rates of 60 and 100°F/hr) Applicable for 48 EFPY (Without Margins for Instrumentation Errors)

3

INSERT 2 (Continue)

MATERIAL PROPERTY BASIS

LIMITING MATERIALS: Intermediate/Lower Shell Circumferential Weld Seams Ht. # 71249 and Upper Shell Forging

LIMITING ART VALUES AT 48 EFPY: 1/4 T, 231°F (Circ Flaw ART), 141°F (Axial Flaw ART)

3/4 T, 192°F (Circ Flaw ART), 124°F (Axial Flaw ART)

FPL 48 EFPY COOLDOWN CURVES

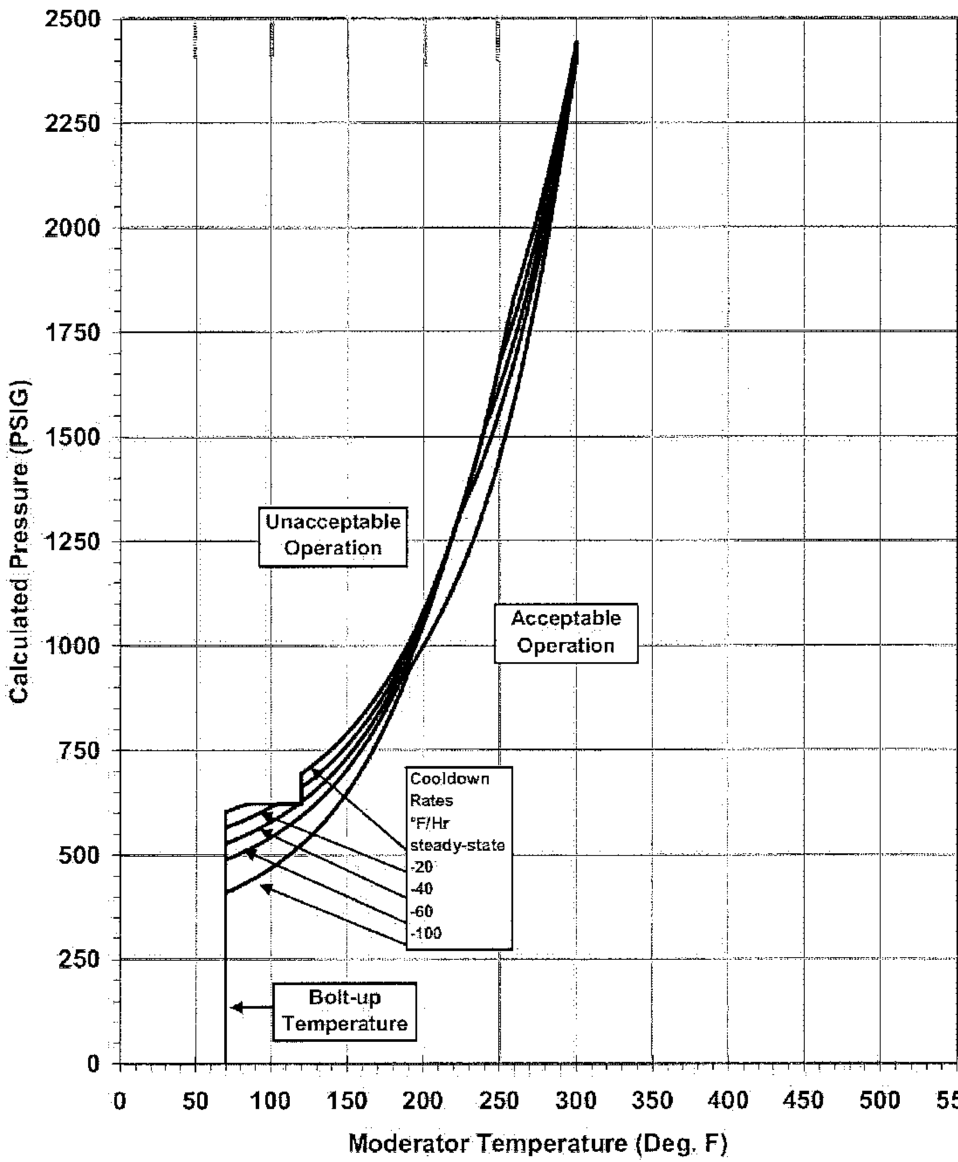

FIGURE ~~3.4-3~~ 3.4.3-2 Turkey Point Units 3 & 4 Reactor Coolant System Cooldown Limitations (Cooldown Rates of 0, 20, 40, 60 and 100°F/hr) Applicable for 48 EFPY (Without Margins for Instrumentation Errors)

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.3, RCS PRESSURE AND TEMPERATURE (P/T) LIMITS

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

2. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. Changes are made to reflect the current licensing basis.

4. Turkey Point is not adopting a Pressure Temperature Limits Report (PTLR); therefore, the existing Pressure/Temperature Limit curves are being retained in Technical Specifications.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.3 RCS Pressure and Temperature (P/T) Limits

BASES

BACKGROUND

All components of the RCS are designed to withstand effects of cyclic loads due to system pressure and temperature changes. These loads are introduced by startup (heatup) and shutdown (cooldown) operations, power transients, and reactor trips. This LCO limits the pressure and temperature changes during RCS heatup and cooldown, within the design assumptions and the stress limits for cyclic operation.

LCO Figures 3.4.3-1 and 3.4.3-2 contain the

~~The PTLR contains~~ P/T limit curves for heatup, cooldown, inservice leak and hydrostatic (ISLH) testing, and data for the maximum rate of change of reactor coolant temperature (Ref. 1). 2

Each P/T limit curve defines an acceptable region for normal operation. The usual use of the curves is operational guidance during heatup or cooldown maneuvering, when pressure and temperature indications are monitored and compared to the applicable curve to determine that operation is within the allowable region.

The LCO establishes operating limits that provide a margin to brittle failure of the reactor vessel and piping of the reactor coolant pressure boundary (RCPB). The vessel is the component most subject to brittle failure, and the LCO limits apply mainly to the vessel. The limits do not apply to the pressurizer, which has different design characteristics and operating functions.

10 CFR 50, Appendix G (Ref. 2), requires the establishment of P/T limits for specific material fracture toughness requirements of the RCPB materials. Reference 2 requires an adequate margin to brittle failure during normal operation, anticipated operational occurrences, and system hydrostatic tests. It mandates the use of the American Society of Mechanical Engineers (ASME) Code, Section III, Appendix G (Ref. 3).

The neutron embrittlement effect on the material toughness is reflected by increasing the nil ductility reference temperature (RT_{NDT}) as exposure to neutron fluence increases.

The actual shift in the RT_{NDT} of the vessel material will be established periodically by removing and evaluating the irradiated reactor vessel material specimens, in accordance with ASTM E 185 (Ref. 4) and Appendix H of 10 CFR 50 (Ref. 5). The operating P/T limit curves will be adjusted, as necessary, based on the evaluation findings and the recommendations of Regulatory Guide 1.99 (Ref. 6).

BASES

BACKGROUND (continued)

The P/T limit curves are composite curves established by superimposing limits derived from stress analyses of those portions of the reactor vessel and head that are the most restrictive. At any specific pressure, temperature, and temperature rate of change, one location within the reactor vessel will dictate the most restrictive limit. Across the span of the P/T limit curves, different locations are more restrictive, and, thus, the curves are composites of the most restrictive regions.

The heatup curve represents a different set of restrictions than the cooldown curve because the directions of the thermal gradients through the vessel wall are reversed. The thermal gradient reversal alters the location of the tensile stress between the outer and inner walls.

The criticality limit curve includes the Reference 2 requirement that it be ≥ 40°F above the heatup curve or the cooldown curve, and not less than the minimum permissible temperature for ISLH testing. However, the criticality curve is not operationally limiting; a more restrictive limit exists in LCO 3.4.2, "RCS Minimum Temperature for Criticality."

The consequence of violating the LCO limits is that the RCS has been operated under conditions that can result in brittle failure of the RCPB, possibly leading to a nonisolable leak or loss of coolant accident. In the event these limits are exceeded, an evaluation must be performed to determine the effect on the structural integrity of the RCPB components. The ASME Code, Section XI, Appendix E (Ref. 7), provides a recommended methodology for evaluating an operating event that causes an excursion outside the limits.

APPLICABLE SAFETY ANALYSES

The P/T limits are not derived from Design Basis Accident (DBA) analyses. They are prescribed during normal operation to avoid encountering pressure, temperature, and temperature rate of change conditions that might cause undetected flaws to propagate and cause nonductile failure of the RCPB, an unanalyzed condition. Reference 1 establishes the methodology for determining the P/T limits. Although the P/T limits are not derived from any DBA, the P/T limits are acceptance limits since they preclude operation in an unanalyzed condition.

RCS P/T limits satisfy Criterion 2 of 10 CFR 50.36(c)(2)(ii).

BASES

LCO

The two elements of this LCO are:

a. The limit curves for heatup, cooldown, and ISLH testing and

b. Limits on the rate of change of temperature.

The LCO limits apply to all components of the RCS, except the pressurizer. These limits define allowable operating regions and permit a large number of operating cycles while providing a wide margin to nonductile failure.

The limits for the rate of change of temperature control the thermal gradient through the vessel wall and are used as inputs for calculating the heatup, cooldown, and ISLH testing P/T limit curves. Thus, the LCO for the rate of change of temperature restricts stresses caused by thermal gradients and also ensures the validity of the P/T limit curves.

Violating the LCO limits places the reactor vessel outside of the bounds of the stress analyses and can increase stresses in other RCPB components. The consequences depend on several factors, as follow:

a. The severity of the departure from the allowable operating P/T regime or the severity of the rate of change of temperature,

b. The length of time the limits were violated (longer violations allow the temperature gradient in the thick vessel walls to become more pronounced), and

c. The existences, sizes, and orientations of flaws in the vessel material.

APPLICABILITY

The RCS P/T limits LCO provides a definition of acceptable operation for prevention of nonductile failure in accordance with 10 CFR 50, Appendix G (Ref. 2). Although the P/T limits were developed to provide guidance for operation during heatup or cooldown (MODES 3, 4, and 5) or ISLH testing, their Applicability is at all times in keeping with the concern for nonductile failure. The limits do not apply to the pressurizer.

During MODES 1 and 2, other Technical Specifications provide limits for operation that can be more restrictive than or can supplement these P/T limits. LCO 3.4.1, "RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits," LCO 3.4.2, "RCS Minimum Temperature for Criticality," and Safety Limit 2.1, "Safety Limits," also provide operational restrictions for pressure and temperature and

BASES

APPLICABILITY (continued)

maximum pressure. Furthermore, MODES 1 and 2 are above the temperature range of concern for nonductile failure, and stress analyses have been performed for normal maneuvering profiles, such as power ascension or descent.

ACTIONS

A.1 and A.2

Operation outside the P/T limits during MODE 1, 2, 3, or 4 must be corrected so that the RCPB is returned to a condition that has been verified by stress analyses.

The 30 minute Completion Time reflects the urgency of restoring the parameters to within the analyzed range. Most violations will not be severe, and the activity can be accomplished in this time in a controlled manner.

Besides restoring operation within limits, an evaluation is required to determine if RCS operation can continue. The evaluation must verify the RCPB integrity remains acceptable and must be completed before continuing operation. Several methods may be used, including comparison with pre-analyzed transients in the stress analyses, new analyses, or inspection of the components.

ASME Code, Section XI, Appendix E (Ref. 7), may be used to support the evaluation. However, its use is restricted to evaluation of the vessel beltline.

The 72 hour Completion Time is reasonable to accomplish the evaluation. The evaluation for a mild violation is possible within this time, but more severe violations may require special, event specific stress analyses or inspections. A favorable evaluation must be completed before continuing to operate.

Condition A is modified by a Note requiring Required Action A.2 to be completed whenever the Condition is entered. The Note emphasizes the need to perform the evaluation of the effects of the excursion outside the allowable limits. Restoration alone per Required Action A.1 is insufficient because higher than analyzed stresses may have occurred and may have affected the RCPB integrity.

BASES

ACTIONS (continued)

B.1 and B.2

If a Required Action and associated Completion Time of Condition A are not met, the plant must be placed in a lower MODE because either the RCS remained in an unacceptable P/T region for an extended period of increased stress or a sufficiently severe event caused entry into an unacceptable region. Either possibility indicates a need for more careful examination of the event, best accomplished with the RCS at reduced pressure and temperature. In reduced pressure and temperature conditions, the possibility of propagation with undetected flaws is decreased.

If the required restoration activity cannot be accomplished within 30 minutes, Required Action B.1 and Required Action B.2 must be implemented to reduce pressure and temperature.

If the required evaluation for continued operation cannot be accomplished within 72 hours or the results are indeterminate or unfavorable, action must proceed to reduce pressure and temperature as specified in Required Action B.1 and Required Action B.2. A favorable evaluation must be completed and documented before returning to operating pressure and temperature conditions.

Pressure and temperature are reduced by bringing the plant to MODE 3 within 6 hours and to MODE 5 with RCS pressure < ~~[~~500~~]~~ psig within 36 hours. 3

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.

C.1 and C.2

Actions must be initiated immediately to correct operation outside of the P/T limits at times other than when in MODE 1, 2, 3, or 4, so that the RCPB is returned to a condition that has been verified by stress analysis.

The immediate Completion Time reflects the urgency of initiating action to restore the parameters to within the analyzed range. Most violations will not be severe, and the activity can be accomplished in this time in a controlled manner.

BASES

ACTIONS (continued)

Besides restoring operation within limits, an evaluation is required to determine if RCS operation can continue. The evaluation must verify that the RCPB integrity remains acceptable and must be completed prior to entry into MODE 4. Several methods may be used, including comparison with pre-analyzed transients in the stress analyses, or inspection of the components.

ASME Code, Section XI, Appendix E (Ref. 7), may be used to support the evaluation. However, its use is restricted to evaluation of the vessel beltline.

Condition C is modified by a Note requiring Required Action C.2 to be completed whenever the Condition is entered. The Note emphasizes the need to perform the evaluation of the effects of the excursion outside the allowable limits. Restoration alone per Required Action C.1 is insufficient because higher than analyzed stresses may have occurred and may have affected the RCPB integrity.

SURVEILLANCE REQUIREMENTS

SR 3.4.3.1

of LCO Figures 3.4.3-1 and 3.4.3-2

Verification that operation is within the ~~PTLR~~ limits is required when RCS pressure and temperature conditions are undergoing planned changes. ~~[This Frequency of 30 minutes is considered reasonable in view of the control room indication available to monitor RCS status. Also, since temperature rate of change limits are specified in hourly increments, 30 minutes permits assessment and correction for minor deviations within a reasonable time.~~ 2 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~--]~~

Surveillance for heatup, cooldown, or ISLH testing may be discontinued when the definition given in the relevant plant procedure for ending the activity is satisfied.

BASES

SURVEILLANCE REQUIREMENTS (continued)

This SR is modified by a Note that only requires this SR to be performed during system heatup, cooldown, and ISLH testing. No SR is given for criticality operations because LCO 3.4.2 contains a more restrictive requirement.

REFERENCES

1. WCAP-7924-A, April 1975.
2. 10 CFR 50, Appendix G.
3. ASME, Boiler and Pressure Vessel Code, Section III, Appendix G.
4. ASTM E 185-82, July 1982.
5. 10 CFR 50, Appendix H.
6. Regulatory Guide 1.99, Revision 2, May 1988.
7. ASME, Boiler and Pressure Vessel Code, Section XI, Appendix E.

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.3 BASES, RCS PRESSURE AND TEMPERATURE (P/T) LIMITS

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

2. Changes are made to reflect the Specification.

3. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

4. The Reviewer's Note has been deleted, because it is not meant to be retained in the plant specific Improved Technical Specifications (ITS) submittal.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.3, RCS PRESSURE AND TEMPERATURE LIMITS

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 4

ITS 3.4.4 – RCS LOOPS - MODES 1 AND 2

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

3/4.4 REACTOR COOLANT SYSTEM

3/4.4.1 REACTOR COOLANT LOOPS AND COOLANT CIRCULATION

STARTUP AND POWER OPERATION

LIMITING CONDITION FOR OPERATION

OPERABLE and

LCO 3.4.4 3.4.1.1 All reactor coolant loops shall be ~~in~~ operation. A02

Applicability APPLICABILITY: MODES 1 and 2.

ACTION:

ACTION With less than the above required reactor coolant loops in operation, be in at least HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

SR 3.4.4.1 4.4.1.1 The above required reactor coolant loops shall be verified in operation ~~and circulating reactor coolant~~ in accordance with the Surveillance Frequency Control Program. LA01

DISCUSSION OF CHANGES
ITS 3.4.4, RCS LOOPS – MODES 1 and 2

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.4.1.1 states that all reactor coolant loops shall be in operation. ITS 3.4.4 states that three Reactor Coolant System (RCS) loops shall be OPERABLE and in operation. This changes the CTS by requiring the RCS loops to be OPERABLE.

This change is acceptable because it is consistent with the current use and understanding of the Limiting Condition for Operation (LCO). It is not sufficient for an RCS loop to be in operation if it is not capable of performing its specified safety function (i.e., OPERABLE). This change is designated as administrative as it clarifies the current understanding of a requirement.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 3 - Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.4.1.1 states that the required reactor coolant loops shall be verified to be in operation and circulating reactor coolant. ITS Surveillance Requirement (SR) 3.4.4.1 states that each RCS loop shall be verified to be in operation. This changes the CTS by moving the SR to verify that the reactor coolant loops are circulating reactor coolant to the Bases.

The removal of this detail for performing SRs 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 an RCS loop be in operation. This will require recirculation of reactor coolant since the ITS Bases specify that verification that a reactor coolant loop is in operation includes flow rate, temperature, or pump status monitoring, which helps ensure that forced flow is providing heat removal. Also, this change is acceptable because these types of procedural details 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 procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

None

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Loops - MODES 1 and 2

3.4.1.1 LCO 3.4.4 Three ~~[Four]~~ RCS loops shall be OPERABLE and in operation. 2

Applicability APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A. Requirements of LCO not met.	A.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
4.4.1.1 SR 3.4.4.1 Verify each RCS loop is in operation.	~~[12 hours~~ 1 ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.4, RCS LOOPS – MODES 1 and 2

1. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

2. 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.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.4 RCS Loops - MODES 1 and 2

BASES

BACKGROUND

The primary function of the RCS is removal of the heat generated in the fuel due to the fission process, and transfer of this heat, via the steam generators (SGs), to the secondary plant.

The secondary functions of the RCS include:

a. Moderating the neutron energy level to the thermal state, to increase the probability of fission,

b. Improving the neutron economy by acting as a reflector,

c. Carrying the soluble neutron poison, boric acid,

d. Providing a second barrier against fission product release to the environment, and

e. Removing the heat generated in the fuel due to fission product decay following a unit shutdown.

three

The reactor coolant is circulated through ~~[four]~~ loops connected in parallel to the reactor vessel, each containing a~~n~~ SG, a reactor coolant pump (RCP), and appropriate flow and temperature instrumentation for both control and protection. The reactor vessel contains the clad fuel. The SGs provide the heat sink to the isolated secondary coolant. The RCPs circulate the coolant through the reactor vessel and SGs at a sufficient rate to ensure proper heat transfer and prevent fuel damage. This forced circulation of the reactor coolant ensures mixing of the coolant for proper boration and chemistry control. 1 2

APPLICABLE SAFETY ANALYSES

Safety analyses contain various assumptions for the design bases accident initial conditions including RCS pressure, RCS temperature, reactor power level, core parameters, and safety system setpoints. The important aspect for this LCO is the reactor coolant forced flow rate, which is represented by the number of RCS loops in service.

Both transient and steady state analyses have been performed to establish the effect of flow on the departure from nucleate boiling (DNB). The transient and accident analyses for the plant have been performed assuming ~~[four]~~ RCS loops are in operation. The majority of the plant 1

three

BASES

APPLICABLE SAFETY ANALYSES (continued)

safety analyses are based on initial conditions at high core power or zero power. The accident analyses that most important to RCP operation are the ~~[four]~~ three pump coastdown, single pump locked rotor, single pump (broken shaft or coastdown), and rod withdrawal events (Ref. 1). 1

Steady state DNB analysis has been performed for the ~~[four]~~ three RCS loop operation. For ~~[four]~~ three RCS loop operation, the steady state DNB analysis, which generates the pressure and temperature Safety Limit (SL) (i.e., the departure from nucleate boiling ratio (DNBR) limit) assumes a maximum power level of 109% RTP. This is the design overpower condition for ~~[four]~~ three RCS loop operation. The value for the accident analysis setpoint of the nuclear overpower (high flux) trip is 10~~7~~8% and is based on an analysis assumption that bounds possible instrumentation errors. The DNBR limit defines a locus of pressure and temperature points that result in a minimum DNBR greater than or equal to the critical heat flux correlation limit. 1 1 1 2

The plant is designed to operate with all RCS loops in operation to maintain DNBR above the SL, during all normal operations and anticipated transients. By ensuring heat transfer in the nucleate boiling region, adequate heat transfer is provided between the fuel cladding and the reactor coolant.

RCS Loops - MODES 1 and 2 satisfy Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

The purpose of this LCO is to require an adequate forced flow rate for core heat removal. Flow is represented by the number of RCPs in operation for removal of heat by the SGs. To meet safety analysis acceptance criteria for DNB, ~~[four]~~ three pumps are required at rated power. 1

An OPERABLE RCS loop consists of an OPERABLE RCP in operation providing forced flow for heat transport and an OPERABLE SG.

APPLICABILITY

In MODES 1 and 2, the reactor is critical and thus has the potential to produce maximum THERMAL POWER. Thus, to ensure that the assumptions of the accident analyses remain valid, all RCS loops are required to be OPERABLE and in operation in these MODES to prevent DNB and core damage.

The decay heat production rate is much lower than the full power heat rate. As such, the forced circulation flow and heat sink requirements are reduced for lower, noncritical MODES as indicated by the LCOs for MODES 3, 4, and 5.

BASES

APPLICABILITY (continued)

Operation in other MODES is covered by:

LCO 3.4.5, "RCS Loops - MODE 3,"
LCO 3.4.6, "RCS Loops - MODE 4,"
LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled,"
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 3
LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level" ~~(MODE 6)~~. 3

ACTIONS

A.1

If the requirements of the LCO are not met, the Required Action is to reduce power and bring the plant to MODE 3. This lowers power level and thus reduces the core heat removal needs and minimizes the possibility of violating DNB limits.

The 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 safety systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.4.1

This SR requires verification that each RCS loop is in operation. Verification includes flow rate, temperature, or pump status monitoring, which help ensure that forced flow is providing heat removal while maintaining the margin to DNB. ~~[The Frequency of 12 hours is sufficient considering other indications and alarms available to the operator in the control room to monitor RCS loop performance.~~ 1

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~---]~~

REFERENCES

1. U FSAR, ~~Section~~ Chapter ~~[ ]~~ 14. 2 1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.4 BASES, RCS LOOPS – MODES 1 and 2

1. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

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

3. Changes are made to reflect the Specification.

4. The Reviewer's Note has been deleted, because it is not meant to be retained in the plant specific Improved Technical Specifications (ITS) submittal.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.4, RCS LOOPS – MODES 1 AND 2

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 5

ITS 3.4.5 – RCS LOOPS - MODE 3

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

REACTOR COOLANT SYSTEM

HOT STANDBY

LIMITING CONDITION FOR OPERATION

LCO 3.4.5 3.4.1.2 All of the reactor coolant loops listed below shall be OPERABLE with all reactor coolant loops in operation when the Reactor Trip breakers are closed and two reactor coolant loops listed below shall be OPERABLE with at least one reactor coolant loop in operation when the Reactor Trip breakers are open:*

~~a. Reactor Coolant Loop A and its associated steam generator and reactor coolant pump,~~

~~b. Reactor Coolant Loop B and its associated steam generator and reactor coolant pump, and~~ LA01

~~c. Reactor Coolant Loop C and its associated steam generator and reactor coolant pump.~~

Applicability APPLICABILITY: MODE 3

ACTION:

one A02

ACTION A a. With less than the above required reactor coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

ACTION B

ACTION C b. With less than three reactor coolant loop in operation and the Reactor Trip breakers in the closed position, within 1 hour ~~open the Reactor Trip breakers.~~ Add proposed Required Action C.1 A05 place Rod Control System in condition incapable of rod withdrawal L02

ACTION D c. With no reactor coolant loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required reactor coolant loop to operation. OPERABLE status and A03

Add proposed Required Action D.1 A04

SURVEILLANCE REQUIREMENTS

for greater than 24 hours L01

SR 3.4.5.3 SR 3.4.5.3 Note 4.4.1.2.1 At least the above required reactor coolant pumps, if not in operation, shall be determined OPERABLE by verifying correct breaker alignments and indicated power availability in accordance with the Surveillance Frequency Control Program.

SR 3.4.5.2 4.4.1.2.2 The required steam generators shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 10% in accordance with the Surveillance Frequency Control Program.

SR 3.4.5.1 4.4.1.2.3 The required reactor coolant loops shall be verified in operation ~~and circulating reactor coolant~~ in accordance with the Surveillance Frequency Control Program.

LA02

L03

removed from operation per 8 hour period M01

LCO Note * * All reactor coolant pumps may be ~~deenergized~~ for up to 1 hour provided: (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.4.1 Action a states "With less than the above required reactor coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours." ITS 3.4.5 ACTION A states with "One required RCS loop inoperable, restore required RCS loop to OPERABLE status within 72 hours." This changes the CTS by limiting the Action to only one inoperable reactor coolant loop.

The purpose of CTS 3.4.1 ACTION a is to ensure all the required number of Reactor Coolant System (RCS) loops are OPERABLE and in operation when the rods are capable and incapable of being withdrawn. There is essentially no change to the CTS Actions by allowing only one inoperable loop because the 72-hour limit would apply regardless of the status of the Reactor Trip Breakers (RTBs). However, in any other scenario ACTIONS b (less than three loops in operation and RTBs closed) and c (no loops in operation) will also be entered along with ACTION a. For example, if the RTBs are open and two required coolant loops are inoperable, ACTION c will also be entered because there are no required loops in operation. Another example is if the RTBs are closed and two loops are inoperable, Condition b will also be entered. In these cases, the 72 hours will never be the limiting Completion Time (except if one loop is inoperable). The ITS will result in similar actions. These changes are designated as administrative changes and are acceptable because the changes do not result in technical changes to the CTS.

A03 CTS 3.4.1.2 c states, in part, "immediately initiate corrective action to return the required reactor coolant loop to operation." ITS 3.4.5 ACTION D.3 states "Initiate action to restore one RCS loop to OPERABLE status and operation." This changes the CTS by requiring the loop in operation to also be OPERABLE.

The purpose of CTS 3.4.1.2 c is with no reactor coolant loop in operation, all operations involving a reduction in boron concentration of the RCS must be suspended and corrective action to return the required reactor coolant loop to operation initiated immediately. A loop in operation is assumed to be OPERABLE. The Bases discusses that the required loops in operation ensure the safety limit criteria is met for all postulated accidents. For this to be true the loops have to be OPERABLE (capable of meeting the specified safety function). This change is designated as administrative changes and is acceptable because it does not result in technical changes to the CTS.

A04 ITS 3.4.5 ACTION D.1 states "Place the Rod Control System in a condition incapable of rod withdrawal" when no required loops are OPERABLE or in operation. CTS 3.4.1.2 ACTION c, when no loops are in operation, does not contain this action. However, CTS 3.4.1.2 b requires the RTBs to be opened (see L02 for the discussion from CTS requiring opening the RTBs to the ITS requiring placing the Rod Control System in a condition incapable of rod withdrawal). This changes the CTS by placing the Rod Control System in a condition incapable of rod withdrawal.

The purpose of ITS ACTION D.1 is to place the Rod Control System in a condition incapable of rod withdraw. This Action is also required in the CTS, because ACTION b, which would also be entered concurrently with ACTION c, requires the RTBs to be opened. This will preclude an inadvertent control rod withdrawal that could cause a power excursion. This change is designated as administrative and is acceptable because it does not result in technical changes to the CTS.

A05 When the Rod Control System is capable of rod withdrawal, CTS 3.4.1.2 ACTION b requires the RTBs to be opened within 1 hour, if two required RCS loop are not OPERBLE or two are not in operation. ITS 3.4.5 Condition C contains a similar Action but also provides an option to restore an RCS loop to operation (ACTION C.1) in lieu of opening the RTBs. This changes the CTS by adding an option to restore an RCS loop to operation.

Both the ITS 3.4.5 Required Actions to either to restore the required RCS loop to operation or to place the Rod Control System in a condition incapable of rod withdrawal (e.g., de-energize all Control Rod Drive Mechanisms by opening the RTBs or de-energizing the motor generator (MG) sets) have a Completion Time of 1 hour. When the Rod Control System is capable of rod withdrawal, it is postulated that a power excursion could occur in the event of an inadvertent control rod withdrawal. This mandates having the heat transfer capacity of three RCS loops in operation. If only one loop is in operation, the Rod Control System must be rendered incapable of rod withdrawal. The Completion Time of 1 hour, to restore the required RCS loops to operation would eliminate the need to defeat the Rod Control System. Restoration of equipment required for OPERABILITY is always an option available to the licensee and meets the requirements of the associated LCO. Therefore, the adoption of ITS 3.4.5 Required Action C.1 is designated as an administrative change and is acceptable because the change does not result in technical change to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 3.4.1.2 states that at least two reactor coolant loops shall be OPERABLE with at least two reactor coolant pumps in operation when the RTBs are closed and at least one reactor coolant pump in operation when the RTBs are open. This requirement is modified by footnote * that states all reactor coolant pumps may be de-energized for up to 1 hour under the conditions specified therein. ITS 3.4.5 contains the same allowance, but limits the use of the 1-hour exception to once per 8-hour period. This changes the CTS by modifying the 1-hour allowance that all reactor coolant pumps may be de-energized and limits the usage of the allowance to once per 8-hour period.

The purpose of the 1-hour allowance is to allow a reactor coolant loop to be removed from operation to support testing. This change is acceptable because it helps ensure that boron stratification and inadequate decay heat removal do not occur should multiple 1-hour periods be required. This change is designated as more restrictive because it limits the allowance to 1 hour per 8-hour period, a restriction that does not currently exist.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.4.1.2 contains a description of what constitutes an OPERABLE RCS loop. ITS 3.4.5 does not include a description of what constitutes an OPERABLE RCS loop. This changes the CTS by moving the details of what constitutes an OPERABLE RCS loop to the Bases.

The removal of these details related to system design 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 a requirement for the RCS loops to be OPERABLE. 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 design is being removed from the Technical Specifications.

LA02 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.4.1.2.3 states that the "required reactor coolant loops shall be verified to be in operation and circulating reactor coolant." ITS Surveillance Requirement (SR) 3.4.5.1 states that the "required reactor coolant loops shall be verified to be in operation." This changes the CTS by moving the requirement to verify that the reactor coolant loops are circulating reactor coolant to the Bases.

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. These types of procedural details 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 procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 7 – Relaxation of Surveillance Frequency)* CTS 4.4.1.2.1 states that the required reactor coolant pumps, if not in operation, shall be determined to be OPERABLE by verifying correct breaker alignment and indicated power availability. ITS SR 3.4.5.3 requires verification of correct breaker alignment and indicated power availability to each required pump. It is modified by a Note that states "Not required to be performed until 24 hours after a required pump is not in operation." This changes the CTS by not requiring the SR to be performed until 24 hours after a pump is taken out of operation.

The purpose of CTS 4.4.1.2.1 is to ensure that the standby reactor coolant pump is ready to operate. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. The Note provides time to perform the Surveillance to verify correct breaker alignment and indicated power availability. Without the Note, the Surveillance would not be met immediately after taking a pump out of operation. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L02 *(Category 4 – Relaxation of Required Action)* CTS 3.4.1.2 ACTION b states to "open the Reactor Trip breaker with less than three reactor coolant loops in operation." ITS 3.4.5 states to place the Rod Control System in a condition incapable of rod withdrawal. This changes the CTS by allowing alternate options to preclude rod withdrawal besides opening the reactor trip breakers.

The purpose of ITS 3.4.5 is to maintain RCS Loops in MODE 3. The reason for opening the RTBs is to preclude rod withdrawal. It is postulated that a power excursion could occur in the event of an inadvertent control rod withdrawal. 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. This change (allowing alternate options to preclude rod withdrawal) is necessary to eliminate undesirable secondary effects of opening the RTBs. By opening the RTBs, plant interlock P-4 is tripped, which results in isolation of normal feedwater. Forcing reliance on Auxiliary Feedwater (AFW) in this condition is not the intent nor is it desirable over continued use of normal feedwater. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L03 *(Category 1 – Relaxation of LCO Requirements)* CTS 3.4.1.2 * states, in part, "All reactor coolant pumps may be deenergized." ITS 3.4.5 Limiting Condition for Operation (LCO) Note states, in part, "All reactor coolant pumps may be removed from operation." This changes the CTS by removing "deenergized" and adding "removed from operation."

The purpose of CTS 3.4.1.2 is to have all of the reactor coolant loops OPERABLE with all reactor coolant loops in operation. This change is acceptable because the LCO requirements continue to ensure that the components are maintained consistent with the safety analyses and licensing basis. The change is providing more flexibility and removes ambiguity of what deenergize may mean (pull the breaker on the pump, place the hand switch in the locked position, or just stopping the pump) which can lead to errors or improper enforcement. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops - MODE 3

3.4.1.2 LCO 3.4.5 ~~[Two]~~ The following RCS loops shall be OPERABLE and ~~either~~ in operation: 1 4

a. ~~[Two]~~ three RCS loops shall be OPERABLE and in operation when the Rod Control System is capable of rod withdrawal or 1 4

b. ~~One~~ Two RCS loops shall be OPERABLE and one in operation when the Rod Control System is not capable of rod withdrawal. 4

3.4.1.2 Note *

---NOTE---

All reactor coolant pumps may be removed from operation for ≤ 1 hour per 8 hour period provided:

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

b. Core outlet temperature is maintained at least 10°F below saturation temperature.

Applicability APPLICABILITY: MODE 3.

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION a	A. One required RCS loop inoperable.	A.1 Restore required RCS loop to OPERABLE status.	72 hours ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~	1
ACTION a	B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 4.	12 hours	2

----------------NOTE-------------
Condition C is only applicable when Rod Control System is capable of rod withdrawal.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION b C. [~~One~~ Two required RCS loop s not in operation ~~with Rod Control System capable of rod withdrawal~~. Two required RCS loops inoperable. OR	C.1 Restore one ~~required~~ RCS loop to operation and OPERABLE status.	1 hour ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~ 4 1 1
	OR	
	C.2 Place the Rod Control System in a condition incapable of rod withdrawal.	1 hour ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~ 1
ACTION c D. ~~[Two]~~ No [required] RCS loops ~~inoperable~~ OPERABLE or in operation. ~~OR~~ ~~Required RCS loop(s) not in operation.~~	D.1 Place the Rod Control System in a condition incapable of rod withdrawal.	Immediately 1 4
	AND	
	D.2 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1.	Immediately
	AND	
	D.3 Initiate action to restore one RCS loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

		SURVEILLANCE	FREQUENCY	
4.4.1.2.3	SR 3.4.5.1	Verify required RCS loops are in operation.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1
4.4.1.2.2	SR 3.4.5.2	Verify steam generator secondary side water levels are ≥ ~~[17]~~% for required RCS loops. 10	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1 1
4.4.1.2.1 DOC L01	SR 3.4.5.3	------------------------------NOTE------------------------------ Not required to be performed until 24 hours after a required pump is not in operation. --- Verify correct breaker alignment and indicated power are available to each required pump.	~~[7 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.5, RCS LOOPS – MODE 3

1. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

2. Typographical error corrected and editorial change made for enhanced clarity.

3. 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.

4. Turkey Point has three Reactor Coolant System (RCS) loops. Changes are made to coincide with the three RCS loops and match the current licensing basis.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.5 RCS Loops - MODE 3

BASES

BACKGROUND

In MODE 3, the primary function of the reactor coolant is removal of decay heat and transfer of this heat, via the steam generator (SG), to the secondary plant fluid. The secondary function of the reactor coolant is to act as a carrier for soluble neutron poison, boric acid.

The reactor coolant is circulated through three ~~[four]~~ RCS loops, connected in parallel to the reactor vessel, each containing an SG, a reactor coolant pump (RCP), and appropriate flow, pressure, level, and temperature instrumentation for control, protection, and indication. The reactor vessel contains the clad fuel. The SGs provide the heat sink. The RCPs circulate the water through the reactor vessel and SGs at a sufficient rate to ensure proper heat transfer and prevent fuel damage. 1

In MODE 3, RCPs are used to provide forced circulation for heat removal during heatup and cooldown. The MODE 3 decay heat removal requirements are low enough that a single RCS loop with one RCP running is sufficient to remove core decay heat. However, three RCS loops are required to be OPERABLE when the Rod Control System is capable of rod withdrawal and ~~[~~two~~]~~ RCS loops are required to be OPERABLE when the Rod Control System is incapable of rod withdrawal. This will ~~to~~ ensure redundant capability for decay heat removal. 1 5

APPLICABLE SAFETY ANALYSES

Whenever the reactor trip breakers (RTBs) are in the closed position and the control rod drive mechanisms (CRDMs) are energized, an inadvertent rod withdrawal from subcritical, resulting in a power excursion, is possible. Such a transient could be caused by a malfunction of the rod control system. In addition, the possibility of a power excursion due to the ejection of an inserted control rod is possible with the breakers closed or open. Such a transient could be caused by the mechanical failure of a CRDM.

Therefore, in MODE 3 with the Rod Control System capable of rod withdrawal, accidental control rod withdrawal from subcritical is postulated and requires at least three ~~[two]~~ RCS loops to be OPERABLE and in operation to ensure that the accident analyses limits are met. For those conditions when the Rod Control System is not capable of rod withdrawal, two RCS loops are required to be OPERABLE, but only one RCS loop is required to be in operation to be consistent with MODE 3 accident analyses. 1

BASES

APPLICABLE SAFETY ANALYSES (continued)

Failure to provide decay heat removal may result in challenges to a fission product barrier. The RCS loops are part of the primary success path that functions or actuates to prevent or mitigate a Design Basis Accident or transient that either assumes the failure of, or presents a challenge to, the integrity of a fission product barrier.

RCS Loops - MODE 3 satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

OPERABLE and

The purpose of this LCO is to require ~~that at least [two]~~ RCS loops be 1
in MODE 3
OPERABLE. ~~In MODE 3~~ with the Rod Control System capable of rod Three 5
three
withdrawal, ~~[two]~~ RCS loops must be in operation. ~~[Two]~~ RCS loops are required to be in operation in MODE 3 with the Rod Control System capable of rod withdrawal due to the postulation of a power excursion because of an inadvertent control rod withdrawal. The required number of RCS loops in operation ensures that the Safety Limit criteria will be met for all of the postulated accidents.

two RCS loops are required to be OPERABLE and one RCS loop in operation

When the Rod Control System is not capable of rod withdrawal, only one RCS loop in operation is necessary to ensure removal of decay heat from the core and homogenous boron concentration throughout the RCS. An additional RCS loop is required to be OPERABLE to ensure that safety analyses limits are met. 5

The Note permits all RCPs to be removed from operation for ≤ 1 hour per 8 hour period. The purpose of the Note is to perform tests that are designed to validate various accident analyses values. One of these tests is validation of the pump coastdown curve used as input to a number of accident analyses including a loss of flow accident. This test is generally performed in MODE 3 during the initial startup testing program, and as such should only be performed once. If, however, changes are made to the RCS that would cause a change to the flow characteristics of the RCS, the input values of the coastdown curve must be revalidated by conducting the test again. Another test performed during the startup testing program is the validation of rod drop times during cold conditions, both with and without flow.

The no flow test may be performed in MODE 3, 4, or 5 and requires that the pumps be stopped for a short period of time. The Note permits the stopping of the pumps in order to perform this test and validate the assumed analysis values. As with the validation of the pump coastdown curve, this test should be performed only once unless the flow characteristics of the RCS are changed. The 1 hour time period specified is adequate to perform the desired tests, and operating experience has shown that boron stratification is not a problem during this short period with no forced flow.

BASES

LCO (continued)

Utilization of the Note is permitted provided the following conditions are met, along with any other conditions imposed by initial startup test procedures:

a. No operations are permitted that would dilute the RCS boron concentration with coolant at boron concentrations less than required to assure the SDM of LCO 3.1.1, thereby maintaining the margin to criticality. Boron reduction with coolant at boron concentrations less than required to assure SDM is maintained is prohibited because a uniform concentration distribution throughout the RCS cannot be ensured when in natural circulation and

b. Core outlet temperature is maintained at least 10°F below saturation temperature, so that no vapor bubble may form and possibly cause a natural circulation flow obstruction.

associated 3

An OPERABLE RCS loop consists of one OPERABLE RCP and one OPERABLE SG, which has the minimum water level specified in SR 3.4.5.2. An RCP is OPERABLE if it is capable of being powered and is able to provide forced flow if required.

APPLICABILITY

In MODE 3, this LCO ensures forced circulation of the reactor coolant to remove decay heat from the core and to provide proper boron mixing. The most stringent condition of the LCO, that is, two RCS loops OPERABLE and two RCS loops in operation, applies to MODE 3 with the Rod Control System capable of rod withdrawal. The least stringent condition, that is, two RCS loops OPERABLE and one RCS loop in operation, applies to MODE 3 with the Rod Control System not capable of rod withdrawal.

Operation in other MODES is covered by:

; 4

LCO 3.4.4, "RCS Loops - MODES 1 and 2~~,~~"
LCO 3.4.6, "RCS Loops - MODE 4~~,~~"
LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled~~,~~"
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 3 4
LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level" ~~(MODE 6)~~. 3

BASES

ACTIONS

A.1

If one ~~[~~required~~]~~ RCS loop is inoperable, redundancy for heat removal is lost. The Required Action is restoration of the required RCS loop to OPERABLE status within the Completion Time of 72 hours ~~[or in accordance with the Risk Informed Completion Time Program].~~ This time allowance is a justified period to be without the redundant, nonoperating loop because a single loop in operation has a heat transfer capability greater than that needed to remove the decay heat produced in the reactor core and because of the low probability of a failure in the remaining loop occurring during this period. 1 1

B.1

If restoration for Required Action A.1 is not possible within 72 hours, the unit must be brought to MODE 4. In MODE 4, the unit may be placed on the Residual Heat Removal System. The additional Completion Time of 12 hours is compatible with required operations to achieve cooldown and depressurization from the existing plant conditions in an orderly manner and without challenging plant systems.

~~[~~ C.1 and C.2 1

two s are not OPERABLE or two

If ~~one~~ required RCS loop ~~is~~ not in operation, and the Rod Control System is capable of rod withdrawal, the Required Action is either to restore the required RCS loop to operation or to place the Rod Control System in a condition incapable of rod withdrawal (e.g., de-energize all CRDMs by opening the RTBs or de-energizing the motor generator (MG) sets). When the Rod Control System is capable of rod withdrawal, it is postulated that a power excursion could occur in the event of an inadvertent control rod withdrawal. This mandates having the heat transfer capacity of ~~two~~ three RCS loops in operation. If only one loop is in operation, the Rod Control System must be rendered incapable of rod withdrawal. The Completion Times of 1 hour, to restore the required RCS loop s to operation or defeat the Rod Control System is adequate to perform these operations in an orderly manner without exposing the unit to risk for an undue time period~~. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.]]~~ 5 1

BASES

ACTIONS (continued)

D.1, D.2, and D.3

no

OPERABLE or in operation

If ~~[two]~~ [required] RCS loops are ~~inoperable or a required RCS loop is not in operation~~, except as during conditions permitted by the Note in the LCO section, the Rod Control System must be placed in a condition incapable of rod withdrawal (e.g., all CRDMs must be de-energized by opening the RTBs or de-energizing the MG sets). 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 of the RCS loops to OPERABLE status and operation must be initiated. Boron dilution requires forced circulation for proper mixing, and opening the RTBs or de-energizing the MG sets removes the possibility of an inadvertent rod withdrawal. Suspending the introduction of coolant into the RCS of coolant with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 is required to assure continued safe operation. With coolant added without forced circulation, unmixed coolant could be introduced to the core, however coolant added with boron concentration meeting the minimum SDM maintains acceptable margin to subcritical operations. The immediate Completion Time reflects the importance of maintaining operation for heat removal. The action to restore must be continued until one loop is restored to OPERABLE status and operation. 1 5

SURVEILLANCE REQUIREMENTS

SR 3.4.5.1

This SR requires verification that the required loops are in operation. Verification includes flow rate, temperature, and pump status monitoring, which help ensure that forced flow is providing heat removal. ~~[The Frequency of 12 hours is sufficient considering other indications and alarms available to the operator in the control room to monitor RCS loop performance.~~ 1

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~---]~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.5.2

SR 3.4.5.2 requires verification of SG OPERABILITY. SG OPERABILITY is verified by ensuring that the secondary side narrow range water level is ≥ ~~[17]~~% for required RCS loops. If the SG secondary side narrow range water level is < ~~[17]~~%, the tubes may become uncovered and the associated loop may not be capable of providing the heat sink for removal of the decay heat. ~~[The 12 hour Frequency is considered adequate in view of other indications available in the control room to alert the operator to a loss of SG level.~~ 10 10 1 1 1

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~--]~~

SR 3.4.5.3

Verification that each required RCP is OPERABLE ensures that safety analyses limits are met. The requirement also ensures that an additional RCP can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. Verification is performed by verifying proper breaker alignment and power availability to each required RCP. Alternatively, verification that a pump is in operation also verifies proper breaker alignment and power availability. ~~[The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.~~ 1

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~------------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

2

This SR is modified by a Note that states the SR is not required to be performed until 24 hours after a required pump is not in operation.

REFERENCES None.

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.5 Bases, RCS LOOPS – MODE 3

1. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

2. The Reviewer's Note has been deleted, because it is not meant to be retained in the plant specific Improved Technical Specifications (ITS) submittal.

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

4. Editorial/grammatical errors have been corrected.

5. Changes are made to reflect the Specification.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.5, RCS LOOPS – MODE 3

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 6

ITS 3.4.6 – RCS LOOPS - MODE 4

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

REACTOR COOLANT SYSTEM

HOT SHUTDOWN

LIMITING CONDITION FOR OPERATION

LCO 3.4.6 3.4.1.3 At least two of the loops ~~listed below~~ shall be OPERABLE and at least one of these loops shall be in operation:*

~~a. Reactor Coolant Loop A and its associated steam generator and reactor coolant pump,**~~

~~b. Reactor Coolant Loop B and its associated steam generator and reactor coolant pump,**~~ LA01

~~c. Reactor Coolant Loop C and its associated steam generator and reactor coolant pump,**~~

~~d. RHR Loop A, and~~

~~e. RHR Loop B.~~

Applicability APPLICABILITY: MODE 4.

ACTION:

Add proposed Required Action A.2 Note. L01

ACTION A a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible; if the remaining OPERABLE loop is an RHR loop, be in COLD SHUTDOWN within 24 hours.

Add proposed Condition B, first part A02

ACTION B b. With no loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return ~~the required~~ one loop to OPERABLE status and operation. A04 A03

removed from operation L03

per 8 hour period M01

LCO 3.4.6 Note 1 * All reactor coolant pumps and RHR pumps may be ~~deenergized~~ removed from operation for up to 1 hour per 8 hour period provided: (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

LCO 3.4.6 Note 2 ** A reactor coolant pump shall not be started with one or more of the Reactor Coolant System cold leg temperatures less than or equal to 275°F unless the secondary water temperature of each steam generator is less than or equal to 50°F above each of the Reactor Coolant System cold leg temperatures. L04

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS

M02

or RHR

Not required to be performed until 24 hours after a required pump is not in operation

L02

SR 3.4.6.3 4.4.1.3.1 The required reactor coolant pump(s), ~~if not in operation~~, shall be determined OPERABLE by verifying correct breaker alignments and indicated power availability in accordance with the Surveillance Frequency Control Program.

SR 3.4.6.2 4.4.1.3.2 The required steam generator(s) shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 10% in accordance with the Surveillance Frequency Control Program.

SR 3.4.6.1 4.4.1.3.3 At least one reactor coolant or RHR loop shall be verified in operation ~~and circulating reactor coolant~~ in accordance with the Surveillance Frequency Control Program. LA02

SR 3.4.6.4 4.4.1.3.4 Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water in accordance with the Surveillance Frequency Control Program.*

---

* Not required to be performed until 12 hours after entering MODE 4.

DISCUSSION OF CHANGES
ITS 3.4.6, RCS LOOPS – MODE 4

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 Actions of both CTS 3.4.1.3 states, "With no loop in operation..." ITS 3.4.6 Action B states "two required loops inoperable OR Required loop not in operation." This changes the CTS by adding an additional condition to the Action for two required loops inoperable.

The purpose of CTS 3.4.1.3 ACTION b is with no Residual Heat Removal (RHR) loop in operation, to suspend all operations involving a reduction in boron concentration of the Reactor Coolant System (RCS) and immediately initiate corrective action to return the required RHR loop to operation. Other changes to this Action are justified in DOCs A03 and A04. Adding the additional condition (no RHR loops are OPERABLE) to the Action is for clarification only because if two required RHR loops are inoperable, there are no RHR loops in operation. In addition, immediate Action is required to place one train in operation if a loop is OPERABLE and not in operation. The change is designated as administrative because it does not result in technical changes to the CTS.

A03 CTS 3.4.1.3 b states, in part, "immediately initiate corrective action to return the required reactor coolant loop to operation." ITS 3.4.6 ACTION B.2 states "Initiate action to restore one RCS loop to OPERABLE status and operation." This changes the CTS by requiring the loop to be OPERABLE as well as be in operation.

The purpose of CTS 3.4.1.3 is to keep at least two of the loops OPERABLE and at least one of these loops shall be in operation. A loop in operation is assumed to be operable. The Bases discusses that the required loops in operation ensure the safety limit criteria is met for all postulated accidents. For this to be true the loops have to be OPERABLE and (capable of meeting its specified safety function). This change is designated as administrative because it does not result in technical changes to the CTS.

A04 CTS 3.4.1.3 ACTION b, in part, requires immediately initiating corrective action to return "the required" loop to operation. ITS 3.4.6 ACTION b requires essentially the same Action but requires restoration of "one" loop to operation. This changes the CTS by changing "the required" to "one" when referring to returning the loop to operation.

The purpose of CTS 3.4.1.3 Action b is with no loop in operation, to suspend all operations involving a reduction in boron concentration of the RCS and immediately initiate corrective action to return the required RHR loop to operation. Changing "the required" to "one" is essentially the same in that only one loop has to be in operation per the Limiting Condition for Operation (LCO) so returning the required RHR loop is the same as returning one RHR loop to operation. This change is designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS LCO 3.4.1.3.b states, in part, that at least two coolant loops shall be OPERABLE and at least one must be in operation. This requirement is modified by a Footnote* that states, in part, that all Reactor Coolant Pumps (RCPs) and RHR pumps may be de-energized 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. This changes the CTS to limit the use of the 1-hour exception to once per 8-hour period.

The purpose of the 1-hour allowance is to allow a coolant loop to be removed from operation to support testing. This change is acceptable because it helps ensure that boron stratification and inadequate decay heat removal do not occur should multiple 1-hour periods be required. This change is designated as more restrictive because it limits an allowance to 1 hour per 8-hour period, and that restriction does not currently exist.

M02 CTS 4.4.1.3.1 states, in part, the required RCP(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 pump not in operation. ITS LCO 3.4.6 allows a combination of RCPs and RHR pumps. This changes the CTS by requiring verification of correct breaker alignment and indicated power availability on required RHR pumps that 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 RCP 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 Surveillance on RHR pumps in addition to reactor coolant pumps.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.4.1.3 provides the requirements for reactor coolant and/or RHR loops in MODE 4 and includes a description of what constitutes an OPERABLE loop. ITS 3.4.6 provides the requirements for reactor coolant and/or RHR loops in MODE 4, but does not include a description of what constitutes an OPERABLE loop. This changes the CTS by moving the details of what constitutes an OPERABLE coolant loop to the Bases.

The removal of these details, which are related to system design, 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 RCS loops to be OPERABLE. Also, this change is acceptable because the removed information will be adequately controlled in the 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 design is being removed from the Technical Specifications.

LA02 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.4.1.3.3 states, in part, that required coolant loops shall be verified to be in operation and circulating reactor coolant. ITS SR 3.4.6.1 states, in part, that the required RHR or RCS loop shall be verified to be in operation. This changes the CTS by moving the requirement to verify that the reactor coolant loops are circulating reactor coolant to the Bases.

The removal of this detail for performing SRs 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 RHR or RCS loop be in operation. This will also require recirculation of reactor coolant, since the ITS Bases specify that verification that a reactor coolant loop is in operation includes flow rate, temperature, or pump status monitoring, which helps ensure that forced or natural circulation flow is providing heat removal. Also, this change is acceptable because these types of procedural details will be adequately controlled in the 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 procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.4.1.3 ACTION a states, in part, that with less than the above required loops OPERABLE, the unit must be placed in COLD SHUTDOWN within 24 hours. ITS 3.4.6 Required Action A.2 states that when one required loop is inoperable, the unit must be placed in MODE 5 within 24 hours, but only if an RHR loop is OPERABLE. This changes the CTS by providing an exception to the requirements to be in MODE 5.

The purpose of CTS 3.4.1.3 ACTION a is to require the unit to be brought to a MODE in which the LCO does not apply. 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 OPERABLE status of the redundant systems or 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 Design Basis Accident (DBA) occurring during the repair period. The revised actions provide appropriate compensatory measures for an inoperable loop. The CTS requires a cooldown to MODE 5 even if no RHR loops are OPERABLE (i.e., the only OPERABLE loop is an RCS loop.) With only an RCS loop OPERABLE, it is safer to stay in MODE 4 so that the steam generators can be used to remove decay heat. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L02 *(Category 7 – Relaxation of Surveillance Frequency)* CTS 4.4.1.3.1 states, in part, the required RCP(s), if not in operation, shall be determined to be OPERABLE in accordance with the Surveillance Frequency Control Program (SFCP) by verifying correct breaker alignments and indicated power availability. ITS SR 3.4.6.3 requires verification of correct breaker alignment and indicated power availability to the pump not in operation in accordance with the SFCP. It is modified by a Note that states "Not required to be performed until 24 hours after a required pump is not in operation." This changes the CTS by not requiring the SR to be performed until 24 hours after a pump is taken out of operation.

The purpose of CTS 4.4.1.3.1 is to ensure that the standby pump is ready to operate. The Note provides time to perform the Surveillance to verify correct breaker alignment and indicated power availability. Without the Note, the Surveillance would not be met immediately after taking a pump out of operation. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L03 *(Category 1 – Relaxation of LCO Requirements)* CTS 3.4.1.3 * states, in part, "All reactor coolant pumps and RHR pumps may be deenergized." ITS 3.4.6 LCO Note, in part, states "All reactor coolant pumps (RCPs) and RHR pumps may be removed from operation." This changes the CTS by removing "deenergized" and adding "removed from operation."

The purpose of CTS 3.4.1.3 is to have at least two of the loops OPERABLE and at least one of these loops shall be in operation. This change is acceptable because the LCO requirements continue to ensure that the components are maintained consistent with the safety analyses and licensing basis. The change provides more flexibility and removes ambiguity with respect to what deenergize means (pull the breaker on the pump, place the hand switch in the locked position, or just stopping the pump) which can lead to errors or improper enforcement. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

L04 *(Category 1 – Relaxation of LCO Requirements)* CTS 3.4.1.3 ** states, in part, "the secondary water temperature of each steam generator is less than 50°F above each of the Reactor Coolant System cold leg temperatures." ITS 3.4.6 LCO Note 2 states "the secondary side water temperature of each steam generator (SG) is ≤ 50°F above each of the RCS cold leg temperatures." This changes the CTS by adding "or equal to" to less than 50°F.

The purpose of CTS 3.4.1.3 is to have at least two of the loops be OPERABLE and at least one of these loops in operation. This change is acceptable because the LCO requirements continue to ensure that the components are maintained consistent with the safety analyses and licensing basis. The CTS is changed by having "or equal to" to less than 50°F. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops - MODE 4

3.4.1.3

LCO 3.4.6 Two loops consisting of any combination of RCS loops and residual heat removal (RHR) loops shall be OPERABLE, and one loop shall be in operation.

3.4.1.3
Footnote *
DOC M02

---NOTES---

1. All reactor coolant pumps (RCPs) and RHR pumps may be removed from operation for ≤ 1 hour per 8 hour period provided:

   a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1; and
   "SHUTDOWN MARGIN (SDM)"

   3

   b. Core outlet temperature is maintained at least 10°F below saturation temperature.

3.4.1.3
Footnote **

2. No RCP shall be started with any RCS cold leg temperature ≤ ~~[~~275°F~~]~~ ~~[Low Temperature Overpressure Protection (LTOP) arming temperature specified in the PTLR]~~ unless the secondary side water temperature of each steam generator (SG) is ≤ ~~[~~50~~]~~°F above each of the RCS cold leg temperatures.

   2

Applicability

APPLICABILITY: MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a DOC M01 A. One required loop inoperable.	A.1 Initiate action to restore a second loop to OPERABLE status. <u>AND</u>	Immediately

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a DOC L01		A.2 --------------NOTE-------------- Only required if RHR loop is OPERABLE. ------------------------------------- Be in MODE 5.	24 hours
ACTION a ACTION b DOC M01	B. Two required loops inoperable. <u>OR</u> Required loop not in operation.	B.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1. <u>AND</u> B.2 Initiate action to restore one loop to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
4.4.1.3.3	SR 3.4.6.1 Verify required RHR or RCS loop is in operation.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
4.4.1.3.2	SR 3.4.6.2	Verify SG secondary side water levels are ≥ ~~[17]~~% for required RCS loops. 10	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2
4.4.1.3.1	SR 3.4.6.3	-------------------------------NOTE------------------------------ Not required to be performed until 24 hours after a required pump is not in operation. --- Verify correct breaker alignment and indicated power are available to each required pump.	~~[7 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]	2
4.4.1.3.4	SR 3.4.6.4	-------------------------------NOTE------------------------------ Not required to be performed until 12 hours after entering MODE 4. --- Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.6, RCS Loops – MODE 4

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

2. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.6 RCS Loops - MODE 4

BASES

BACKGROUND

In MODE 4, the primary function of the reactor coolant is the removal of decay heat and the transfer of this heat to either the steam generator (SG) secondary side coolant or the component cooling water via the residual heat removal (RHR) heat exchangers. The secondary function of the reactor coolant is to act as a carrier for soluble neutron poison, boric acid.

The reactor coolant is circulated through ~~[four]~~ three RCS loops connected in parallel to the reactor vessel, each loop containing an SG, a reactor coolant pump (RCP), and appropriate flow, pressure, level, and temperature instrumentation for control, protection, and indication. The RCPs circulate the coolant through the reactor vessel and SGs at a sufficient rate to ensure proper heat transfer and to prevent boric acid stratification. 2

In MODE 4, either RCPs or RHR loops can be used to provide forced circulation. The intent of this LCO is to provide forced flow from at least one RCP or one RHR loop for decay heat removal and transport. The flow provided by one RCP loop or RHR loop is adequate for decay heat removal. The other intent of this LCO is to require that two paths be available to provide redundancy for decay heat removal.

APPLICABLE SAFETY ANALYSES

In MODE 4, RCS circulation is considered in the determination of the time available for mitigation of the accidental boron dilution event. The RCS and RHR loops provide this circulation.

RCS Loops - MODE 4 satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).

LCO

The purpose of this LCO is to require that at least two loops be OPERABLE in MODE 4 and that one of these loops be in operation. The LCO allows the two loops that are required to be OPERABLE to consist of any combination of RCS loops and RHR loops. Any one loop in operation provides enough flow to remove the decay heat from the core with forced circulation. An additional loop is required to be OPERABLE to provide redundancy for heat removal.

Note 1 permits all RCPs or RHR pumps to be removed from operation for ≤ 1 hour per 8 hour period. The purpose of the Note is to permit tests that are designed to validate various accident analyses values. One of the tests performed during the startup testing program is the validation of rod drop times during cold conditions, both with and without flow. The no flow test may be performed in MODE 3, 4, or 5 and requires that the pumps be

BASES

LCO (continued)

stopped for a short period of time. The Note permits the stopping of the pumps in order to perform this test and validate the assumed analysis values. If changes are made to the RCS that would cause a change to the flow characteristics of the RCS, the input values must be revalidated by conducting the test again. The 1 hour time period is adequate to perform the test, and operating experience has shown that boron stratification is not a problem during this short period with no forced flow.

Utilization of Note 1 is permitted provided the following conditions are met along with any other conditions imposed by initial startup test procedures:

a. No operations are permitted that would dilute the RCS boron concentration with coolant with boron concentrations less than required to meet SDM of LCO 3.1.1, ~~therefore~~ thereby maintaining the margin to criticality. Boron reduction with coolant at boron concentrations less than required to assure SDM is maintained is prohibited because a uniform concentration distribution throughout the RCS cannot be ensured when in natural circulation and 4

b. Core outlet temperature is maintained at least 10°F below saturation temperature, so that no vapor bubble may form and possibly cause a natural circulation flow obstruction.

Note 2 requires that the secondary side water temperature of each SG be ≤ ~~[~~50~~]~~°F above each of the RCS cold leg temperatures before the start of an RCP with any RCS cold leg temperature ≤ ~~[~~275°F~~]~~ ~~[Low Temperature Overpressure Protection (LTOP) arming temperature specified in the PTLR].~~ This restraint is to prevent a low temperature overpressure event due to a thermal transient when an RCP is started. 2

An OPERABLE RCS loop comprises an OPERABLE RCP and an associated OPERABLE SG, which has the minimum water level specified in SR 3.4.6.2. 1

Similarly for the RHR System, an OPERABLE RHR loop comprises an OPERABLE RHR pump capable of providing forced flow to an OPERABLE RHR heat exchanger. RCPs and RHR pumps are OPERABLE if they are capable of being powered and are able to provide forced flow if required. Management of gas voids is important to RHR System OPERABILITY.

BASES

APPLICABILITY

In MODE 4, this LCO ensures forced circulation of the reactor coolant to remove decay heat from the core and to provide proper boron mixing. One loop of either RCS or RHR provides sufficient circulation for these purposes. However, two loops consisting of any combination of RCS and RHR loops are required to be OPERABLE to meet single failure considerations.

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 3.4.7, "RCS Loops - MODE 5, Loops Filled~~,~~"
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)~~.

; 4 1 4 1

ACTIONS

A.1

If one required loop is inoperable, redundancy for heat removal is lost. Action must be initiated to restore a second RCS or RHR loop to OPERABLE status. The immediate Completion Time reflects the importance of maintaining the availability of two paths for heat removal.

A.2

If restoration is not accomplished and an RHR loop is OPERABLE, the unit must be brought to MODE 5 within 24 hours. Bringing the unit to MODE 5 is a conservative action with regard to decay heat removal. With only one RHR loop OPERABLE, redundancy for decay heat removal is lost and, in the event of a loss of the remaining RHR loop, it would be safer to initiate that loss from MODE 5 rather than MODE 4. The Completion Time of 24 hours is a reasonable time, based on operating experience, to reach MODE 5 from MODE 4 in an orderly manner and without challenging plant systems.

This Required Action is modified by a Note which indicates that the unit must be placed in MODE 5 only if a RHR loop is OPERABLE. With no RHR loop OPERABLE, the unit is in a condition with only limited cooldown capabilities. Therefore, the actions are to be concentrated on the restoration of a RHR loop, rather than a cooldown of extended duration.

BASES

ACTIONS (continued)

B.1 and B.2

If two required loops are inoperable or a required loop is not in operation, except during conditions permitted by Note 1 in the LCO section, 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 RCS or RHR loop to OPERABLE status and operation must be initiated. The required margin to criticality must not be reduced in this type of operation. Suspending the introduction of coolant into the RCS ~~of coolant~~ with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 is required to assure continued safe operation. With coolant added without forced circulation, unmixed coolant could be introduced to the core, however coolant added with boron concentration meeting the minimum SDM maintains acceptable margin to subcritical operations. The immediate Completion Times reflect the importance of maintaining operation for decay heat removal. The action to restore must be continued until one loop is restored to OPERABLE status and operation. 4

SURVEILLANCE REQUIREMENTS

SR 3.4.6.1

This SR requires verification that the required RCS or RHR loop is in operation. Verification includes flow rate, temperature, or pump status monitoring, which help ensure that forced flow is providing heat removal. ~~[The Frequency of 12 hours is sufficient considering other indications and alarms available to the operator in the control room to monitor RCS and RHR loop performance.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------------------------------REVIEWER'S NOTE----------------------------------
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
---]

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.6.2

SR 3.4.6.2 requires verification of SG OPERABILITY. SG OPERABILITY is verified by ensuring that the secondary side narrow range water level is ≥ ~~[17]~~%. If the SG secondary side narrow range water level is < ~~[17]~~%, the tubes may become uncovered and the associated loop may not be capable of providing the heat sink necessary for removal of decay heat. ~~[The 12 hour Frequency is considered adequate in view of other indications available in the control room to alert the operator to the loss of SG level.~~ 10 10 2 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~---]~~

SR 3.4.6.3

Verification that each required pump is OPERABLE ensures that an additional RCS or RHR pump can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. Verification is performed by verifying proper breaker alignment and power available to each required pump. Alternatively, verification that a pump is in operation also verifies proper breaker alignment and power availability. ~~[The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]~~

3

This SR is modified by a Note that states the SR is not required to be performed until 24 hours after a required pump is not in operation.

SR 3.4.6.4

RHR System piping and components have the potential to develop voids and pockets of entrained gases. Preventing and managing gas intrusion and accumulation is necessary for proper operation of the required RHR loop(s) and may also prevent water hammer, pump cavitation, and pumping of noncondensible gas into the reactor vessel.

Selection of RHR System locations susceptible to gas accumulation is based on a review of system design information, including piping and instrumentation drawings, isometric drawings, plan and elevation drawings, and calculations. The design review is supplemented by system walk downs to validate the system high points and to confirm the location and orientation of important components that can become sources of gas or could otherwise cause gas to be trapped or difficult to remove during system maintenance or restoration. Susceptible locations depend on plant and system configuration, such as stand-by versus operating conditions.

The RHR System is OPERABLE when it is sufficiently filled with water. Acceptance criteria are established for the volume of accumulated gas at susceptible locations. If accumulated gas is discovered that exceeds the acceptance criteria for the susceptible location (or the volume of accumulated gas at one or more susceptible locations exceeds an acceptance criteria for gas volume at the suction or discharge of a pump), the Surveillance is not met. If the accumulated gas is eliminated or brought within the acceptance criteria limits during performance of the Surveillance, the Surveillance is met and past system OPERABILITY is evaluated under the Corrective Action Program. If it is determined by subsequent evaluation that the RHR System is not rendered inoperable by the accumulated gas (i.e., the system is sufficiently filled with water), the Surveillance may be declared met. Accumulated gas should be eliminated or brought within the acceptance criteria limits.

BASES

SURVEILLANCE REQUIREMENTS (continued)

RHR System locations susceptible to gas accumulation are monitored and, if gas is found, the gas volume is compared to the acceptance criteria for the location. Susceptible locations in the same system flow path which are subject to the same gas intrusion mechanisms may be verified by monitoring a representative sub-set of susceptible locations. Monitoring may not be practical for locations that are inaccessible due to radiological or environmental conditions, the plant configuration, or personnel safety. For these locations alternative methods (e.g., operating parameters, remote monitoring) may be used to monitor the susceptible location. Monitoring is not required for susceptible locations where the maximum potential accumulated gas void volume has been evaluated and determined to not challenge system OPERABILITY. The accuracy of the method used for monitoring the susceptible locations and trending of the results should be sufficient to assure system OPERABILITY during the Surveillance interval.

This SR is modified by a Note that states the SR is not required to be performed until 12 hours after entering MODE 4. In a rapid shutdown, there may be insufficient time to verify all susceptible locations prior to entering MODE 4.

~~[The 31 day Frequency takes into consideration the gradual nature of gas accumulation in the RHR System piping and the procedural controls governing system operation.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Surveillance Frequency may vary by location susceptible to gas accumulation.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~---]~~

REFERENCES None.

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.6 Bases, RCS LOOPS – MODE 4

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

2. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. The Reviewer's Note has been deleted, because it is not meant to be retained in the plant specific Improved Technical Specifications (ITS) submittal.

4. Editorial/grammatical error corrected.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.6, RCS LOOPS – MODE 4

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 7

ITS 3.4.7 – RCS LOOPS - MODE 5, LOOPS FILLED

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

REACTOR COOLANT SYSTEM

COLD SHUTDOWN - LOOPS FILLED

LIMITING CONDITION FOR OPERATION

LCO 3.4.7 3.4.1.4.1 At least one residual heat removal (RHR) loop shall be OPERABLE and in operation*, and either:

LCO 3.4.7 a. a. One additional RHR loop shall be OPERABLE**, or

LCO 3.4.7 b. b. The secondary side water level of at least two steam generators shall be greater than 10%.

Add LCO 3.4.7 Note 4 L01

Applicability APPLICABILITY: MODE 5 with reactor coolant loops filled***.

ACTION:

ACTION A
ACTION B
a. With one of the RHR loops inoperable or with less than the required steam generator water level, immediately initiate corrective action to return the inoperable RHR loop to OPERABLE status or restore the required steam generator water level as soon as possible.

Add proposed ACTION B – first paragraph A02

ACTION C b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return ~~the required~~ one RHR loop to OPERABLE status and operation.

OPERABLE status and A03

one A04

SURVEILLANCE REQUIREMENTS

SR 3.4.7.2 4.4.1.4.1.1 The secondary side water level of at least two steam generators when required shall be determined to be within limits in accordance with the Surveillance Frequency Control Program.

SR 3.4.7.1 4.4.1.4.1.2 At least one RHR loop shall be determined to be in operation ~~and circulating reactor coolant~~ in accordance with the Surveillance Frequency Control Program. LA01

SR 3.4.7.4 4.4.1.4.1.3 Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water in accordance with the Surveillance Frequency Control Program.

Add proposed SR 3.4.7.3 M02

L02

removed from operation

per 8 hour period M01

LCO 3.4.7 Note 1 * The RHR pump may ~~be deenergized~~ removed from operation for up to 1 hour per 8 hour period provided: (1) no operations are permitted that would
LCO 3.4.7 Note 1 a cause dilution of the Reactor Coolant System boron concentration, and (2) core outlet temperature is
LCO 3.4.7 Note 1 b maintained at least 10°F below saturation temperature.

LCO 3.4.7 Note 2 ** One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE.

LCO 3.4.7 Note 3 *** A reactor coolant pump shall not be started with one or more of the Reactor Coolant System cold leg temperatures less than or equal to 275°F unless the secondary water temperature of each steam generator is less than 50°F above each of the Reactor Coolant System cold leg temperatures.

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications - Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.4.1.4.1 ACTION b states, "With no RHR loop in operation..." ITS 3.4.7 Action B (JFD 3 discusses combining ISTS 3.4.7 Conditions A and B and relabeling ISTS 3.4.7 Condition C to Condition B) states "No required RHR loops OPERABLE OR Required RHR loop not in operation." This changes the CTS by adding an additional condition for the Action that no required Residual Heat Removal (RHR) loop OPERABLE.

The purpose of CTS 3.4.1.4.1 Action b is with no RHR loop in operation, to suspend all operations involving a reduction in boron concentration of the Reactor Coolant System (RCS) and immediately initiate corrective action to return the required RHR loop to operation. Other changes to this Action are justified in DOCs A03 and A04. Adding the additional condition (no RHR loops OPERABLE) to the Action is for clarification only because if no RHR loops are OPERABLE, there are no RHR loops in operation. In addition, immediate Action is required to place one train in operation if a loop is OPERABLE and not in operation. The change is designated as administrative because it does not result in technical changes to the CTS.

A03 CTS 3.4.1.4.1 Action b states, in part, "immediately initiate corrective action to return the required reactor coolant loop to operation." ITS 3.4.7 ACTION C.2 states "Initiate action to restore one RCS loop to OPERABLE status and operation." This changes the CTS by requiring the loop to be OPERABLE as well as be in operation.

The purpose of CTS 3.4.1.4.1 is to keep at least one RHR loop OPERABLE and in operation. A loop in operation is assumed to be OPERABLE. The Bases discusses that the required loops in operation ensure the safety limit criteria is met for all postulated accidents. For this to be true the loops have to be OPERABLE and (capable of meeting its specified safety function). This change is designated as administrative because it does not result in technical changes to the CTS.

A04 CTS 3.4.1.4.1 Action b, in part, requires immediately initiating corrective action to return "the required" loop to operation. ITS 3.4.7 ACTION B (JFD 3 discusses combining ISTS 3.4.7 Conditions A and B and relabeling ISTS 3.4.7 Condition C to Condition B) requires essentially the same Action but requires restoration of "one" loop to operation. This changes the CTS by changing "the required" to "one" when referring to returning the loop to operation.

The purpose of CTS 3.4.1.4 ACTION b is with no loop in operation, to suspend all operations involving a reduction in boron concentration of the RCS and immediately initiate corrective action to return the required RHR loop to operation. Changing "the required" to "one" is essentially the same in that only one loop has to be in operation per the Limiting Condition for Operation (LCO) so returning the required RHR Loop is the same as returning one RHR Loop to operation. This change is designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 3.4.1.4 states that two RHR loops shall be OPERABLE and at least one RHR loop must be in operation. This requirement is modified by Footnote* that states, in part, that all RHR pumps may be de-energized for up to 1 hour. ITS 3.4.7 Note 1 contains the same allowance, but limits the use of the 1-hour exception to once per 8 hours. This changes the CTS by limiting the use of the 1-hour exception to once per 8 hours.

The purpose of the CTS 3.4.1.4 allowance for the RHR pumps to be de-energized for 1 hour is to allow an RHR loop to be removed from operation to support testing. This change is acceptable because it helps ensure that boron stratification and inadequate decay heat removal do not occur by limiting the time in an 8-hour period with no RHR pump in operation. This change is designated as more restrictive because it limits the time the plant can be in MODE 5 with RCS loops filled with no RHR pumps in operation to 1 hour per 8-hour period.

M02 ITS Surveillance Requirement SR 3.4.7.3 requires verification that correct breaker alignment and indicated power are available to each required RHR pump. A Note further explains that the Surveillance is not required to be performed until 24 hours after a required pump is not in operation. This Surveillance is not required by the CTS. This changes the CTS by requiring verification of correct breaker alignment and indicated power availability on required RHR pumps that are not in operation.

The purpose of ITS SR 3.4.7.3 is to ensure a standby RHR 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 adds a Surveillance Requirement to the CTS.

RELOCATED SPECIFICATIONS

None

<u>REMOVED DETAIL CHANGES</u>

LA01 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.4.1.4.1.2 states, in part, that the required residual heat removal loop shall be verified to be in operation and circulating reactor coolant. ITS SR 3.4.7.1 states, in part, that the required RHR loop shall be verified to be in operation. This changes the CTS by moving the requirement to verify that the RHR loop is circulating reactor coolant to the Bases.

The removal of this detail for performing SRs 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 an RHR loop be in operation. This will require circulation of reactor coolant since the ITS Bases specify that verification that a loop is in operation includes flow rate, temperature, or pump status monitoring, which helps ensure that forced flow is providing heat removal. Also, this change is acceptable because these types of procedural details will be adequately controlled in the 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 procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 1 – Relaxation of LCO Requirements)* CTS 3.4.1.4 requires the RHR loops to be OPERABLE and for at least one RHR pump to be operating in MODE 5. ITS 3.4.7 specifies the same requirements; however, ITS LCO 3.4.7 Note 4 allows all RHR loops to be removed from operation during planned heatup to MODE 4 when at least one RCS loop is in operation. This changes the CTS by adding an allowance for all RHR loops to be removed from operation during planned heatup operations to MODE 4.

The purpose of CTS 3.4.1.4 is to ensure there is sufficient forced circulation to prevent boric acid stratification and to provide forced flow for decay heat removal and transport. 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. This change provides for an orderly transition from Mode 5 to Mode 4 by allowing an RCS loop to be in operation instead of an RHR loop. The RCS loop simply replaces the function of the RHR loop. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

L02 *(Category 1 – Relaxation of LCO Requirements)* CTS 3.4.1.3 * states, in part, "The RHR pump may be deenergized." ITS 3.4.7 LCO Note, in part, states "The RHR pump of the loop in operation may be removed from operation." This changes the CTS by removing "deenergized" and adding "removed from operation."

The purpose of CTS 3.4.1.4.1 is to have at least one RHR loop OPERABLE and in operation. This change is acceptable because the LCO requirements continue to ensure that the components are maintained consistent with the safety analyses and licensing basis. The change provides more flexibility and removes ambiguity with respect to what deenergize means (pull the breaker on the pump, place the hand switch in the locked position, or just stopping the pump) which can lead to errors or improper enforcement. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops - MODE 5, Loops Filled

3.4.1.4.1 LCO 3.4.7 One residual heat removal (RHR) loop shall be OPERABLE and in operation, and either:

3.4.1.4.1 a. a. One additional RHR loop shall be OPERABLE or

3.4.1.4.1 b. b. The secondary side water level of at least ~~[~~two~~]~~ steam generators (SGs) shall be ≥ ~~[~~17~~]~~%. 1

10

---NOTES---

3.4.1.4.1 * 1. The RHR pump of the loop in operation may be removed from operation for ≤ 1 hour per 8 hour period provided:

3.4.1.4.1 * (1) a. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1; and

3.4.1.4.1 * (2) b. Core outlet temperature is maintained at least 10°F below saturation temperature.

3.4.1.4.1 ** 2. One required RHR loop may be inoperable for up to 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.

3.4.1.4.1 *** 3. No reactor coolant pump shall be started with one or more RCS cold leg temperatures ≤ ~~[~~275°F~~]~~ ~~[Low Temperature Overpressure Protection (LTOP) arming temperature specified in the PTLR]~~ 1
unless the secondary side water temperature of each SG is ≤ ~~[~~50~~]~~°F above each of the RCS cold leg temperatures. 1

DOC L01 4. All RHR loops may be removed from operation during planned heatup to MODE 4 when at least one RCS loop is in operation.

Applicability APPLICABILITY: MODE 5 with RCS Loops Filled.

ACTIONS

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

3

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
4.4.1.4.1.2	SR 3.4.7.1	Verify required RHR loop is in operation.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1
4.4.1.4.1.1	SR 3.4.7.2	Verify SG secondary side water level is ≥ ~~[17]~~% in required SGs. 10	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1
DOC M01	SR 3.4.7.3	------------------------------NOTE------------------------------ Not required to be performed until 24 hours after a required pump is not in operation. --- Verify correct breaker alignment and indicated power are available to each required RHR pump.	~~[7 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
4.4.1.4.1.3	SR 3.4.7.4	Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.7, RCS LOOPS – MODE 5, LOOPS FILLED

1. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

2. 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.

3. Improved Technical Specifications (ITS) 3.4.7 Condition A provides a configuration where one Residual Heat Removal (RHR) loop is OPERABLE and one required RHR loop is inoperable. ITS Required Action A.1 is associated with restoring the inoperable RHR loop. However, ITS Required Action A.2 is associated with restoring steam generator (SG) level.

   ITS 3.4.7 Limiting Condition for Operation (LCO) requires one RHR loop to be OPERABLE and in operation and either: 1) a second RHR loop to be OPERABLE, or 2) or the secondary side water level of at least 2 SGs to be ≥ 10%. The LCO does not designate the SGs as an RHR loop. Therefore, the configuration expressed in ITS 3.4.7 Condition A is not associated with the potential for a required SG to not meet its OPERABILITY requirements. Subsequently, ITS 3.4.7 Required Action A.2 is inappropriate and confusing.

   ITS 3.4.7 Condition B addresses the inoperability of a required SG, assuming one RHR loop remains OPERABLE. To eliminate potential confusion, ITS 3.4.7 Conditions A and B are combined to more clearly address the LCO requirements. Combining these Conditions does not result in technical change to the existing requirements. With one RHR loop OPERABLE and no other Reactor Coolant System (RCS) cooling method described in the LCO OPERABLE, Action is still taken to either restore OPERABILITY of either the second RHR loop or the necessary number of SGs to provide the backup cooling means.

   As a result of combining ITS 3.4.7 Conditions A and B, ITS 3.4.7 Condition C and Required Actions C.1 and C.2 are relabeled as Condition B and Required Actions B.1 and B.2.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.7 RCS Loops - MODE 5, Loops Filled

BASES

BACKGROUND

In MODE 5 with the RCS loops filled, the primary function of the reactor coolant is the removal of decay heat and transfer of ~~this~~ heat either to the steam generator (SG) secondary side coolant via natural circulation (Ref. 1) or the component cooling water via the residual heat removal (RHR) heat exchangers. While the principal means for decay heat removal is via the RHR System, the SGs via natural circulation (Ref. 1) are specified as a backup means for redundancy. Even though the SGs cannot produce steam in this MODE, they are capable of being a heat sink due to their large contained volume of secondary water. As long as the SG secondary side water is at a lower temperature than the reactor coolant, heat transfer will occur. The rate of heat transfer is directly proportional to the temperature difference. The secondary function of the reactor coolant is to act as a carrier for soluble neutron poison, boric acid. 3

In MODE 5 with RCS loops filled, the reactor coolant is circulated by means of two RHR loops connected to the RCS, each loop containing an RHR heat exchanger, an RHR pump, and appropriate flow and temperature instrumentation for control, protection, and indication. One RHR pump circulates the water through the RCS at a sufficient rate to prevent boric acid stratification.

The number of loops in operation can vary to suit the operational needs. The intent of this LCO is to provide forced flow from at least one RHR loop for decay heat removal and transport. The flow provided by one RHR loop is adequate for decay heat removal. The other intent of this LCO is to require that a second path be available to provide redundancy for heat removal.

The LCO provides for redundant paths of decay heat removal capability. The first path is ~~can be~~ an RHR loop that must be OPERABLE and in operation. The second path can be another OPERABLE RHR loop or maintaining two SGs with secondary side water levels ≥ 10 ~~[17]~~% to provide an alternate method for decay heat removal via natural circulation (Ref. 1). 3 4

APPLICABLE SAFETY ANALYSES

In MODE 5, RCS circulation is considered in the determination of the time available for mitigation of the accidental boron dilution event. The RHR loops provide this circulation.

RCS Loops - MODE 5 (Loops Filled) satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).

BASES

LCO

The purpose of this LCO is to require that at least one of the RHR loops be OPERABLE and in operation with an additional RHR loop OPERABLE or two SGs with secondary side water level ≥ ~~[17]~~ 10%. One RHR loop provides sufficient forced circulation to perform the safety functions of the reactor coolant under these conditions. An additional RHR loop is required to be OPERABLE to meet single failure considerations. However, if the standby RHR loop is not OPERABLE, an acceptable alternate method is two SGs with their secondary side water levels ≥ ~~[17]~~ 10%. Should the operating RHR loop fail, the SGs could be used to remove the decay heat via natural circulation. 4 4

Note 1 permits all RHR pumps to be removed from operation ≤ 1 hour per 8 hour period. The purpose of the Note is to permit tests designed to validate various accident analyses values. One of the tests performed during the startup testing program is the validation of rod drop times during cold conditions, both with and without flow. The no flow test may be performed in MODE 3, 4, or 5 and requires that the pumps be stopped for a short period of time. The Note permits stopping of the pumps in order to perform this test and validate the assumed analysis values. If changes are made to the RCS that would cause a change to the flow characteristics of the RCS, the input values must be revalidated by conducting the test again. The 1 hour time period is adequate to perform the test, and operating experience has shown that boron stratification is not likely during this short period with no forced flow.

Utilization of Note 1 is permitted provided the following conditions are met, along with any other conditions imposed by initial startup test procedures:

a. No operations are permitted that would dilute the RCS boron concentration with coolant with boron concentrations less than required to meet SDM of LCO 3.1.1, ~~therefore~~ thereby maintaining the margin to criticality. Boron reduction with coolant at boron concentrations less than required to assure SDM is maintained is prohibited because a uniform concentration distribution throughout the RCS cannot be ensured when in natural circulation and 3

b. Core outlet temperature is maintained at least 10°F below saturation temperature, so that no vapor bubble may form and possibly cause a natural circulation flow obstruction.

Note 2 allows one RHR loop to be inoperable for a period of up to 2 hours, provided that the other RHR loop is OPERABLE and in operation. This permits periodic surveillance tests to be performed on the inoperable loop during ~~the only~~ a time when such testing is safe and possible. 3

BASES

LCO (continued)

Note 3 requires that the secondary side water temperature of each SG be ≤ ~~[~~50~~]~~°F above each of the RCS cold leg temperatures before the start of a reactor coolant pump (RCP) with an RCS cold leg temperature ≤ ~~[~~275°F~~] [Low Temperature Overpressure Protection (LTOP) arming temperature specified in the PTLR]~~. This restriction is to prevent a low temperature overpressure event due to a thermal transient when an RCP is started. 4 4

Note 4 provides for an orderly transition from MODE 5 to MODE 4 during a planned heatup by permitting removal of RHR loops from operation when at least one RCS loop is in operation. This Note provides for the transition to MODE 4 where an RCS loop is permitted to be in operation and replaces the RCS circulation function provided by the RHR loops.

RHR pumps are OPERABLE if they are capable of being powered and are able to provide flow if required. A SG can perform as a heat sink via natural circulation when it has an adequate water level and is OPERABLE. Management of gas voids is important to RHR System OPERABILITY.

APPLICABILITY

In MODE 5 with 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 ~~[~~two~~]~~ SGs is required to be ≥ ~~[17]~~ 10%. 4

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

If one RHR loop is OPERABLE and either the required SGs have secondary side water levels < ~~[17]~~%, or one required RHR loop is inoperable, 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

BASES

ACTIONS (continued)

Action will restore redundant heat removal paths. The immediate Completion Time reflects the importance of maintaining the availability of two paths for heat removal.

B

~~C~~.1 and ~~C~~.2

If a required RHR loop is not in operation, except during conditions permitted by Note 1, or if no required 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 LCO 3.1.1 is required to assure continued safe operation. With coolant added without forced circulation, unmixed coolant could be introduced to the core, however coolant added with boron concentration meeting the minimum SDM maintains acceptable margin to subcritical operations. The immediate Completion Times reflect the importance of maintaining operation for heat removal. 3

SURVEILLANCE REQUIREMENTS

SR 3.4.7.1

This SR requires verification that the required loop is in operation. Verification includes flow rate, temperature, or pump status monitoring, which help ensure that forced flow is providing heat removal. ~~[The Frequency of 12 hours is sufficient considering other indications and alarms available to the operator in the control room to monitor RHR loop performance.~~ 4

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 5
~~--]~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.7.2

Verifying that at least two SGs are OPERABLE by ensuring their secondary side narrow range water levels are ≥ ~~[17]~~ 10 % ensures an alternate decay heat removal method via natural circulation in the event that the second RHR loop is not OPERABLE. If both RHR loops are OPERABLE, this Surveillance is not needed. ~~[The 12 hour Frequency is considered adequate in view of other indications available in the control room to alert the operator to the loss of SG level.~~ 4 4

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 5
~~---]~~

SR 3.4.7.3

Verification that each required RHR pump is OPERABLE ensures that an additional pump can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. Verification is performed by verifying proper breaker alignment and power available to each required RHR pump. Alternatively, verification that a pump is in operation also verifies proper breaker alignment and power availability. If secondary side water level is ≥ 10 ~~[17]~~% in at least two SGs, this Surveillance is not needed. ~~[The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.~~ 4 4

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~-------------------------------REVIEWER'S NOTE-------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]~~

This SR is modified by a Note that states the SR is not required to be performed until 24 hours after a required pump is not in operation.

3.4.7.4

RHR System piping and components have the potential to develop voids and pockets of entrained gases. Preventing and managing gas intrusion and accumulation is necessary for proper operation of the required RHR loop(s) and may also prevent water hammer, pump cavitation, and pumping of noncondensible gas into the reactor vessel.

Selection of RHR System locations susceptible to gas accumulation is based on a review of system design information, including piping and instrumentation drawings, isometric drawings, plan and elevation drawings, and calculations. The design review is supplemented by system walk downs to validate the system high points and to confirm the location and orientation of important components that can become sources of gas or could otherwise cause gas to be trapped or difficult to remove during system maintenance or restoration. Susceptible locations depend on plant and system configuration, such as stand-by versus operating conditions.

The RHR System is OPERABLE when it is sufficiently filled with water. Acceptance criteria are established for the volume of accumulated gas at susceptible locations. If accumulated gas is discovered that exceeds the acceptance criteria for the susceptible location (or the volume of accumulated gas at one or more susceptible locations exceeds an acceptance criteria for gas volume at the suction or discharge of a pump), the Surveillance is not met. If the accumulated gas is eliminated or brought within the acceptance criteria limits during performance of the Surveillance, the Surveillance is met and past system OPERABILITY is evaluated under the Corrective Action Program. If it is determined by subsequent evaluation that the RHR System is not rendered inoperable by the accumulated gas (i.e., the system is sufficiently filled with water), the Surveillance may be declared met. Accumulated gas should be eliminated or brought within the acceptance criteria limits.

BASES

SURVEILLANCE REQUIREMENTS (continued)

RHR System locations susceptible to gas accumulation are monitored and, if gas is found, the gas volume is compared to the acceptance criteria for the location. Susceptible locations in the same system flow path which are subject to the same gas intrusion mechanisms may be verified by monitoring a representative sub-set of susceptible locations. Monitoring may not be practical for locations that are inaccessible due to radiological or environmental conditions, the plant configuration, or personnel safety. For these locations alternative methods (e.g., operating parameters, remote monitoring) may be used to monitor the susceptible location. Monitoring is not required for susceptible locations where the maximum potential accumulated gas void volume has been evaluated and determined to not challenge system OPERABILITY. The accuracy of the method used for monitoring the susceptible locations and trending of the results should be sufficient to assure system OPERABILITY during the Surveillance interval.

~~[The 31 day Frequency takes into consideration the gradual nature of gas accumulation in the RHR System piping and the procedural controls governing system operation.~~ 4

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Surveillance Frequency may vary by location susceptible to gas accumulation.

~~-----REVIEWER'S NOTE-----~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 5
~~-----]~~

REFERENCES

1. NRC Information Notice 95-35, "Degraded Ability of Steam Generators to Remove Decay Heat by Natural Circulation."

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.7 Bases, RCS LOOPS – MODE 5, LOOPS FILLED

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

2. Changes have been made to be consistent with changes made to the Specifications

3. Editorial/grammatical error corrected.

4. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

5. The Reviewer's Note has been deleted, because it is not meant to be retained in the plant specific Improved Technical Specifications (ITS) submittal.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.7, RCS LOOPS – MODE 5, LOOPS FILLED

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 8

ITS 3.4.8 – RCS LOOPS - MODE 5, LOOPS NOT FILLED

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

REACTOR COOLANT SYSTEM

COLD SHUTDOWN - LOOPS NOT FILLED

LIMITING CONDITION FOR OPERATION

LCO 3.4.8 3.4.1.4.2 Two residual heat removal (RHR) loops shall be OPERABLE* and at least one RHR loop shall be in operation.** Add LCO 3.4.7 Note 1.c M01

Applicability APPLICABILITY: MODE 5 with reactor coolant loops not filled.

ACTION:

ACTION A a. With less than the above required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status as soon as possible.

Add proposed Condition B, first part A02

ACTION B b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return ~~the required~~ one RHR loop to OPERABLE status and operation.

A03 A04

SURVEILLANCE REQUIREMENTS

SR 3.4.8.1 4.4.1.4.2.1 At least one RHR loop shall be determined to be in operation ~~and circulating reactor coolant~~ in accordance with the Surveillance Frequency Control Program. LA01

SR 3.4.8.3 4.4.1.4.2.2 Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water in accordance with the Surveillance Frequency Control Program.

Add proposed SR 3.4.8.2 M03

LCO 3.4.8 Note 2 * One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE.

LCO 3.4.8 Note 1 Note 1.a Note 1.b ** The RHR pump may be ~~deenergized for up to 1 hour~~ removed from operation for ≤ 15 minutes when switching from one loop to another provided: (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and (2) core outlet temperature is maintained at ~~least~~ > 10°F below saturation temperature.

L01 M02 M04

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications - Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.4.1.4.2 ACTION b states, "With no RHR loop in operation..." ITS 3.4.8 Action B states "No required RHR loops OPERABLE OR Required RHR loop not in operation." This changes the CTS by adding an additional condition for the Action that no required Residual Heat Removal (RHR) loop OPERABLE.

The purpose of CTS 3.4.1.4.1 Action b is with no RHR loop in operation, to suspend all operations involving a reduction in boron concentration of the Reactor Coolant System (RCS) and immediately initiate corrective action to return the required RHR loop to operation. Other changes to this Action are justified in DOCs A03 and A04. Adding the additional condition (no RHR loops are OPERABLE) to the Action is for clarification only because if no RHR loops are OPERABLE, there are no RHR loops in operation. In addition, immediate Action is required to place one train in operation if a loop is OPERABLE and not in operation. The change is designated as administrative because it does not result in technical changes to the CTS.

A03 CTS 3.4.1.4.2 Action b states, in part, "immediately initiate corrective action to return the required reactor coolant loop to operation." ITS 3.4.8 ACTION B.2 states "Initiate action to restore one RCS loop to OPERABLE status and operation." This changes the CTS by requiring the loop to be OPERABLE as well as be in operation.

The purpose of CTS 3.4.1.4.2 is to keep at least one RHR loop OPERABLE and in operation. A loop in operation is assumed to be OPERABLE. The Bases discusses that the required loops in operation ensure the safety limit criteria is met for all postulated accidents. For this to be true the loops have to be OPERABLE and (capable of meeting its specified safety function). This change is designated as administrative because it does not result in technical changes to the CTS.

A04 CTS 3.4.1.4.2 Action b, in part, requires immediately initiating corrective action to return "the required" loop to operation. ITS 3.4.8 Action B requires essentially the same Action but requires restoration of "one" loop to operation. This changes the CTS by changing "the required" to "one" when referring to returning the loop to operation.

The purpose of CTS 3.4.1.2 Action b is with no loop in operation, to suspend all operations involving a reduction in boron concentration of the RCS and immediately initiate corrective action to return the required RHR loop to operation. Changing "the required" to "one" is essentially the same in that only one loop has to be in operation per the Limiting Condition for Operation (LCO) so returning the required RHR Loop is the same as returning one RHR Loop to operation. This change is designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 3.4.1.4.2 Footnote ** contains an allowance for the RHR pumps to be de-energized for up to one hour provided 1) no operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet SHUTDOWN MARGIN (SDM) of LCO 3.1.1.2 and 2) core outlet temperature is maintained at least 10°F below saturation temperature. ITS LCO 3.4.8 Note 1 allows all RHR pumps to be removed from operation for ≤ 15 minutes when switching from one loop to the other provided the core outlet temperature is maintained at least 10°F below saturation temperature, no operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1.2, and no draining operations to further reduce the RCS water volume are permitted. This changes the CTS 3.4.1.4.2 Footnote ** by restricting the allowance to only during pump switching operations (see M02), reducing the time the pump can be removed from operation to 15 minutes (see M02), and adds a restriction that no draining operations are permitted to further reduce the RCS water volume.

The purpose of the CTS 3.4.1.4.2 Footnote ** in MODE 5 with RCS loops not filled is to allow the RHR loops to be removed from operation for switching from one loop to the other. This change is acceptable because not allowing draining operations is prudent when there is no flow. Adding the additional condition that no draining operations be performed when the pumps are stopped is reasonable given the lower RCS water level and the unavailability of the RHR pumps to add inventory to the RCS, if needed. This change is more restrictive because it imposes additional restrictions to the allowance for RHR loops to be removed from operation.

M02 CTS 3.4.1.4.2 Footnote ** contains an allowance for the RHR pumps to be de-energized for up to one hour. ITS LCO 3.4.8 Note 1 allows all RHR pumps to be removed from operation for ≤ 15 minutes only when switching from one loop to the other, and also requires that no draining operations to further reduce the RCS water volume are permitted (part c). This changes the CTS by reducing the time allowed for the RHR pump to be de-energized from 1 hour to 15 minutes, restricts the allowance to only during pump switching operations, and adds a restriction that no draining operations are permitted to further reduce the RCS water volume (see DOC M01).

The purpose of the CTS 3.4.1.4.2 Footnote ** in MODE 5 with RCS loops not filled is to allow the RHR loops to be removed from operation for switching from one loop to the other. This change is acceptable because ITS LCO 3.4.8 Note 1 provides sufficient time to perform loop switching operations and provides adequate controls. 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 may be necessary. 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. This change is more restrictive because it reduces the time a RHR loop may be out of service and adds an additional restriction.

M03 ITS SR 3.4.8.2 requires verification that correct breaker alignment and indicated power are available to each required RHR pump. A Note further explains that the Surveillance is not required to be performed until 24 hours after a required RHR pump is not in operation. This Surveillance is not required by the CTS. This changes the CTS by requiring verification of correct breaker alignment and indicated power availability on required RHR pumps that are not in operation.

The purpose of ITS SR 3.4.8.2 is to ensure a standby RHR 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 adds a Surveillance Requirement to the CTS.

M04 CTS 3.4.1.4.2 states, in part, that "core outlet temperature is maintained at least 10°F below saturation temperature." ITS 3.4.8 states "The core outlet temperature is maintained > 10°F below saturation temperature." This changes the CTS by replacing "at least"” (equivalent to greater than or equal to) with ">".

The purpose of CTS 3.4.1.4.2 is to have two RHR loops OPERABLE and at least one RHR loop in operation. This change is acceptable because it provides more margin to core outlet temperature. This change is designated as more restrictive, because it replaces "at least" (equivalent to greater than or equal to) with ">".

<u>RELOCATED SPECIFICATIONS</u>

None

<u>REMOVED DETAIL CHANGES</u>

LA01 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.4.1.4.2.1 states, in part, that the required RHR loop shall be verified to be in operation and circulating reactor coolant. ITS Surveillance Requirement (SR) 3.4.8.1 states, in part, that the required RHR loop

shall be verified to be in operation. This changes the CTS by moving the requirement to verify that the RHR loop is circulating reactor coolant to the Bases.

The removal of this detail for performing SRs 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 an RHR loop be verified in operation. This will require circulation of reactor coolant since the ITS Bases specify that verification that a loop is in operation includes flow rate, temperature, or pump status monitoring, which helps ensure that forced flow is providing heat removal. Also, this change is acceptable because these types of procedural details will be adequately controlled in the 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 procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 1 – Relaxation of LCO Requirements)* CTS 3.4.1.4.2 ** states, in part, "The RHR pump may be deenergized." ITS 3.4.8 LCO Note, in part, states "All RHR pumps may be removed from operation." This changes the CTS by removing "deenergized" and adding "removed from operation."

The purpose of CTS 3.4.1.4.2 is to have two RHR loops OPERABLE and at least one RHR loop in operation. This change is acceptable because the LCO requirements continue to ensure that the components are maintained consistent with the safety analyses and licensing basis. The change provides more flexibility and removes ambiguity with respect to what deenergize means (pull the breaker on the pump, place the hand switch in the locked position, or just stopping the pump) which can lead to errors or improper enforcement. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5, Loops Not Filled

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

--NOTES--

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

3.4.1.4.2 ** [a. The core outlet temperature is maintained > 10°F below saturation temperature,] 2

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

DOC M01 c. No draining operations to further reduce the RCS water volume are permitted.

3.4.1.4.2 * 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 APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

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

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC M02 ACTION b	B. No required RHR loop OPERABLE. OR Required RHR loop not in operation.	B.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1. AND	Immediately
DOC M02		B.2 Initiate action to restore one RHR loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
4.4.1.4.2.1	SR 3.4.8.1	Verify required RHR loop is in operation.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
DOC M03	SR 3.4.8.2	-------------------------------NOTE------------------------------ Not required to be performed until 24 hours after a required pump is not in operation. -- Verify correct breaker alignment and indicated power are available to each required RHR pump.	~~[7 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2
4.4.1.4.2.2	SR 3.4.8.3	Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.8, RCS LOOPS – MODE 5, LOOPS NOT FILLED

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

2. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.8 RCS Loops - MODE 5, Loops Not Filled

BASES

BACKGROUND

In MODE 5 with the RCS loops not filled, the primary function of the reactor coolant is the removal of decay heat generated in the fuel, and the transfer of this heat to the component cooling water via the residual heat removal (RHR) heat exchangers. The steam generators (SGs) are not available as a heat sink when the loops are not filled. The secondary function of the reactor coolant is to act as a carrier for the soluble neutron poison, boric acid.

In MODE 5 with loops not filled, only RHR pumps can be used for coolant circulation. The number of pumps in operation can vary to suit the operational needs. The intent of this LCO is to provide forced flow from at least one RHR pump for decay heat removal and transport ~~and to require that two paths be available to provide redundancy for heat removal~~. 4

APPLICABLE SAFETY ANALYSES

In MODE 5, RCS circulation is considered in the determination of the time available for mitigation of the accidental boron dilution event. The RHR loops provide this circulation. The flow provided by one RHR loop is adequate for heat removal and for boron mixing.

RCS loops in MODE 5 (loops not filled) satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).

LCO

The purpose of this LCO is to require that at least two RHR loops be OPERABLE and one of these loops be in operation. An OPERABLE loop is one that has the capability of transferring heat from the reactor coolant at a controlled rate. Heat cannot be removed via the RHR System unless forced flow is used. A minimum of one running RHR pump meets the LCO requirement for one loop in operation. An additional RHR loop is required to be OPERABLE to meet single failure considerations.

Note 1 permits all RHR pumps to be removed from operation for ≤ 15 minutes when switching from one loop to another. The circumstances for stopping both RHR pumps are to be limited to situations when the outage time is short ~~[~~and core outlet temperature is maintained > 10°F below saturation temperature~~]~~. The Note prohibits boron dilution with coolant at boron concentrations less than required to assure SDM of LCO 3.1.1 is maintained or draining operations when RHR forced flow is stopped. 2

BASES

LCO (continued)

Note 2 allows one RHR loop to be inoperable for a period of ≤ 2 hours, provided that the other loop is OPERABLE and in operation. This permits periodic surveillance tests to be performed on the inoperable loop during a ~~the only~~ time when these tests are safe and possible. 5

An OPERABLE RHR loop is comprised of an OPERABLE RHR pump capable of providing forced flow to an OPERABLE RHR heat exchanger. RHR pumps are OPERABLE if they are capable of being powered and are able to provide flow if required. Management of gas voids is important to RHR System OPERABILITY.

APPLICABILITY

In MODE 5 with loops not filled, this LCO requires core heat removal and coolant circulation by the RHR System.

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 3.4.7, "RCS Loops - MODE 5, Loops Filled,"
LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation - High Water Level" ~~(MODE 6),"~~ and 4
LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level" ~~(MODE 6)"~~.

ACTIONS

A.1

If one required RHR loop is inoperable, redundancy for RHR is lost. Action must be initiated to restore a second loop to OPERABLE status. The immediate Completion Time reflects the importance of maintaining the availability of two paths for heat removal.

B.1 and B.2

If no required loop is OPERABLE or the required loop is not in operation, except during conditions permitted by Note 1, 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 must be initiated immediately to restore an RHR loop to OPERABLE status and operation. The required margin to criticality must not be reduced in this type of operation. Suspending the introduction of coolant into the RCS ~~of coolant~~ with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 is required to assure continued safe operation. With coolant added without forced circulation, 5

BASES

ACTIONS (continued)

unmixed coolant could be introduced to the core, however coolant added with boron concentration meeting the minimum SDM maintains acceptable margin to subcritical operations. The immediate Completion Time reflects the importance of maintaining operation for heat removal. The action to restore must continue until one loop is restored to OPERABLE status and operation.

SURVEILLANCE REQUIREMENTS

SR 3.4.8.1

This SR requires verification that the required loop is in operation. Verification includes flow rate, temperature, or pump status monitoring, which help ensure that forced flow is providing heat removal. ~~[The Frequency of 12 hours is sufficient considering other indications and alarms available to the operator in the control room to monitor RHR loop performance.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~---]~~

SR 3.4.8.2

Verification that each required pump is OPERABLE ensures that an additional pump can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. Verification is performed by verifying proper breaker alignment and power available to each required pump. Alternatively, verification that a pump is in operation also verifies proper breaker alignment and power availability. ~~[The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~------------------------------REVIEWER'S NOTE------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]~~

3

This SR is modified by a Note that states the SR is not required to be performed until 24 hours after a required pump is not in operation.

SR 3.4.8.3

RHR System piping and components have the potential to develop voids and pockets of entrained gases. Preventing and managing gas intrusion and accumulation is necessary for proper operation of the RHR loops and may also prevent water hammer, pump cavitation, and pumping of noncondensible gas into the reactor vessel.

Selection of RHR System locations susceptible to gas accumulation is based on a review of system design information, including piping and instrumentation drawings, isometric drawings, plan and elevation drawings, and calculations. The design review is supplemented by system walk downs to validate the system high points and to confirm the location and orientation of important components that can become sources of gas or could otherwise cause gas to be trapped or difficult to remove during system maintenance or restoration. Susceptible locations depend on plant and system configuration, such as stand-by versus operating conditions.

The RHR System is OPERABLE when it is sufficiently filled with water. Acceptance criteria are established for the volume of accumulated gas at susceptible locations. If accumulated gas is discovered that exceeds the acceptance criteria for the susceptible location (or the volume of accumulated gas at one or more susceptible locations exceeds an acceptance criteria for gas volume at the suction or discharge of a pump), the Surveillance is not met. If the accumulated gas is eliminated or brought within the acceptance criteria limits during performance of the Surveillance, the Surveillance is met and past system OPERABILITY is evaluated under the Corrective Action Program. If it is determined by subsequent evaluation that the RHR System is not rendered inoperable by the accumulated gas (i.e., the system is sufficiently filled with water), the Surveillance may be declared met. Accumulated gas should be eliminated or brought within the acceptance criteria limits.

BASES

SURVEILLANCE REQUIREMENTS (continued)

RHR System locations susceptible to gas accumulation are monitored and, if gas is found, the gas volume is compared to the acceptance criteria for the location. Susceptible locations in the same system flow path which are subject to the same gas intrusion mechanisms may be verified by monitoring a representative sub-set of susceptible locations. Monitoring may not be practical for locations that are inaccessible due to radiological or environmental conditions, the plant configuration, or personnel safety. For these locations alternative methods (e.g., operating parameters, remote monitoring) may be used to monitor the susceptible location. Monitoring is not required for susceptible locations where the maximum potential accumulated gas void volume has been evaluated and determined to not challenge system OPERABILITY. The accuracy of the method used for monitoring the susceptible locations and trending of the results should be sufficient to assure system OPERABILITY during the Surveillance interval.

~~[The 31 day Frequency takes into consideration the gradual nature of gas accumulation in the RHR System piping and the procedural controls governing system operation.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Surveillance Frequency may vary by location susceptible to gas accumulation.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~---]~~

REFERENCES None.

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.8 Bases, RCS LOOPS – MODE 5, LOOPS NOT FILLED

1. Changes have been made to be consistent with the Specification.

2. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. The Reviewer's Note has been deleted, because it is not meant to be retained in the plant specific Improved Technical Specifications (ITS) submittal.

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

5. Editorial/grammatical error corrected.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.8, RCS LOOPS – MODE 5, LOOPS NOT FILLED

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 9

ITS 3.4.9 – PRESSURIZER

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

REACTOR COOLANT SYSTEM

3/4.4.3 PRESSURIZER

LIMITING CONDITION FOR OPERATION

level

LCO 3.4.9 3.4.3 The pressurizer shall be OPERABLE with a water ~~volume~~ of less than or equal to 92% ~~of indicated level~~, and at least two groups of pressurizer heaters each having a capacity of at least 125 kW and capable of being supplied by emergency power. A02 A01

Applicability APPLICABILITY: MODES 1, 2, and 3.

ACTION:

ACTION B
ACTION C

a. With only one group of pressurizer heaters OPERABLE, restore at least two groups 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.

water level not within limit A03

ACTION A b. With the pressurizer ~~otherwise inoperable~~, be in at least HOT STANDBY ~~with the Reactor Trip System breakers open~~ within 6 hours and in HOT SHUTDOWN within the following 6 hours.

Add proposed Required Action A.2 and A.3 L01

SURVEILLANCE REQUIREMENTS

level

SR 3.4.9.1 4.4.3.1 The pressurizer water ~~volume~~ shall be determined to be within its limit in accordance with the Surveillance Frequency Control Program. A02

SR 3.4.9.2 4.4.3.2 The capacity of each of the above required groups of pressurizer heaters shall be verified to be at least 125 kw in accordance with the Surveillance Frequency Control Program.

Add proposed SR 3.4.9.3 M01

ACTION B Note ** 14 days if the inoperability is associated with an inoperable diesel generator.

DISCUSSION OF CHANGES
ITS 3.4.9, PRESSURIZER

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications - Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.4.3 requires the pressurizer water volume to be less than or equal to 92% of indicated level and CTS 4.4.3.1 requires a verification of the pressurizer water volume. ITS Limiting Condition for Operation (LCO) 3.4.9 requires the pressurizer water level to be ≤ 92% and ITS Surveillance Requirement (SR) 3.4.9.1 requires verification of the pressurizer water level. This changes the CTS by changing "pressurizer water volume" to "pressurizer water level."

The purpose of CTS 3.4.3 and CTS 4.4.3.1 is to ensure the pressurizer water level is at or below the trip setpoint specified in CTS Table 2.2-1. This change is acceptable since the current value corresponds to pressurizer water level. The value of 92% of instrument span corresponds to the Pressurizer Water Level – High trip setpoint in CTS Table 2.2-1. Since the value corresponds to the actual water level in the pressurizer, the change from "volume" to "level" is appropriate. This change is designated as administrative because it does not result in technical changes to the CTS.

A03 CTS 3.4.3 ACTION b applies when the pressurizer is otherwise inoperable (i.e., for reasons other than an inoperable group of pressurizer heaters as described in ACTION a). ITS 3.4.9 ACTION A applies when the pressurizer water level is not within limit. This changes the CTS to specifically state the reason the pressurizer is inoperable.

The purpose of CTS 3.4.3 is to require the pressurizer to be OPERABLE and two conditions of OPERABILITY are supplied. The conditions are pressurizer water level and pressurizer heater OPERABILITY. CTS 3.4.3 ACTION b only applies when water level is not within limit. This is the same condition for which ITS 3.4.9 ACTION A applies. This change is acceptable because the condition under which CTS 3.4.4 ACTION b applies has not changed. This change is designated as administrative as it results in no technical change to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 3.4.3 does not contain an explicit requirement to verify two groups of pressurizer heaters are capable of being supplied by emergency power. ITS SR 3.4.9.3 requires verifying the pressurizer heaters are capable of being powered from an emergency power supply. This changes the CTS by adding a surveillance.

The purpose of ITS SR 3.4.9.3 is to provide additional assurance that pressurizer heaters are capable of being powered from an emergency power supply. This change is acceptable because it provides additional assurance that the pressurizer heaters will be capable of performing the specified safety function if normal power is lost. This change is designated as more restrictive because it adds a SR to the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.4.3 Action b requires the unit to be in Hot Standby with the Reactor Trip System breakers open within 6 hours and Hot Shutdown within the following 6 hours. ITS 3.4.9 ACTIONS A.2 and A.3 require the rods to be fully inserted and the Rod Control System to be placed in a condition incapable of rod withdrawal and other Actions require the unit to be placed in Mode 3 in 6 hours and Mode 4 within 12 hours. This changes the CTS by allowing alternate options to preclude rod withdrawal besides opening the reactor trip breakers (RTBs).

ITS 3.4.9 ACTION A ensures the unit is brought to a Mode in which the LCO does not apply when the pressurizer water level is not within limits. The proposed change would allow the unit more flexibility on how to ensure the Rod Control System is incapable of rod withdrawal. It is postulated that a power excursion could occur in the event of an inadvertent control rod withdrawal. 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. This change (allowing alternate options to preclude rod withdrawal) is necessary to eliminate undesirable secondary effects of opening the RTBs. By opening the RTBs, plant interlock P-4 is tripped, which results in isolation of normal feedwater. Forcing reliance on Auxiliary Feedwater (AFW) in this condition is not the intent nor is it desirable over continued use of normal feedwater. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.3

LCO 3.4.9 The pressurizer shall be OPERABLE with:

a. Pressurizer water level ≤ [92]% and 1

b. [Two groups of] pressurizer heaters OPERABLE with the capacity [of each group] ≥ [125] kW [and capable of being powered from an emergency power supply]. 1

Applicability

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION b	A. Pressurizer water level not within limit.	A.1 Be in MODE 3.	6 hours
		AND	
DOC M01	-----------------NOTE----------------- Only applicable if the group of heaters is inoperable due to an inoperable EDG. ---	A.2 Fully insert all rods.	6 hours
		AND	
DOC M01	14 days OR	A.3 Place Rod Control System in a condition incapable of rod withdrawal.	6 hours
		AND	
ACTION b		A.4 Be in MODE 4.	12 hours
ACTION a	B. One [required] group of pressurizer heaters inoperable.	B.1 Restore [required] group of pressurizer heaters to OPERABLE status.	72 hours 1 2 ~~[OR~~ 1 ~~In accordance with the Risk Informed Completion Time Program]~~

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a	C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
4.4.3.1	SR 3.4.9.1	Verify pressurizer water level is ≤ ~~[~~92~~]~~%.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1
		~~-----REVIEWER'S NOTE----- The frequency for performing Pressurizer heater capacity testing shall be either 18 months or 92 days, depending on whether or not the plant has dedicated safety-related heaters. For dedicated safety-related heaters, which do not normally operate, 92 days is applied. For non-dedicated safety-related heaters, which normally operate, 18 months is applied.~~		4
4.4.3.2	SR 3.4.9.2	Verify capacity of each required group of pressurizer heaters is ≥ ~~[~~125~~]~~ kW.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
DOC L01	SR 3.4.9.3	[Verify required pressurizer heaters are capable of being powered from an emergency power supply.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program]]	1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.9, PRESSURIZER

1. The Improved Standard Technical Specifications (ISTS) contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

2. Changes are made to be consistent with the current licensing basis.

3. 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.

4. The Reviewer's Note has been deleted, because it is not meant to be retained in the plant specific Improved Technical Specifications (ITS) submittal.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.9 Pressurizer

BASES

BACKGROUND

The pressurizer provides a point in the RCS where liquid and vapor are maintained in equilibrium under saturated conditions for pressure control purposes to prevent bulk boiling in the remainder of the RCS. Key functions include maintaining required primary system pressure during steady state operation, and limiting the pressure changes caused by reactor coolant thermal expansion and contraction during normal load transients.

The pressure control components addressed by this LCO include the pressurizer water level, the required heaters, and their controls and emergency power supplies. Pressurizer safety valves and pressurizer power operated relief valves are addressed by LCO 3.4.10, "Pressurizer Safety Valves," and LCO 3.4.11, "Pressurizer Power Operated Relief Valves (PORVs)," respectively.

The intent of the LCO is to ensure that a steam bubble exists in the pressurizer prior to power operation to minimize the consequences of potential overpressure transients. The presence of a steam bubble is consistent with analytical assumptions. Relatively small amounts of noncondensible gases can inhibit the condensation heat transfer between the pressurizer spray and the steam, and diminish the spray effectiveness for pressure control.

Electrical immersion heaters, located in the lower section of the pressurizer vessel, keep the water in the pressurizer at saturation temperature and maintain a constant operating pressure. A minimum required available capacity of pressurizer heaters ensures that the RCS pressure can be maintained. The capability to maintain and control system pressure is important for maintaining subcooled conditions in the RCS and ensuring the capability to remove core decay heat by either forced or natural circulation of reactor coolant. Unless adequate heater capacity is available, the hot, high pressure condition cannot be maintained indefinitely and still provide the required subcooling margin in the primary system. Inability to control the system pressure and maintain subcooling under conditions of natural circulation flow in the primary system could lead to a loss of single phase natural circulation and decreased capability to remove core decay heat.

BASES

APPLICABLE SAFETY ANALYSES

In MODES 1, 2, and 3, the LCO requirement for a steam bubble is reflected implicitly in the accident analyses. Safety analyses performed for lower MODES are not limiting. All analyses performed from a critical reactor condition assume the existence of a steam bubble and saturated conditions in the pressurizer. In making this assumption, the analyses neglect the small fraction of noncondensible gases normally present.

Safety analyses presented in the U FSAR (Ref. 1) do not take credit for pressurizer heater operation; however, an implicit initial condition assumption of the safety analyses is that the RCS is operating at normal pressure. 1

The maximum pressurizer water level limit, which ensures that a steam bubble exists in the pressurizer, satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii). Although the heaters are not specifically used in accident analysis, the need to maintain subcooling in the long term during loss of offsite power, as indicated in NUREG-0737 (Ref. 2), is the reason for providing an LCO. 1

LCO

~~-----REVIEWER'S NOTE-----~~
~~Plants licensed prior to the issuance of NUREG-0737 may not have a requirement on the number of pressurizer groups.~~ 2
~~----------~~

The LCO requirement for the pressurizer to be OPERABLE with a water volume ≤ 766 ~~[1240]~~ cubic feet, which is equivalent to 60 ~~[92]~~%, ensures that a steam bubble exists. Limiting the LCO maximum operating water level preserves the steam space for pressure control. The LCO has been established to ensure the capability to establish and maintain pressure control for steady state operation and to minimize the consequences of potential overpressure transients. Requiring the presence of a steam bubble is also consistent with analytical assumptions. 3

The LCO requires ~~[~~two groups of~~]~~ OPERABLE pressurizer heaters, ~~[~~each~~]~~ with a capacity ≥ ~~[~~125~~]~~ kW, ~~[~~capable of being powered from either the offsite power source or the emergency power supply~~]~~. The minimum heater capacity required is sufficient to maintain the RCS near normal operating pressure when accounting for heat losses through the pressurizer insulation. By maintaining the pressure near the operating conditions, a wide margin to subcooling can be obtained in the loops. ~~The exact design value of [125 kW is derived from the use of seven heaters rated at 17.9 kW each].~~ The amount needed to maintain pressure is dependent on the heat losses. 3 3 1 3

BASES

APPLICABILITY

The need for pressure control is most pertinent when core heat can cause the greatest effect on RCS temperature, resulting in the greatest effect on pressurizer level and RCS pressure control. Thus, applicability has been designated for MODES 1 and 2. The applicability is also provided for MODE 3. The purpose is to prevent solid water RCS operation during heatup and cooldown to avoid rapid pressure rises caused by normal operational perturbation, such as reactor coolant pump startup.

In MODES 1, 2, and 3, there is need to maintain the availability of pressurizer heaters, capable of being powered from an emergency power supply. In the event of a loss of offsite power, the initial conditions of these MODES give the greatest demand for maintaining the RCS in a hot pressurized condition with loop subcooling for an extended period. For MODE 4, 5, or 6, it is not necessary to control pressure (by heaters) to ensure loop subcooling for heat transfer when the Residual Heat Removal (RHR) System is in service, and therefore, the LCO is not applicable.

ACTIONS

A.1, A.2, A.3, and A.4

Pressurizer water level control malfunctions or other plant evolutions may result in a pressurizer water level above the nominal upper limit, even with the plant at steady state conditions. Normally the plant will trip in this event since the upper limit of this LCO is the same as the Pressurizer Water Level - High Trip. Setpoints 1

If the pressurizer water level is not within the limit, action must be taken to bring the plant to a MODE in which the LCO does not apply. To achieve this status, within 6 hours the unit must be brought to MODE 3 with all rods fully inserted and incapable of withdrawal. Additionally, the unit must be brought to MODE 4 within 12 hours. This takes the unit out of the applicable MODES.

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.

B.1

If one ~~[~~required~~]~~ group of pressurizer heaters is inoperable, restoration is required within 72 hours ~~[or in accordance with the Risk Informed Completion Time Program].~~ The Completion Time of 72 hours is reasonable considering the anticipation that a demand caused by loss of offsite power would be unlikely in this period. Pressure control may be maintained during this time using normal station powered heaters. The Completion Time is extended to 14 days if the group of heaters is inoperable due to an inoperable EDG. The Completion Time of 14 days is consistent with one EDG inoperable. 3 4

BASES

ACTIONS (continued)

C.1 and C.2

If one group of pressurizer heaters are inoperable and cannot be restored in the allowed Completion Time of Required Action B.1, 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 MODE 3 within 6 hours and to MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.9.1

This SR requires that during steady state operation, pressurizer level is maintained below the nominal upper limit to provide a minimum space for a steam bubble. The Surveillance is performed by observing the indicated level. ~~[The Frequency of 12 hours corresponds to verifying the parameter each shift. The 12 hour interval has been shown by operating practice to be sufficient to regularly assess level for any deviation and verify that operation is within safety analyses assumption of ensuring that a steam bubble exists in the pressurizer. Alarms are also available for early detection of abnormal level indications.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~---]~~

SR 3.4.9.2

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The frequency for performing Pressurizer heater capacity testing shall be either 18 months or 92 days, depending on whether or not the plant has dedicated safety-related heaters. For dedicated safety-related heaters, which do not normally operate, 92 days is applied. For non-dedicated safety-related heaters, which normally operate, 18 months is applied.~~ 2
~~---~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

The SR is satisfied when the power supplies are demonstrated to be capable of producing the minimum power and the associated pressurizer heaters are verified to be at their design rating. This may be done by testing the power supply output and by performing an electrical check on heater element continuity and resistance. ~~[The Frequency of [18] months is considered adequate to detect heater degradation and has been shown by operating experience to be acceptable.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~---]~~

~~[~~ SR 3.4.9.3

~~This SR is not applicable if the heaters are permanently powered by Class 1E power supplies.~~ 1

This Surveillance demonstrates that the heaters can be manually transferred from the normal to the emergency power supply and energized. ~~[The Frequency of 18 months is based on a typical fuel cycle and is consistent with similar verifications of emergency power supplies.~~ 3

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 2
~~---]]~~

BASES

REFERENCES

U 1. FSAR, ~~Section [ ]~~ Chapter 14. 1

2. NUREG-0737, November 1980.

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.9 Bases, PRESSURIZER

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

2. The Reviewer's Note has been deleted, because it is not meant to be retained in the plant specific Improved Technical Specifications (ITS) submittal.

3. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

4. Changes are made to be consistent with the Specification.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.9, PRESSURIZER

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 10

ITS 3.4.10, PRESSURIZER SAFETY VALVES

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

3/4.4.2 SAFETY VALVES

SHUTDOWN

LIMITING CONDITION FOR OPERATION

Three M01

LCO 3.4.10 3.4.2.1 ~~A minimum of one~~ pressurizer Code safety valve shall be OPERABLE* with a lift setting of ~~2465 psig + 2%, -3%.** ***~~

≥ 2391 psig and ≤ 2514 psig A02

APPLICABILITY: MODES 4~~, and 5~~.

with all RCS cold leg temperatures > 275ºF L02

Add Proposed Applicability NOTE L01

ACTION:

ACTIONS A & B ~~With no pressurizer Code safety valve OPERABLE, immediately suspend all operations involving positive reactivity changes and place an OPERABLE RHR loop into operation in the shutdown cooling mode.~~

Add Proposed Action A and B L03

SURVEILLANCE REQUIREMENTS

SR 3.4.10.1 4.4.2.1 ~~No additional requirements other than those required by~~ the INSERVICE TESTING PROGRAM.

Verify each pressurizer safety valve is OPERABLE in accordance with A01

~~* While in MODE 5, an equivalent size vent pathway may be used provided that the vent pathway is not isolated or sealed.~~ L02

~~** The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.~~ LA01

SR 3.4.10.1 *** All valves tested must have "as left" lift setpoints that are within ± 1% of the lift setting value.

REACTOR COOLANT SYSTEM

OPERATING

LIMITING CONDITION FOR OPERATION

≥ 2391 psig and ≤ 2514 psig

LCO 3.4.10 3.4.2.2 All pressurizer Code safety valves shall be OPERABLE with a lift setting of ~~2465 psig + 2%, -3%~~.~~*~~ ** A02

Applicability APPLICABILITY: MODES 1, 2 and 3.

ACTION:

Add proposed Applicability Note L01

ACTION A
ACTION B
With one pressurizer Code safety valve inoperable, either restore the inoperable valve to OPERABLE status within 15 minutes or be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within ~~the following 6~~ hours. A03

with any RCS cold leg temperature ≤ 275ºF

24

L04

SURVEILLANCE REQUIREMENTS

SR 3.4.10.1 4.4.2.2 ~~No additional requirements other than those required by~~ the INSERVICE TESTING PROGRAM.

Verify each pressurizer safety valve is OPERABLE in accordance with

A01

~~* The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.~~ LA01

SR 3.4.10.1 ** All valves tested must have “as left” lift setpoints that are within ± 1% of the lift setting value.

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications - Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.4.2.1 and CTS 3.4.2.2 require all pressurizer code safety valves to be OPERABLE with a lift setting of 2465 psig + 2%, - 3%. ITS LCO 3.4.10 requires three pressurizer safety valves to be OPERABLE with lift settings ≥ 2391 psig and ≤ 2514 psig. This changes the CTS by including the actual lift settings, in lieu of a plus and minus tolerance band.

This change is acceptable because the technical requirements have not changed. ITS Limiting Condition for Operation (LCO) 3.4.10 now provides the actual lift settings in lieu of a tolerance band. The ITS lift settings of ≥ 2391 psig and ≤ 2514 psig are the CTS tolerance band of 2465 psig + 2%, - 3%. This change is designated as administrative because it does not result in a technical change to the CTS.

A03 CTS 3.4.2.2 ACTION requires the unit, when the required actions and associated completion times cannot be met, to be in MODE 3 within 6 hours and MODE 4 within 12 hours. ITS 3.4.10 requires the unit to be in MODE 3 in 6 hours and MODE 4 with any RCS cold leg temperature ≤ 275ºF within 24 hours. This changes the CTS by requiring the RCS cold leg temperature to be ≤ 275ºF in MODE 4.

Changing the requirement for the unit end state to be in MODE 4 with any RCS cold leg temperature ≤ 275ºF is acceptable. This change to the CTS is the result of combining CTS 3.4.2.1 (pressurizer code safety valves in MODES 4 and 5) and CTS 3.4.2.2 (pressurizer code safety valves in MODES 1, 2, and 3) into one specification in the ITS (ITS 3.4.10). The ITS 3.4.10 modes of applicability are MODES 1, 2, 3, and MODE 4 with all RCS cold leg temperatures > 275 (see DOC L02 for changes to the Modes of Applicability.). Therefore, for the unit to exit the Specification Applicability, the unit would have to be in MODE 4 with any RCS cold let temperature ≤ 275ºF. This change is designated as administrative because the TS is only applicable when the unit is within the Applicability unless per LCO 3.0.1. The changes to the Specification Applicability are discussed in DOC L02.

MORE RESTRICTIVE CHANGES

M01 CTS 3.4.2.1 requires a minimum of one pressurizer safety valve to be OPERABLE during MODES 4 and 5. Thus, one or two of the three safety valves are allowed to be inoperable indefinitely in MODES 4 and 5. ITS LCO 3.4.10 requires three pressurizer safety valves to be OPERABLE during MODE 4 with all RCS cold leg temperatures > 275°F. With one of the three pressurizer safety valves inoperable, ITS 3.4.10 ACTION A states that the valve must be restored to OPERABLE status within 15 minutes. If this cannot be met, ITS 3.4.10 ACTION B requires the unit to be in MODE 3 in 6 hours and MODE 4 with any RCS cold leg temperature < 275°F in 24 hours. In addition, ITS 3.4.10 ACTION B requires these same actions to place the unit outside of the Applicability of the Specification when two of the three pressurizer safety valves are inoperable. This changes the CTS by requiring three safety valves to be OPERABLE and by specifying new Required Actions for when one or two of the three valves are inoperable. The change to the Applicability is discussed in DOC L02. The change to the remainder of the CTS 3.4.2 Actions is discussed in DOC L03.

The purpose of CTS 3.4.2.1 is to provide requirements on pressurizer safety valves during shutdown conditions. In the ITS, the requirements for pressurizer safety valves are included in one Specification (ITS 3.4.10). The new requirement is acceptable since it is more conservative and helps to ensure the combined capacity of the three valves will keep the reactor coolant pressure within limits during postulated transients. Along with this change, the ITS 3.4.10 ACTIONS provide a minimal time for restoration when one of the three safety valves is inoperable and provides a shutdown requirement for when this minimal time has expired or when two of the three pressurizer safety valves are inoperable. This change is designated as more restrictive as it increases the required number of pressurizer safety valves from one to three and provides explicit Required Actions for when one or two of the three safety valves are inoperable.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 3.4.2.1 footnote** and CTS 3.4.2.2 footnote* modifies their respective LCOs by stating the pressurizer lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure. This information is not provided in ITS 3.4.10. This changes the CTS by moving this information from the Technical Specifications to the Bases.

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 included in the Technical Specifications to provide adequate protection of public health and safety. ITS 3.4.10 still retains a requirement for the valves to be OPERABLE. Under the definition of OPERABILITY, the safety valves must be capable of lifting at the assumed conditions, which include the ambient operating conditions of the safety valves themselves. Also, this change is acceptable because these types of detail 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 procedural details for meeting Technical Specification requirements are being moved from the Technical Specifications to the ITS Bases.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 2 – Relaxation of Applicability)* CTS 3.4.2.1 and CTS 3.4.2.2, in part, provide requirements for the pressurizer code safety valves in MODES 1 through 5. ITS LCO 3.4.10 provides Applicability in MODES 1, 2, 3, and MODE 4 with all RCS cold leg temperatures >275ºF. The ITS Applicability is modified by a Note that allows the lift settings to not be within the LCO limits during MODES 3 and 4 for the purpose of in-situ setting of the pressurizer safety valves under ambient (hot) conditions. The exception is allowed for 54 hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup. This changes the CTS by allowing entry into MODE 3 and 4 without verifying that the pressurizer code safety valve lift settings are within the LCO limits.

The purpose of the Applicability Note is to allow entry into MODE 3 to perform testing and examination of the safety valves at high pressure and temperature near their normal operating range, but only after the valves have had a preliminary cold setting. This change is acceptable because the requirements continue to ensure that the components are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. The cold lift settings give reasonable assurance that the valves are OPERABLE near the design condition during the short period of time allowed to verify the settings at the hot condition. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L02 *(Category 2 - Relaxation of Applicability)* CTS 3.4.2.1 requires a safety valve to be OPERABLE in MODES 4 and 5. Additionally, LCO 3.4.2.1 is modified by footnote * that states, “While in MODE 5, an equivalent size pathway may be used provided that the vent pathway is not isolated or sealed.” ITS 3.4.10 requires three safety valves to be OPERABLE in MODE 4 with all RCS cold leg temperatures > 275°F. This changes the operating conditions in which pressurizer safety valves are required to be OPERABLE. The change in the number of required safety valves is discussed in DOC M01.

The purpose of CTS 3.4.2.1 is to ensure the appropriate number of safety valves are available to mitigate an overpressurization event. This change is acceptable because the requirements continue to ensure that the systems are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. In MODE 4 with any RCS cold leg loop temperature ≤ 275°F, ITS 3.4.12,"Overpressure Mitigation Systems (OMS)," provides overpressure protection and includes provisions to ensure an adequate size vent pathway is available. The OMS provides pressure relief at a lower pressure than the pressurizer safety valves and, therefore, the pressurizer safety valves are not needed. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions in the ITS than in the CTS.

L03 *(Category 4 - Relaxation of Required Action)* The CTS 3.4.2.1 Action states that with no pressurizer safety valve OPERABLE to immediately suspend all operations involving reactivity changes and to place an OPERABLE RHR loop into operation in the shutdown cooling mode. With no pressurizer safety valves OPERABLE (i.e., all three safety valves are inoperable), ITS 3.4.10 ACTION B requires the unit to be in MODE 3 in 6 hours and MODE 4 with any RCS cold leg temperature ≤ 275° in 24 hours. This places the unit outside of the Applicability of the Specification. This changes the CTS by replacing the CTS 3.4.2.1 Actions with new ACTIONS designed to place the unit outside of the Applicability of the Specification when no pressurizer safety valves are OPERABLE. The change to the Applicability is discussed in DOC L02, the change to the number of pressurizer safety valves required for OPERABILITY is discussed in DOC M01, and the Completion Time of 24 hours is discussed in L04.

The purpose of the CTS 3.4.2.1 Action is to ensure a reactivity excursion does not occur. 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. This includes a reasonable time for repairs and the low probability of a DBA occurring during the repair period. This change replaces the CTS 3.4.2.1 Actions with new ACTIONS designed to place the unit outside of the Applicability of the Specification with the required actions and associated completion time not met. The explicit Actions to immediately suspend all operations involving positive reactivity changes and to place an OPERABLE RHR loop into operation in the shutdown cooling mode, have been deleted. The explicit action to stop operations involving positive reactivity changes is not needed since the new Required Actions require the unit to proceed to a MODE outside of the Applicability which will require the unit to cool down and to add boron to maintain the required SHUTDOWN MARGIN. The explicit Action to place an OPERABLE RHR loop into operation in the shutdown cooling mode is not necessary since the requirements for RHR shutdown cooling and the reactor coolant loops are prescribed in ITS LCO 3.4.6, "Reactor Coolant Loops – MODE 4." This

Specification requires at least one RHR or RCS loop to be in operation. This will ensure sufficient mixing of the borated water in the reactor coolant. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L04 *(Category 4 - Relaxation of Required Action)* The CTS 3.4.2.2 Action states that with one of the three pressurizer safety valves inoperable either restore the inoperable valve to OPERABLE status within 15 minutes or be in at least Hot Standby (MODE 3) within 6 hours and Hot Shutdown (MODE 4) within 12 hours. Currently, no Actions are specified when two or three safety valves are inoperable. Thus CTS 3.0.3 must be entered. ITS 3.4.10 ACTION A allows 15 minutes to restore the inoperable pressurizer safety valve to OPERABLE status. ITS 3.4.10 ACTION B requires the unit to be in MODE 3 in 6 hours and MODE 4 with any RCS cold leg temperature ≤ 275°F within 24 hours if the valve is not restored within the 15 minutes or if two or more pressurizer safety valves are inoperable. This changes the CTS by extending the time to place the unit outside of the Applicability and allows the unit not to enter LCO 3.0.3 when two or more pressurizer safety valves are found to be inoperable.

The purpose of the CTS 3.4.3 Action is to place the unit in a condition in which the pressurizer safety valves are not needed if one safety valve is inoperable and cannot be restored to OPERABLE status within the specified Completion Time. This change is acceptable because the Required Actions are 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. This includes a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. The time to place the unit outside of the Applicability has been extended. In addition, the change allows the unit not to enter LCO 3.0.3 when two or more pressurizer safety valves are found to be inoperable. The time to place the unit outside of the Applicability has been extended (from 12 hours to reach MODE 4 to 24 hours to reach MODE 4 with any RCS cold leg temperature ≤ 275°F. Because the OMS entry conditions (275°F) are below the 350°F entry conditions for entry into MODE 4, additional time is provided beyond the 12 hours given to enter MODE 4 in CTS 3.0.3 and ITS LCO 3.0.3. This change allows the unit to reduce power in a more controlled manner. The allowance not to enter LCO 3.0.3 when two or more pressurizer safety valves are found to be inoperable is acceptable since overpressure protection may still be maintained by the pressurizer power operated relief valves. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Pressurizer Safety Valves

LCO 3.4.2.1 and LCO 3.4.2.2

LCO 3.4.10 ~~[~~Three~~]~~ pressurizer safety valves shall be OPERABLE with lift settings ≥ ~~[2460]~~ ≥ 2391 psig psig and ≤ ~~[2510]~~ ≤ 2514 psig psig. 1

Applicability

APPLICABILITY: MODES 1, 2, and 3~~,~~
MODE 4 with all RCS cold leg temperatures > ~~[~~275°F~~] [Low Temperature Overpressure Protection (LTOP) arming temperature specified in the PTLR]~~. 1

--NOTE--
The lift settings are not required to be within the LCO limits during MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for ~~[~~54~~]~~ hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup. 1

3.4.2.2 ACTION

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pressurizer safety valve inoperable.	A.1 Restore valve to OPERABLE status.	15 minutes
B. Required Action and associated Completion Time not met. OR Two or more pressurizer safety valves inoperable.	B.1 Be in MODE 3. AND B.2 Be in MODE 4 ~~[~~with any RCS cold leg temperatures ≤ ~~[~~275°F~~] LTOP arming temperature specified in the PTLR]~~.	6 hours ~~[~~24~~]~~ hours 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY
4.4.2.1 4.4.2.2 3.4.2.2 Note** 3.4.2.1 Note***	SR 3.4.10.1	Verify each pressurizer safety valve is OPERABLE in accordance with the INSERVICE TESTING PROGRAM. Following testing, lift settings shall be within ± 1%.	In accordance with the INSERVICE TESTING PROGRAM

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.10, PRESSURIZER SAFETY VALVES

1. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

2. 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.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.10 Pressurizer Safety Valves

BASES

BACKGROUND

The pressurizer safety valves provide, in conjunction with the Reactor Protection System, overpressure protection for the RCS. The pressurizer safety valves are totally enclosed pop type, spring loaded, self actuated valves with backpressure compensation. The safety valves are designed to prevent the system pressure from exceeding the system Safety Limit (SL), ~~[~~2735~~]~~ psig, which is 110% of the design pressure. 1

Because the safety valves are totally enclosed and self actuating, they are considered independent components. The relief capacity for each valve, 313,826 ~~[380,000]~~ lb/hr, is based on postulated overpressure transient conditions resulting from a complete loss of steam flow to the turbine. This event results in the maximum surge rate into the pressurizer, which specifies the minimum relief capacity for the safety valves. The discharge flow from the pressurizer safety valves is directed to the pressurizer relief tank. This discharge flow is indicated by an increase in temperature downstream of the pressurizer safety valves or increase in the pressurizer relief tank temperature or level. 1

Overpressure protection is required in MODES 1, 2, 3, 4, and 5; however, in MODE 4, with one or more RCS cold leg temperatures ≤ ~~[~~275°F~~] [Low Temperature Overpressure Protection (LTOP) arming temperature specified in the PTLR],~~ and MODE 5 , and MODE 6 with the reactor vessel head on, overpressure protection is provided by operating procedures and by meeting the requirements of LCO 3.4.12, "Overpressure Mitigating Systems (OMS) ~~, "Low Temperature Overpressure Protection (LTOP) System~~." 2 3

The upper and lower pressure limits are based on the ± 1% tolerance requirement (Ref. 1) for lifting pressures above 1000 psig. The lift setting is for the ambient conditions associated with MODES 1, 2, and 3. This requires either that the valves be set hot or that a correlation between hot and cold settings be established.

The pressurizer safety valves are part of the primary success path and mitigate the effects of postulated accidents. OPERABILITY of the safety valves ensures that the RCS pressure will be limited to 110% of design pressure. The consequences of exceeding the American Society of Mechanical Engineers (ASME) pressure limit (Ref. 1) could include damage to RCS components, increased leakage, or a requirement to perform additional stress analyses prior to resumption of reactor operation.

BASES

APPLICABLE SAFETY ANALYSES

All accident and safety analyses in the FSAR (Ref. 2) that require safety valve actuation assume operation of three pressurizer safety valves to limit increases in RCS pressure. The overpressure protection analysis (Ref. 3) is also based on operation of [three] safety valves. Accidents that could result in overpressurization if not properly terminated include:

a. Uncontrolled rod withdrawal from full power,

b. Loss of reactor coolant flow,

c. Loss of external electrical load,

d. Loss of normal feedwater,

e. Loss of all AC power to station auxiliaries, and

f. Locked rotor.

Detailed analyses of the above transients are contained in Reference 2. Safety valve actuation is required in events c, d, and e (above) to limit the pressure increase. Compliance with this LCO is consistent with the design bases and accident analyses assumptions.

Pressurizer safety valves satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The ~~[~~three~~]~~ pressurizer safety valves are set to open at the RCS design pressure (2500 psia), and within the ASME specified tolerance, to avoid exceeding the maximum design pressure SL, to maintain accident analyses assumptions, and to comply with ASME requirements. The upper and lower pressure tolerance limits are based on the ± 1% tolerance requirements (Ref. 1) for lifting pressures above 1000 psig. The limit protected by this Specification is the reactor coolant pressure boundary (RCPB) SL of 110% of design pressure. Inoperability of one or more valves could result in exceeding the SL if a transient were to occur. The consequences of exceeding the ASME pressure limit could include damage to one or more RCS components, increased leakage, or additional stress analysis being required prior to resumption of reactor operation. 1

APPLICABILITY

In MODES 1, 2, and 3, and portions of MODE 4 above the LTOP arming temperature, OPERABILITY of ~~[~~three~~]~~ valves is required because the combined capacity is required to keep reactor coolant pressure below 110% of its design value during certain accidents. MODE 3 and portions of MODE 4 are conservatively included, although the listed accidents may not require the safety valves for protection. 1

BASES

APPLICABILITY (continued)

The LCO is not applicable in MODE 4 when any RCS cold leg 3
temperatures are ≤ ~~[~~275°F~~] [Low Temperature Overpressure Protection~~ 1
~~(LTOP) arming temperature specified in the PTLR]~~ or in MODE 5 3
and 6 because OMS
~~because LTOP~~ is provided. Overpressure protection is not required in
MODE 6 with reactor vessel head detensioned.

The Note allows entry into MODES 3 and 4 with the lift settings outside 3
the LCO limits. This permits testing and examination of the safety valves
at high pressure and temperature near their normal operating range, but
only after the valves have had a preliminary cold setting. The cold setting
gives assurance that the valves are OPERABLE near their design
condition. Only one valve at a time will be removed from service for
testing. The ~~[~~54~~]~~ hour exception is based on 18 hour outage time for
each of the [three] valves. The 18 hour period is derived from operating 3
experience that hot testing can be performed in this timeframe.

ACTIONS

A.1

With one pressurizer safety valve inoperable, restoration must take place within 15 minutes. The Completion Time of 15 minutes reflects the importance of maintaining the RCS Overpressure Protection System. An inoperable safety valve coincident with an RCS overpressure event could challenge the integrity of the pressure boundary.

B.1 and B.2

If the Required Action of A.1 cannot be met within the required
Completion Time or if two or more pressurizer safety valves are
inoperable, the plant must be brought to a MODE in which the
requirement does not apply. To achieve this status, the plant must be
brought to at least MODE 3 within 6 hours and to MODE 4 with any RCS
cold leg temperatures ≤ ~~[~~275°F~~] [Low Temperature Overpressure~~ 1
~~Protection (LTOP) arming temperature specified in the PTLR]~~ within
~~[~~24~~]~~ 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. With any RCS cold leg temperatures at or below ~~[~~275°F~~] [Low~~ 1
~~Temperature Overpressure (LTOP) arming temperature specified in the~~ OMS
~~PTLR],~~ overpressure protection is provided by the ~~LTOP System~~. The 3
change from MODE 1, 2, or 3 to MODE 4 reduces the RCS energy (core
with any RCS cold leg ≤ 275°F
power and pressure), lowers the potential for large pressurizer insurges,
and thereby removes the need for overpressure protection by ~~[~~three~~]~~ 1
pressurizer safety valves.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.10.1

SRs are specified in the INSERVICE TESTING PROGRAM. Pressurizer safety valves are to be tested in accordance with the requirements of the ASME Code (Ref. 4), which provides the activities and Frequencies necessary to satisfy the SRs. No additional requirements are specified.

The lift setting pressure corresponds to ambient conditions of the valve at nominal operating temperature and pressure.

2465 +2%, -3%

The pressurizer safety valve setpoint is ~~± [3]%~~ for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift. 1 3

REFERENCES

1. ASME, Boiler and Pressure Vessel Code, Section III.

U

Section 14.1

2. FSAR, ~~Chapter [15]~~. 1

3. WCAP-7769, Rev. 1, June 1972.

~~4. ASME Code for Operation and Maintenance of Nuclear Power Plants.~~ 3

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.10 BASES, PRESSURIZER SAFETY VALVES

1. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

2. Changes have been made to reflect changes made to the Specification.

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

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.10, PRESSURIZER SAFETY VALVES

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 11

ITS 3.4.11 – PORV BLOCK VALVES

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

REACTOR COOLANT SYSTEM

3/4.4.4 RELIEF VALVES

LIMITING CONDITION FOR OPERATION

Each

LCO 3.4.11 3.4.4 ~~Both power-operated relief valves (~~PORV~~s) and their associated~~ block valve~~s~~ shall be OPERABLE. A01

Applicability APPLICABILITY: MODES 1, 2, and 3. Add proposed ACTIONS Note. L01

ACTION:

~~a. With one or both PORVs inoperable because of excessive leakage, within 1 hour either restore the PORV(s) to OPERABLE status or close the associated block valve(s) with power maintained to the block valve(s); otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.~~ LA01

~~b. With one PORV inoperable due to causes other than excessive leakage, within 1 hour either restore the PORV to OPERABLE status or close its associated block valve and remove power from the block valve; otherwise, be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.~~ LA01

~~c. With both PORVs inoperable due to causes other than excessive leakage, within 1 hour either restore at least one PORV to OPERABLE status or close each PORV's associated block valve and remove power from the block valve; with both block valves closed with power removed, restore at least one PORV to OPERABLE status within 30 days and restore power to its associated block valve; otherwise, be in at least HOT STANDBY within the next 6 hours and HOT SHUTDOWN within the following 6 hours.~~ LA01

ACTION B

ACTION A

d. With one or both block valve(s) inoperable, within 1 hour either restore the block valve(s) to OPERABLE status or close the block valve(s) and remove power from the block valve(s); otherwise, ~~place its associated PORV in manual control within the next hour~~, ~~and~~ be in at least HOT STANDBY within the next 6 hours and HOT SHUTDOWN within the following 6 hours. Restore at least one block valve to OPERABLE status within 30 days if both block valves are inoperable; otherwise, be in at least HOT STANDBY within the next 6 hours and HOT SHUTDOWN within the following 6 hours. LA01

ACTION C

ACTION B

ACTION C

REACTOR COOLANT SYSTEM

RELIEF VALVES

SURVEILLANCE REQUIREMENTS

Add proposed SR 3.4.11.1 Notes 2.

L02

SR 3.4.11.1 4.4.4 In accordance with the INSERVICE TESTING PROGRAM each block valve shall be demonstrated OPERABLE by operating the valve through one complete cycle of full travel unless the block valve is ~~closed with power removed in order to meet the requirements of Specification 3.4.4 or~~ is closed to ~~provide an~~ isolat~~ion~~ e ~~function~~ excessive leakage.

SR 3.4.11.1 Note 1

A02

DISCUSSION OF CHANGES
ITS 3.4.11, PRESSURIZER POWER OPERATED RELEIF VALVE (PORV) BLOCK VALVES

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications - Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS SR 4.4.4 states, in part, that operability will be demonstrated "unless the block valve is closed with power removed in order to meet the requirements of Specification 3.4.4 or is closed to provide an isolation function." ITS Surveillance Requirement (SR) 3.4.11.1 Note 1 states "Not required to be performed if block valve closed to isolate excessive leakage." This changes the CTS by stating that the SR is not required to be performed when the block valve is closed to isolate the flow path due to excessive leakage.

The purpose of CTS SR 4.4.4 is to address block valve operability. ITS SR 3.4.11 Note 1 modifies CTS SR 4.4.4 by stating that this SR is not required to be performed when the block valve is closed to isolate PORV leakage. Excessive Power Operated Relief Valve (PORV) leakage can result in exceeding operational LEAKAGE limits specified in LCO 3.4.13, "RCS Operational LEAKAGE." In the event a PORV develops an excessive leak, the associated block valve should be closed to isolate the flow path but power should be maintained to the block valve, since removal of power would render the block valve inoperable. Opening the block valve in this condition potentially increases the risk of an unisolable leak from the Reactor Coolant System (RCS) since the PORV is known to be leaking. Therefore, performance of this SR is not required until the PORV condition is corrected. This change is designated as administrative changes and is acceptable because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS 3.4.4 contains the requirements for both the PORVs and the PORV block valves in MODES 1, 2, and 3. ITS 3.4.9 only contains the requirements for the PORV block valves in MODES 1, 2, and 3. This changes the CTS by moving the requirements for the PORVs out of TS.

The purpose of ITS 3.4.11 is to ensure the PORV block valves are available to isolate the flow path in MODES 1, 2, and 3. The opening of the PORVs fulfills no safety-related function and no credit is taken for the relief valve's operation in the accident analyses for MODE 1, 2 or 3. In MODES 4, 5, and 6 (with the reactor head on) the PORVs are required by ITS 3.4.12, "Overpressure Mitigation Systems," to protect the RCS from pressure transients. The removal of the PORVs from the Technical Specifications in MODES 1, 2, and 3 is acceptable because the PORVs are not credited in the accident analyses in MODES 1, 2, and 3 as the primary means to provide adequate protection of public health and safety. The ITS retains the block valve requirements to isolate the flow paths for a stuck open PORV, which is an anticipated operational occurrence. This change is acceptable because the requirements for the PORVs can be adequately controlled in the Technical Requirements Manual (TRM). Changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because PORV requirements (Actions) are being removed from the Technical Specifications.

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.4.4 Action describes the Actions to be taken when PORV block valve(s) are inoperable. ITS 3.4.11 also describes Actions to be taken when PORV block valve(s) are inoperable and contains a statement (ITS 3.4.11 ACTION Note) that separate condition entry is allowed for each PORV block valve. This changes the CTS by adding a Note stating that separate condition entry is allowed for each PORV block valve.

The purpose of the CTS 3.4.4 Actions is to provide the appropriate compensatory actions for inoperable PORV block valves. This proposed change will allow separate condition entry for each PORV block valve. The Note clarifies that PORV block valves are treated as separate entities, each with separate Completion Times. These changes are acceptable since the proposed Required Actions provide sufficient time to satisfy the Required Actions. Valve inoperabilities are normally found one at a time, not concurrently. Therefore, the actions to close a PORV block valve and remove its power will apply as each valve is found to be inoperable. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L02 *(Category 7 – Relaxation of Surveillance Frequency, Non-24 Month Type Change)* CTS SR 4.4.4 states, in part, that each PORV block valve be demonstrated OPERABLE by operating the valve through one complete cycle of full travel. ITS SR 3.4.11.1 states, in part, that each PORV block valve be demonstrated OPERABLE by performing a complete cycle of the block valve. It is modified by a Note that states "Only required to be performed in MODES 1 and 2." This changes the CTS by adding a note that states the SR only has to be performed in MODES 1 and 2.

The purpose of CTS SR 4.4.4 is to ensure the block valve is OPERABLE to isolate the flow path by cycling the valve periodically. ITS SR 3.4.11.1 contains the same requirement but also contains a Note (Note 2) that states that the PORV block valve Surveillance is only required to be performed in MODES 1 and 2. Note 2 modifies this SR to allow entry into and operation in MODE 3 prior to performing the SR. This allows the test to be performed in MODE 3 under operating temperature and pressure conditions, prior to entering MODE 1 or 2. This change is less restrictive than the CTS because the unit is allowed to enter into a mode of applicability without having performed the surveillance.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

 1

CTS

3.4 REACTOR COOLANT SYSTEM (RCS)

Block Valves

3.4.11 ~~Pressurizer~~ Power Operated Relief Valve~~s~~ (PORV~~s~~) 4

4

LCO 3.4.11 — LCO 3.4.11 Each PORV ~~and associated~~ block valve shall be OPERABLE.

Applicability — APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

---NOTE---

L01 — Separate Condition entry is allowed for each PORV ~~and each~~ block valve. 4

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~A. One or more PORVs inoperable and capable of being manually cycled.~~	~~A.1 Close and maintain power to associated block valve.~~	~~1 hour~~
3.4.4 Action d — B. ~~One [or~~ two~~]~~ PORV~~[s]~~ inoperable ~~and not capable of being manually cycled~~. (block valves)	B.1 Close ~~associated~~ block valve~~[~~s~~]~~. (PORV) AND B.2 Remove power from ~~associated~~ block valve~~[~~s~~]~~. AND B.3 Restore (one) PORV~~[s]~~ to OPERABLE status. (block valve)	1 hour 1 hour ~~72 hours~~ 30 days ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~

4 4 3

 1

1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~C. One [or two] block valve(s) inoperable.~~ C	~~-------------------NOTE-------------------~~ ~~Required Actions C.1 and C.2 do not apply when block valve is inoperable solely as a result of complying with Required Actions B.2 or E.2.~~ ~~---~~ ~~C.1 Place associated PORV in manual control.~~ ~~AND~~ ~~C.2 Restore block valve to OPERABLE status.~~	 ~~1 hour~~ ~~72 hours~~ ~~[OR~~ ~~In accordance with the Risk Informed Completion Time Program]~~
3.4.4 Action d ~~D~~. Required Action and associated Completion Time of Condition A~~,~~ B, ~~or C~~ not met. or	~~D~~.1 Be in MODE 3. AND ~~D~~.2 Be in MODE 4.	6 hours 12 hours
One block valve 3.4.4 Action d ~~E~~. ~~Two [or three]~~ PORV~~s~~ inoperable ~~and not capable of being manually cycled~~. A	~~E~~.1 Close ~~associated~~ block valve~~s~~. AND PORV ~~E~~.2 Remove power from ~~associated~~ block valve~~s~~. ~~AND~~ ~~E.3 Be in MODE 3.~~ ~~AND~~ ~~E.4 Be in MODE 4.~~	1 hour 1 hour ~~6 hours~~ ~~12 hours~~

4 5 3 4 3

1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~F. Two [or three] block valves inoperable.~~	~~F.1 --------------NOTE-------------- Required Action F.1 does not apply when block valve is inoperable solely as a result of complying with Required Actions B.2 or E.2 ----------------------------------~~	
	~~Restore one block valve to OPERABLE status [if three block valves are inoperable].~~	~~[2 hours]~~
~~G. Required Action and associated Completion Time of Condition F not met.~~	~~G.1 Be in MODE 3.~~	~~6 hours~~
	~~AND~~	
	~~G.2 Be in MODE 4.~~	~~12 hours~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
4.4.4 SR 3.4.11.1	-----------------------------NOTES----------------------------- 1. Not required to be performed ~~with~~ if PORV block valve s closed ~~in accordance with the Required Actions of this LCO~~ to isolate excessive leakage. 2. Only required to be performed in MODES 1 and 2. (L02) --- Perform a complete cycle of each PORV block valve.	~~[92 days~~ ~~OR~~ In accordance with the ~~Surveillance Frequency Control Program]~~ INSERVICE TESTING PROGRAM
~~SR 3.4.11.2~~	~~-----------------------------NOTE-----------------------------~~ ~~Only required to be performed in MODES 1 and 2.~~ ~~---~~ ~~Perform a complete cycle of each PORV.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
~~SR 3.4.11.3~~	~~[Perform a complete cycle of each solenoid air control valve and check valve on the air accumulators in PORV control systems.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~

4 | 4 3 | 4 | 2 | 4 | 2

1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
~~SR 3.4.11.4~~	~~[Verify PORVs and block valves are capable of being powered from emergency power sources.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~

2

1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.11, PRESSURIZER POWER OPERATED RELEIF VALVE (PORV) BLOCK VALVES

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

2. The ISTS contain bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. Changes are made to be consistent with the current licensing basis.

4. The Power Operated Relief Valves (PORVs) are being moved from the Technical Specifications to the Technical Requirements Manual (TRM). The opening of the PORVs fulfills no safety-related function and no credit is taken for their operation in the accident analyses for MODE 1, 2 or 3. However, the block valves are required to remain in the Technical Specifications to isolate the flow path for excessive PORV leakage. Revisions are being made to the Improved Technical Specifications (ITS) and ITS Bases to reflect these changes.

5. Changes have been made to be consistent with changes made to the Specifications.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.11 ~~Pressurizer~~ Power Operated Relief Valves (PORV~~s~~) Block Valves 5

BASES

BACKGROUND

~~The pressurizer is equipped with two types of devices for pressure relief: pressurizer safety valves and PORVs. The PORVs are air operated valves that are controlled to open at a specific set pressure when the pressurizer pressure increases and close when the pressurizer pressure decreases. The PORVs may also be manually operated from the control room.~~ 1

The PORV normally

Block valves, which are normally open, are located between the pressurizer and the PORVs. The block valves are used to isolate the PORVs in case of excessive leakage or a stuck open PORV. Block valve closure is accomplished manually using controls in the control room. A stuck open PORV is, in effect, a small break loss of coolant accident (LOCA). As such, block valve closure terminates the RCS depressurization and coolant inventory loss. 5 1

~~The PORVs and their associated block valves may be used by plant operators to depressurize the RCS to recover from certain transients if normal pressurizer spray is not available. Additionally, the series arrangement of the PORVs and their block valves permit performance of surveillances on the valves during power operation.~~ 5

~~The PORVs may also be used for feed and bleed core cooling in the case of multiple equipment failure events that are not within the design basis, such as a total loss of feedwater.~~

The PORV~~s, their~~ block valves, and their controls are powered from the vital buses that normally receive power from offsite power sources, but are also capable of being powered from emergency power sources in the event of a loss of offsite power. ~~Two~~ PORV~~s and their associated~~ block valves are powered from two separate safety trains (Ref. 1). 1 1

The

~~The plant has two PORVs, each having a relief capacity of 210,000 lb/hr at 2335 psig. The functional design of the PORVs is based on maintaining pressure below the Pressurizer Pressure - High reactor trip setpoint following a step reduction of 50% of full load with steam dump. In addition, the PORVs minimize challenges to the pressurizer safety valves and also may be used for low temperature overpressure protection (LTOP). See LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System."~~ 5

1

BASES

APPLICABLE SAFETY ANALYSES

~~Plant operators employ the PORVs to depressurize the RCS in response to certain plant transients if normal pressurizer spray is not available. For the Steam Generator Tube Rupture (SGTR) event, the safety analysis assumes that manual operator actions are required to mitigate the event. A loss of offsite power is assumed to accompany the event, and thus, normal pressurizer spray is unavailable to reduce RCS pressure. The PORVs are assumed to be used for RCS depressurization, which is one of the steps performed to equalize the primary and secondary pressures in order to terminate the primary to secondary break flow and the radioactive releases from the affected steam generator.~~ 5

~~The PORVs are also modeled in safety analyses for events that result in increasing RCS pressure for which departure from nucleate boiling ratio (DNBR) criteria are critical (Ref. 2). By assuming PORV actuation, the primary pressure remains below the high pressurizer pressure trip setpoint; thus, the DNBR calculation is more conservative. As such, this actuation is not required to mitigate these events, and PORV automatic operation is, therefore, not an assumed safety function.~~

INSERT 1 1

block valves 4

~~Pressurizer~~ PORV~~s~~ satisfy Criterion ~~3~~ of 10 CFR 50.36(c)(2)(ii). 1

LCO

The LCO requires the PORV~~s and their associated~~ block valves to be OPERABLE ~~for manual operation to mitigate the effects associated with an SGTR~~. 2

to isolate the flow path due to excessive leakage or a stuck open PORV.

~~By maintaining two PORVs and their associated block valves OPERABLE, the single failure criterion is satisfied.~~ An OPERABLE block valve may be either open and energized with the capability to be closed, or closed and energized with the capability to be opened, since the required safety function is accomplished by manual operation. Although typically open to allow PORV operation, the block valves may be OPERABLE when closed to isolate the flow path ~~of an inoperable PORV that is capable of being manually cycled~~ (e.g., as in the case of excessive PORV leakage). ~~Similarly, isolation of an OPERABLE PORV does not render that PORV or block valve inoperable provided the relief function remains available with manual action.~~ 2 5

~~An OPERABLE PORV is required to be capable of manually opening and closing, and not experiencing excessive seat leakage. Excessive seat leakage, although not associated with a specific acceptance criteria, exists when conditions dictate closure of the block valve to limit leakage.~~ 5

Satisfying the LCO helps minimize challenges to fission product barriers.

1

1

INSERT 1

The PORV block valves are not credited to mitigate any design basis accident or transient specified in Reference 2. NRC Regulatory Issue Summary 2005-29 (Ref. 3) describes limiting the probability of initiating a more safety significant event as a result of an anticipated transient. The inadvertent PORV opening is an anticipated operational occurrence (AOO) and could result in a pressurizer overfill condition. Such a condition could lead to an inability to isolate the PORV, resulting in a condition similar to a small break LOCA.

1

BASES

APPLICABILITY

s

In MODES 1, 2, and 3, the PORV ~~and its~~ block valve are required to be OPERABLE to ~~limit the potential for a small break LOCA through the flow path. The most likely cause for a PORV small break LOCA is a result of a pressure increase transient that causes the PORV to open. Imbalances in the energy output of the core and heat removal by the secondary system can cause the RCS pressure to increase to the PORV opening setpoint. The most rapid increases will occur at the higher operating power and pressure conditions of MODES 1 and 2. The PORVs are also required to be OPERABLE in MODES 1, 2, and 3 for manual actuation to mitigate a steam generator tube rupture event.~~ 1

isolate the flow path in case of excessive leakage or a stuck open PORV.

, "Overpressure Mitigation Systems,"

~~Pressure increases are less prominent in MODE 3 because the core input energy is reduced, but the RCS pressure is high. Therefore, the LCO is applicable in MODES 1, 2, and 3.~~ The LCO is not applicable in MODES 4, 5, and 6 with the reactor vessel head in place when both pressure and core energy are decreased and the pressure surges become much less significant. LCO 3.4.12 addresses the PORV requirements in these MODES. 5

However, the PORV block valves are required to be opened in these Modes when the PORVs are credited for overpressure mitigation.

the

ACTIONS

A

Note ~~1~~ has been added to clarify that ~~all pressurizer~~ PORV~~s and~~ block valves are treated as separate entities, each with separate Completion Times (i.e., the Completion Time is on a component basis). 1

~~-----------------------------REVIEWER'S NOTE-----------------------------~~
~~The bracketed options in Conditions B, C, E, and F are to accommodate plants with three PORVs and associated block valves.~~ 3
~~--~~

INSERT 3 5

~~A.1~~

~~PORVs may be inoperable and capable of being manually cycled (e.g., excessive seat leakage). In this condition, either the PORVs must be restored or the flow path isolated within 1 hour. The associated block valve is required to be closed, but power must be maintained to the associated block valve, since removal of power would render the block valve inoperable. This permits operation of the plant until the next refueling outage (MODE 6) so that maintenance can be performed on the PORVs to eliminate the problem condition.~~ 5

~~Quick access to the PORV for pressure control can be made when power remains on the closed block valve. The Completion Time of 1 hour is based on plant operating experience that has shown that minor problems can be corrected or closure accomplished in this time period.~~

5

INSERT 3

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

If one or two PORV block valve(s) are inoperable, it is necessary to either restore the PORV block valve(s) to OPERABLE status within the Completion Time of 1 hour or close the PORV block valve(s) and remove power. The prime importance is for the capability to close the PORV block valve(s) to isolate the flow path due to excessive leakage or a stuck open PORV. By closing the inoperable PORV block valve(s), this function is accomplished.

With one PORV block valve inoperable, the unit is allowed to operate in this condition (the inoperable PORV block valve closed with power removed) in MODES 1, 2, and 3, indefinitely. With the PORV block valve closed the PORV block valve safety function, to isolate the penetration, is being performed; therefore, operation indefinitely is acceptable.

If both PORV block valves are inoperable the unit is allowed to operate in this condition (both PORV block valves closed with power removed) in MODES 1, 2, and 3 for 30 days.

The Completion Time of 1 hour to either restore the PORV block valve(s) or close the PORV block valve(s) with power removed, is reasonable, based on the small potential for challenges to the system during this time period, and provides time to correct the situation. The Completion Time of 30 days is reasonable, because remedial measures are established and consistent with the function of block valves. The most important reason for the capability to close the block valve is to isolate a stuck-open PORV. The 30 days will also provide a reasonable time to correct the situation and restore at least one PORV block valve. Neither the PORV block valve nor the PORV are credited for overpressure mitigation in MODES 1, 2, or 3 in the safety analysis to mitigate any design basis accident (DBA); however, they do provide backup capability and operating flexibility, so restoration of at least one block valve is desirable.

If the block valve(s) are inoperable due to excessive leakage (greater than 10 gpm), its function to isolate the flow path cannot be accomplished; therefore, the flow path must be isolated or LCO 3.4.13, “RCS Operational Leakage,” entered. The flow path can be isolated by placing the PORV in manual operation.

1

~~BASES~~

ACTIONS (continued)

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

~~If one [or two] PORV[s] is inoperable and not capable of being manually cycled, it must be either restored, or isolated by closing the associated block valve and removing the power to the associated block valve. The Completion Times of 1 hour are reasonable, based on challenges to the PORVs during this time period, and provide the operator adequate time to correct the situation. If the inoperable valve cannot be restored to OPERABLE status, it must be isolated within the specified time of 1 hour. Because there is at least one PORV that remains OPERABLE, an additional 72 hours is provided to restore the inoperable PORV to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] If the PORV cannot be restored within this additional time, the plant must be brought to a MODE in which the LCO does not apply, as required by Condition D.~~ 5

~~C.1 and C.2~~

~~If one [or two] block valve(s) are inoperable, then it is necessary to either restore the block valve(s) to OPERABLE status within the Completion Time of 1 hour or place the associated PORV in manual control. The prime importance for the capability to close the block valve(s) is to isolate a stuck open PORV. Therefore, if the block valve(s) cannot be restored to OPERABLE status within 1 hour, the Required Action is to place the PORV in manual control to preclude its automatic opening for an overpressure event and to avoid the potential for a stuck open PORV at a time that the block valve(s) are inoperable. The Completion Time of 1 hour is reasonable, based on the small potential for challenges to the system during this time period, and provides the operator time to correct the situation. Because at least one PORV remains OPERABLE, the operator is permitted a Completion Time of 72 hours to restore the inoperable block valve(s) to OPERABLE status. [Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.] The time allowed to restore the block valve(s) is based upon the Completion Time for restoring an inoperable PORV in Condition B, since the PORVs may not be capable of mitigating an event if the inoperable block valve(s) are not full open. If the block valve(s) are restored within the Completion Time of 72 hours, the PORV may be restored to automatic operation. If it cannot be restored within this additional time, the plant must be brought to a MODE in which the LCO does not apply, as required by Condition D.~~ 5

1

1

BASES

ACTIONS (continued)

~~The Required Actions C.1 and C.2 are modified by a Note stating that the Required Actions do not apply if the sole reason for the block valve being declared inoperable is as a result of power being removed to comply with other Required Actions. In this event, the Required Actions for inoperable PORV(s) (which require the block valve power to be removed once it is closed) are adequate to address the condition. While it may be desirable to also place the PORV(s) in manual control, this may not be possible for all causes of Condition B or E entry with PORV(s) inoperable and not capable of being manually cycled (e.g., as a result of failed control power fuse(s) or control switch malfunctions(s)).~~ 5

C C
~~D~~.1 and ~~D~~.2 2

or
If the Required Action of Condition A~~,~~ B~~, or C~~ is not met, then 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 4 within 12 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. ~~In MODES 4 and 5, automatic PORV OPERABILITY may be required.~~ See LCO 3.4.12~~.~~ 2 5

In MODES 4 (when any RCS cold leg temperature is ≤ 275°F), 5, and 6 (when the reactor vessel head is on), the PORV block valves are required to be opened if the PORV is required for overpressure mitigation.

, "Overpressure Mitigation Systems."

~~E.1, E.2, E.3, and E.4~~

~~If more than one PORV is inoperable and not capable of being manually cycled, it is necessary to either restore at least one valve within the Completion Time of 1 hour or isolate the flow path by closing and removing the power to the associated block valves. The Completion Time of 1 hour is reasonable, based on the small potential for challenges to the system during this time and provides the operator time to correct the situation. If no PORVs are restored within the Completion Time, then 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 4 within 12 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. In MODES 4 and 5, automatic PORV OPERABILITY may be required. See LCO 3.4.12.~~ 5

1

BASES

ACTIONS (continued)

~~F.1~~

~~If two [or three] block valve(s) are inoperable, it is necessary to restore at least one block valve within 2 hours. The Completion Time is reasonable, based on the small potential for challenges to the system during this time and provide the operator time to correct the situation.~~

~~Required Action F.1 is modified by a Note stating that the Required Action does not apply if the sole reason for the block valve being declared inoperable is a result of power being removed to comply with other Required Actions. In this event, the Required Actions for inoperable PORV(s) (which require the block valve power to be removed once it is closed) are adequate to address the condition. While it may be desirable to also place the PORV(s) in manual control, this may not be possible for all causes of Condition B or E entry with PORV(s) inoperable and not capable of being manually cycled (e.g., as a result of failed control power fuse(s) or control switch malfunctions(s)).~~ 5

~~G.1 and G.2~~

~~If the Required Action of Condition F is not met, then 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 4 within 12 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. In MODES 4 and 5, automatic PORV OPERABILITY may be required. See LCO 3.4.12.~~

SURVEILLANCE REQUIREMENTS

SR 3.4.11.1

Block valve cycling verifies that the valve(s) can be opened and closed if needed. ~~[The basis for the Frequency of 92 days is the ASME Code (Ref. 3).~~ 4

~~OR~~

The Surveillance Frequency is controlled under the ~~Surveillance Frequency Control~~ Inservice Testing Program. 2

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~ 3

INSERT 2 2

This SR is modified by two Notes. ~~Note 1 modifies this SR by stating that it is not required to be performed with the block valve closed in accordance with the Required Actions of this LCO. Opening the block valve in this condition increases the risk of an unisolable leak from the RCS since the PORV is already inoperable.~~ Note 2 modifies this SR to allow entry into and operation in MODE 3 prior to performing the SR. This allows the test to be performed in MODE 3 under operating temperature and pressure conditions, prior to entering MODE 1 or 2. ~~[In accordance with Reference 4, administrative controls require this test be performed in MODE 3 or 4 to adequately simulate operating temperature and pressure effects on PORV operation.]~~ 4

~~SR 3.4.11.2~~

~~SR 3.4.11.2 requires a complete cycle of each PORV. Operating a PORV through one complete cycle ensures that the PORV can be manually actuated for mitigation of an SGTR. [The Frequency of [18] months is based on a typical refueling cycle and industry accepted practice.~~ 2

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~ 3

2 **INSERT 2**

Note 1 modifies this SR by stating that this SR is not required to be performed if the PORV block valve is closed to isolate excessive leakage (i.e., PORV leakage). Excessive leakage can result in exceeding operational LEAKAGE limits specified in LCO 3.4.13, “RCS Operational LEAKAGE.” Opening the PORV block valve in this condition to perform the SR potentially increases the risk of an unisolable leak from the RCS since the PORV is known to be leaking. Therefore, performance of this SR is not required until the condition is corrected.

1

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~The Note modifies this SR to allow entry into and operation in MODE 3 prior to performing the SR. This allows the test to be performed in MODE 3 under operating temperature and pressure conditions, prior to entering MODE 1 or 2. [In accordance with Reference 4, administrative controls require this test be performed in MODE 3 or 4 to adequately simulate operating temperature and pressure effects on PORV operation.]~~

~~[SR 3.4.11.3~~ 4

~~Operating the solenoid air control valves and check valves on the air accumulators ensures the PORV control system actuates properly when called upon. [The Frequency of [18] months is based on a typical refueling cycle and the Frequency of the other Surveillances used to demonstrate PORV OPERABILITY.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]]~~

~~[SR 3.4.11.4~~ 4

~~This Surveillance is not required for plants with permanent 1E power supplies to the valves.~~

~~The Surveillance demonstrates that emergency power can be provided and is performed by transferring power from normal to emergency supply and cycling the valves. [The Frequency of [18] months is based on a typical refueling cycle and industry accepted practice~~.

1

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~]

REFERENCES

1. Regulatory Guide 1.32, February 1977.

2. FSAR, Section 14 ~~[15.2]~~. 4

~~3. ASME Code for Operation and Maintenance of Nuclear Power Plants.~~ 1

~~[4. Generic Letter 90-06, "Resolution of Generic Issue 70, 'Power-Operated Relief Valve and Block Valve Reliability,' and Generic Issue 94, 'Additional Low-Temperature Overpressure for Light-Water Reactors,' Pursuant to 10 CFR 50.54(f)," June 25, 1990.]~~ 4

3. NRC RIS 2005-29, "Anticipated Transients That Could Develop Into More Serious Events," December 14, 2005. 1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.11 BASES, PRESSURIZER POWER OPERATED RELEIF VALVE (PORV) BLOCK VALVES

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

2. Changes are made to be consistent with the Specification.

3. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

4. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

5. The Power Operated Relief Valves (PORVs) are being moved from the Technical Specifications to the Technical Requirements Manual (TRM). The opening of the PORVs fulfills no safety-related function and no credit is taken for their operation in the accident analyses for MODE 1, 2 or 3. However, the block valves are required to remain in the Technical Specifications to isolate the flow path for excessive PORV leakage. Revisions are being made to the Improved Technical Specifications (ITS) and ITS Bases to reflect these changes.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.11, PORV BLOCK VALVES

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 12

ITS 3.4.12 – OVERPRESSURE MITIGATING SYSTEMS

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

REACTOR COOLANT SYSTEM

OVERPRESSURE MITIGATING SYSTEMS

LIMITING CONDITION FOR OPERATION

LCO 3.4.12 3.4.9.3 The high pressure safety injection flow paths to the Reactor Coolant System (RCS) shall be isolated, and at least one of the following Overpressure Mitigating Systems shall be OPERABLE:

LCO 3.4.12.a a. Two power-operated relief valves (PORVs) with a lift setting of ≤ 448 psig, or

LCO 3.4.12.b b. The RCS depressurized with a RCS vent ≥ ~~of greater than or equal to~~ 2.20 square inches. A01

Applicability APPLICABILITY MODES 4 (when the temperature of any RCS cold leg is ≤ ~~less than or equal to~~ 275°F), 5, and 6 with the reactor vessel head on. A01

ACTION:

ACTIONS Note NOTE: LCO 3.0.4.b is not applicable when entering MODE 4.

ACTION A a. With the high pressure safety injection flow paths to the RCS unisolated, restore isolation of these flow paths within 4 hours.

ACTION B.1 ACTION B.2 b. With one PORV inoperable in MODE 4 ~~(when the temperature of any RCS cold leg is less than or equal to 275°F),~~ restore the inoperable PORV to OPERABLE status within 7 days or depressurize and vent the RCS through at least a 2.20 square inch vent within the next 8 hours. A02

ACTION C.1 ACTION C.2 ACTION C.3 c. With one PORV inoperable in MODES 5 or 6 ~~with the reactor vessel head on, either (1)~~ restore the inoperable PORV to OPERABLE status within 24 hours, or ~~(2)~~ complete depressurization and venting of the RCS through at least a 2.20 square inch vent within a total of 32 hours, or ~~(3)~~ complete depressurization and venting of the RCS through at least one open PORV and associated block valve within a total of 32 hours. A02

ACTION D.1 ACTION D.2 d. With both PORVs inoperable, either restore one PORV to OPERABLE status or complete depressurization and venting of the RCS through at least a 2.20 square inch vent within 24 hours.

REACTOR COOLANT SYSTEM

OVERPRESSURE MITIGATING SYSTEMS

SURVEILLANCE REQUIREMENTS

4.4.9.3.1 Each PORV shall be demonstrated OPERABLE by:

SR 3.4.12.4 SR 3.4.12.4 Note a. Performance of an ~~ANALOG~~ CHANNEL OPERATIONAL TEST* on the PORV actuation channel, but excluding valve operation, ~~within 31 days prior to entering a condition in which the PORV is required OPERABLE and~~ in accordance with the Surveillance Frequency Control Program thereafter when the PORV is required OPERABLE. M01 LA03

SR 3.4.12.5 b. Performance of a CHANNEL CALIBRATION on the PORV actuation channel in accordance with the Surveillance Frequency Control Program; and

SR 3.4.12.3 c. Verifying the PORV block valve is open in accordance with the Surveillance Frequency Control Program when the PORV is being used for overpressure protection.

~~d. While the PORVs are required to be OPERABLE, the backup nitrogen supply shall be verified OPERABLE in accordance with the Surveillance Frequency Control Program.*~~ LA01

SR 3.4.12.2 4.4.9.3.2 The 2.20 square inch vent shall be verified to be open in accordance with the Surveillance Frequency Control Program** when the vent(s) is being used for overpressure protection.

SR 3.4.12.1 4.4.9.3.3 Verify the high pressure injection flow path to the RCS is isolated in accordance with the Surveillance Frequency Control Program ~~by closed valves with power removed or by locked closed manual valves~~. LA02

pumps are not capable of injecting into the RCS A03

SR 3.4.12.4 Note * Not required to be met until 12 hours after decreasing RCS cold leg temperature to ≤ 275°F.

SR 3.4.12.2 ** Except when the vent pathway is provided with a valve which is locked, sealed, or otherwise secured in the open position, then verify these valves open in accordance with the Surveillance Frequency Control Program.

3/4.4.10 DELETED

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications - Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.4.9.3 ACTION b states in part, "one PORV inoperable in MODES 4 (when the temperature of any RCS cold leg is less than or equal to 275°F),..." CTS 3.4.9.3 ACTION c states, in part, "one PORV inoperable in MODES 5 or 6 with the reactor vessel head on..." ITS ACTIONS A, B, C, or D do not contain the same clarifying statements for MODE 4 or MODE 6. This changes the CTS by deleting the clarifying statements from the Actions.

This change is acceptable because the clarifying information for MODE 4 (when the temperature of any Reactor Coolant System (RCS) cold leg is less than or equal to 275°F) and for MODE 6 (with the reactor vessel head on) in the CTS Actions are also contained in the CTS Applicability as well as the ITS Applicability. Therefore, these clarifying statements are not required to be repeated in the Actions and are being deleted. This change is designated as administrative, as it results in no technical change to the CTS.

A03 CTS Surveillance Requirement (SR) 4.4.9.3.3 states, in part, "is isolated by closed valves with power removed or by locked closed manual valves." ITS 3.4.12 does not contain this statement, but contains the statement "is not capable of injecting into the RCS."

This change is acceptable because it results in the same endgame by isolating mechanisms that are capable of injecting into the RCS. In addition, the methods that are currently in the CTS are being moved to the ITS Bases (see LA02). This change is designated as administrative, as it results in no technical change to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 4.4.9.3.1.a requires, in part, each PORV be demonstrated OPERABLE by the performance of an ANALOG CHANNEL OPERATIONAL TEST. ITS SR 3.4.12.6 requires performance of a CHANNEL OPERATIONAL TEST (COT) to demonstrate Power Operated Relief Valve (PORV) OPERABILITY. This changes the CTS by changing the ANALOG CHANNEL OPERATIONAL TEST requirements to a COT.

CTS defines an ANALOG CHANNEL OPERATIONAL TEST as the injection of a simulated signal into the sensor as close to the sensor as practicable to verify OPERABILITY. ITS defines a COT as the injection of an actual or simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. This changes the CTS by requiring adjustments of the setpoints so that each PORV Channel is within the necessary range and accuracy. This change is designated as more restrictive because it imposes additional requirements on testing.

RELOCATED SPECIFICATIONS

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 4.4.9.3.1.d states "While the PORVs are required to be OPERABLE, the backup nitrogen supply shall be verified OPERABLE in accordance with the Surveillance Frequency Control Program." ITS 3.4.12 does not contain this statement. This changes the CTS by removing the backup nitrogen supply surveillance.

The removal the of the backup nitrogen supply surveillance from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The requirement to maintain the backup nitrogen supply is relocated to the Technical Requirements Manual (TRM). The backup nitrogen supply system is a support system and can be adequately controlled in the TRM. Changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because a backup nitrogen supply is being removed from the Technical Specifications.

LA02 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS SR 4.4.9.3.3 states, in part, "is isolated by closed valves with power removed or by locked closed manual valves." ITS 3.4.12 does not contain this statement, but contains the statement, "is not capable of injecting into the RCS." This changes the CTS by removing the specific methods for isolating injection into the RCS.

The removal of these details from surveillance requirements in 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 surveillance to verify safety injection is not capable of injecting into the RCS. Specific details on isolating safety injection can 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 details are being removed from the Technical Specifications into the Technical Specification Bases.

LA03 *(Type 4 – – Removal of TS requirement to the Surveillance Frequency Control Program)* CTS 4.4.9.3.1.a states "within 31 days prior to entering a condition in which the PORV is required OPERABLE." ITS SR 3.4.12.4 does not state this. This changes the CTS by not including "within 31 days prior to entering a condition in which the PORV is required OPERABLE" and placing it in the Surveillance Frequency Control Program (SFCP).

The removal of this PORV time from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The ITS retains the requirement to "within 31 days prior to entering a condition in which the PORV is required OPERABLE" in the SFCP. Also, this change is acceptable because these types of procedural details will be adequately controlled in the SFCP. This change is designated as a less restrictive removal of detail change because a "within 31 days prior to entering a condition in which the PORV is required OPERABLE" is being removed from the Technical Specifications.

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 ~~Low Temperature Overpressure Protection (LTOP) System~~ Overpressure Mitigating Systems (OMS) (2)

INSERT 3 (3)

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] capable of injecting into the RCS and the accumulators isolated and one of the following pressure relief capabilities:~~

LCO 3.4.9.3.a a. Two power operated relief valves (PORVs) with lift settings ~~within the limits specified in the PTLR~~ ≤ 448 psig or, (3)

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

~~[c. 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,] or~~ (1)

LCO 3.4.9.3.b ~~d~~ b. The RCS depressurized and an RCS vent of ≥ ~~[2.07]~~ 2.20 square inches. (2) (1)

~~NOTES~~

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

~~2. Accumulator may be unisolated when accumulator pressure is less than the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.~~ (3)

Applicability APPLICABILITY: MODE 4 when any RCS cold leg temperature is ≤ ~~[~~275°F~~]~~ ~~[LTOP arming temperature specified in the PTLR]~~, (1)
MODE 5,
MODE 6 when the reactor vessel head is on.

3 **INSERT 3**

The OMS shall be OPERABLE with the high pressure safety injection flow paths to the RCS isolated and one of the following pressure relief capabilities:

ACTIONS

-----NOTE-----
LCO 3.0.4.b is not applicable when entering MODE 4.

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a A. ~~Two~~ one or more ~~[HPI]~~ safety injection pumps capable of injecting into the RCS.	A.1 Initiate action to verify ~~a maximum of [one] [HPI]~~ no safety injection pumps ~~is~~ are capable of injecting into the RCS.	~~Immediately~~ 4 hours (2) (1) (1)
~~B. [Two or more charging pumps capable of injecting into the RCS.~~	~~B.1 Initiate action to verify a maximum of [one] charging pump is capable of injecting into the RCS.~~	~~Immediately]~~ (1)
~~C. An accumulator not isolated when the accumulator pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.~~	~~C.1 Isolate affected accumulator.~~	~~1 hour~~ (3)
~~D. Required Action and associated Completion Time of Condition [C] not met.~~	~~D.1 Increase RCS cold leg temperature to > [275°F] [LTOP arming temperature specified in the PTLR].~~ ~~OR~~ ~~D.2 Depressurize affected accumulator to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.~~	~~12 hours~~ ~~12 hours~~ (3)
ACTION b ~~E.~~ B. One required ~~RCS relief valve~~ PORV inoperable in MODE 4.	~~E.~~B.1 Restore required ~~RCS relief valve~~ PORV to OPERABLE status. INSERT 1	~~7 days~~ 168 hours (2) (4) (3)

3 **INSERT 1**

ACTION b

	<u>OR</u> B.2 Depressurize and vent the RCS through at least a 2.20 square inch vent.	176 hours

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION c	~~F~~ C. One required ~~RCS relief valve~~ PORV inoperable in MODE 5 or 6.	~~F~~ C.1 Restore required ~~RCS relief valve~~ PORV to OPERABLE status. INSERT 2	24 hours	2 3
ACTION d	~~G~~ D. Two required ~~RCS relief valves~~ PORVs inoperable. ~~OR~~ ~~Required Action and associated Completion Time of Condition A, [B,] D, E, or F not met.~~ ~~OR~~ ~~LTOP System inoperable for any reason other than Condition A, [B,] C, D, E, or F.~~	~~G~~ D.1 Depressurize RCS and establish RCS vent of ≥ ~~[2.07]~~ 2.20 square inches.	~~12~~ 24 hours	2 3 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
4.4.9.3.3	SR 3.4.12.1	Verify ~~a maximum of [one] [HPI]~~ no safety injection pump is capable of injecting into the RCS.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2 1

3 **INSERT 2**

	<u>OR</u> C.2.1 Depressurize RCS and establish RCS vent ≥ 2.20 square inches. <u>OR</u> C.2.2 Depressurize RCS and vent RCS through at least one open PORV and associated block valve.	 32 hours 32 hours

2

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
~~SR 3.4.12.2 [Verify a maximum of one charging pump is capable of injecting into the RCS.~~	~~[12 hours~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~
~~SR 3.4.12.3 Verify each accumulator is isolated.~~	~~[12 hours~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
~~SR 3.4.12.4 [Verify RHR suction valve is open for each required RHR suction relief valve.~~	~~[12 hours~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~

1

1

1

2

2

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
4.4.9.3.2	SR 3.4.12.~~5~~ 2 ---NOTE--- Not required when the vent pathway is provided with a valve which is locked, sealed, or otherwise secured in the open position. ---	Verify required RCS vent ≥ ~~[2.07]~~ 2.20 square inches open.	~~[12 hours for unlocked open vent valve(s)~~ ~~AND~~ ~~31 days for other vent path(s)~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2 1 3
4.4.9.3.1.c	SR 3.4.12.~~6~~ 3	Verify PORV block valve is open for each required PORV.	~~[72 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2 1
	~~SR 3.4.12.7~~	~~[Verify associated RHR suction isolation valve is locked open with operator power removed for each required RHR suction relief valve.~~	~~[31 days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~	1

2

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
4.4.9.3.1.a	SR 3.4.12.~~8~~ 4	------------------------------NOTE------------------------------ Not required to be performed until 12 hours after decreasing RCS cold leg temperature to ≤ ~~[~~275°F~~]~~ ~~[LTOP arming temperature specified in the PTLR]~~. --- Perform a COT on each required PORV, excluding actuation.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2 1 1
4.4.9.3.1.b	SR 3.4.12.~~9~~ 5	Perform CHANNEL CALIBRATION for each required PORV actuation channel.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2 1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.12, OVERPRESSURE MITIGATING SYSTEMS

1. The Improved Standard Technical Specifications (ISTS) contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

2. 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.

3. Changes are made to be consistent with the current licensing bases.

4. Changing from days to hours. The hours are the same as the 7 days and was changed to match the Completion Time for Required Action B.2 which is equal to 7 days plus 8 hours. This was done to minimize potential errors due to one Completion Time being in days and one in hours.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.12 ~~Low Temperature Overpressure Protection (LTOP) System~~ Overpressure Mitigation Systems 1

BASES

BACKGROUND

The ~~LTOP System~~ OMS controls RCS pressure at low temperatures so the integrity of the reactor coolant pressure boundary (RCPB) is not compromised by violating the pressure and temperature (P/T) limits of 10 CFR 50, Appendix G (Ref. 1). The reactor vessel is the limiting RCPB component for demonstrating such protection. ~~The PTLR~~ LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits provides the - maximum allowable actuation logic setpoints for the power operated relief valves (PORVs) and the maximum RCS pressure for the existing RCS cold leg temperature during cooldown, shutdown, and heatup to meet the Reference 1 requirements during the ~~LTOP~~ OMS MODES. 1 1 1

The reactor vessel material is less tough at low temperatures than at normal operating temperature. As the vessel neutron exposure accumulates, the material toughness decreases and becomes less resistant to pressure stress at low temperatures (Ref. 2). RCS pressure, therefore, is maintained low at low temperatures and is increased only as temperature is increased.

The potential for vessel overpressurization is most acute when the RCS is water solid, occurring only while shutdown; a pressure fluctuation can occur more quickly than an operator can react to relieve the condition. Exceeding the RCS P/T limits by a significant amount could cause brittle cracking of the reactor vessel. LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," requires administrative control of RCS pressure and temperature during heatup and cooldown to prevent exceeding the ~~PTLR~~ P/T limits. 1 3

INSERT 1

~~This LCO provides RCS overpressure protection by having a minimum coolant input capability and having adequate pressure relief capacity. Limiting coolant input capability requires all but [one] [high pressure injection (HPI)] pump [and one charging pump] incapable of injection into the RCS and isolating the accumulators. The pressure relief capacity requires either two redundant RCS relief valves or a depressurized RCS and an RCS vent of sufficient size. One RCS relief valve or the open RCS vent is the overpressure protection device that acts to terminate an increasing pressure event.~~ 3

~~With minimum coolant input capability, the ability to provide core coolant addition is restricted. The LCO does not require the makeup control system deactivated or the safety injection (SI) actuation circuits blocked. Due to the lower pressures in the LTOP MODES and the expected core~~

3 INSERT 1

LCO 3.4.12 provides requirements to isolate Safety Injection (SI) from the RCS and to prevent the start of an idle RCP if secondary temperature is more than 50°F above the RCS cold leg temperatures. These requirements are designed to ensure that mass and heat input transients more severe than those assumed in the low temperature overpressurization protection analysis cannot occur.

The OPERABILITY of two PORVs or an RCS vent opening of at least 2.20 square inches ensures that the RCS will be protected from pressure transients which could exceed the limits of Appendix G to 10 CFR Part 50 when one or more of the RCS cold legs are less than or equal to 275°F. Either PORV has adequate relieving capability to protect the RCS from overpressurization when the transient is limited to either: (1) The start of an idle RCP with the secondary water temperature of the steam generator less than or equal to 50°F above the RCS cold leg temperatures including margin for instrument error, or (2) The start of a safety injection (SI) pump and its injection into a water-solid RCS.

1

BASES

BACKGROUND (continued)

~~decay heat levels, the makeup system can provide adequate flow via the makeup control valve. If conditions require the use of more than one [HPI or] charging pump for makeup in the event of loss of inventory, then pumps can be made available through manual actions.~~

~~The LTOP System for pressure relief consists of two PORVs with reduced lift settings, or two residual heat removal (RHR) suction relief valves, or one PORV and one RHR suction relief valve, or a depressurized RCS and an RCS vent of sufficient size. Two RCS relief valves are required for redundancy. One RCS relief valve has adequate relieving capability to keep from overpressurization for the required coolant input capability.~~

3

PORV Requirements

As designed for the ~~LTOP System~~ OMS, each PORV is signaled to open if the RCS pressure approaches a limit determined by the ~~LTOP~~ OMS actuation logic. The ~~LTOP~~ OMS actuation logic monitors both RCS temperature and RCS pressure and determines when a condition not acceptable ~~in the PTLR limits~~ is approached. The wide range RCS temperature indications are auctioneered to select the lowest temperature signal.

1

1

The lowest temperature signal is processed through a function generator that calculates a pressure limit for that temperature. The calculated pressure limit is then compared with the indicated RCS pressure from a wide range pressure channel. If the indicated pressure meets or exceeds the calculated value, a PORV is signaled to open.

~~The PTLR presents the PORV setpoints for LTOP. The setpoints are normally staggered so only one valve opens during a low temperature overpressure transient. Having~~ Requiring the setpoints of both valves within the limits ~~in the PTLR~~ ensures that the Reference 1 limits will not be exceeded in any analyzed event.

1

When a PORV is opened in an increasing pressure transient, the release of coolant will cause the pressure increase to slow and reverse. As the PORV releases coolant, the RCS pressure decreases until a reset pressure is reached and the valve is signaled to close. The pressure continues to decrease below the reset pressure as the valve closes.

1

BASES

BACKGROUND (continued)

~~[RHR Suction Relief Valve Requirements~~

~~During LTOP MODES, the RHR System is operated for decay heat removal and low pressure letdown control. Therefore, the RHR suction isolation valves are open in the piping from the RCS hot legs to the inlets of the RHR pumps. While these valves are open and the RHR suction valves are open, the RHR suction relief valves are exposed to the RCS and are able to relieve pressure transients in the RCS.~~

~~The RHR suction isolation valves and the RHR suction valves must be open to make the RHR suction relief valves OPERABLE for RCS overpressure mitigation. Autoclosure interlocks are not permitted to cause the RHR suction isolation valves to close. The RHR suction relief valves are spring loaded, bellows type water relief valves with pressure tolerances and accumulation limits established by Section III of the American Society of Mechanical Engineers (ASME) Code (Ref. 3) for Class 2 relief valves.]~~

RCS Vent Requirements

Once the RCS is depressurized, a vent exposed to the containment atmosphere will maintain the RCS at containment ambient pressure in an RCS overpressure transient, if the relieving requirements of the transient do not exceed the capabilities of the vent. Thus, the vent path must be OMS capable of relieving the flow resulting from the limiting ~~LTOP~~ mass or heat input transient, and maintaining pressure below the P/T limits. The required vent capacity may be provided by one or more vent paths. 1

For an RCS vent to meet the flow capacity requirement, it requires removing a pressurizer safety valve, removing a PORV's internals, and disabling its block valve in the open position, or similarly establishing a vent by opening an RCS vent valve. The vent path(s) must be above the level of reactor coolant, so as not to drain the RCS when open.

APPLICABLE SAFETY ANALYSES

Safety analyses (Ref~~.~~ s. 3 and 4) demonstrate that the reactor vessel is adequately protected against exceeding the Reference 1 P/T limits. In MODES 1, 2, and 3, and in MODE 4 with RCS cold leg temperature exceeding ~~[~~275°F~~]~~ ~~[LTOP arming temperature specified in the PTLR],~~ the pressurizer safety valves will prevent RCS pressure from exceeding the Reference 1 limits. At about ~~[~~275°F~~]~~ ~~[LTOP arming temperature specified in the PTLR]~~ and below, overpressure prevention falls to two OPERABLE PORVs ~~RCS relief valves~~ or to a depressurized RCS and a sufficient sized RCS vent. Each of these means has a limited overpressure relief capability. 1 2 2 1

1

BASES

APPLICABLE SAFETY ANALYSES (continued)

The actual temperature at which the pressure in the P/T limit curve falls below the pressurizer safety valve setpoint increases as the reactor vessel material toughness decreases due to neutron embrittlement. ~~Each time the PTLR curves are revised, the LTOP System must be re-evaluated to ensure its functional requirements can still be met using the RCS relief valve method or the depressurized and vented RCS condition.~~

3

LCO 3.4.3 ~~The PTLR~~ contains the acceptance limits that define the ~~LTOP~~ OMS requirements. Any change to the RCS must be evaluated against the OMS Reference 4 analyses to determine the impact of the change on the ~~LTOP~~ OMS acceptance limits.

1

1

Transients that are capable of overpressurizing the RCS are categorized as either mass or heat input transients, examples of which follow:

Mass Input Type Transients

a. Inadvertent safety injection or

b. Charging/letdown flow mismatch.

Heat Input Type Transients

a. Inadvertent actuation of pressurizer heaters,

b. Loss of RHR cooling, or

c. Reactor coolant pump (RCP) startup with temperature asymmetry within the RCS or between the RCS and steam generators.

~~The following are required during the LTOP MODES to ensure that mass and heat input transients do not occur, which either of the LTOP overpressure protection means cannot handle:~~

~~a. Rendering all but [one] [HPI] pump [and one charging pump] incapable of injection,~~

~~b. Deactivating the accumulator discharge isolation valves in their closed positions, and~~

~~c. Disallowing start of an RCP if secondary temperature is more than [50]°F above primary temperature in any one loop. LCO 3.4.6, "RCS Loops - MODE 4," and LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled," provide this protection.~~

3

BASES

APPLICABLE SAFETY ANALYSES (continued)

examinations of the reactor vessel material irradiation surveillance specimens. The Bases for LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," discuss these examinations.

The PORVs are considered active components. Thus, the failure of one PORV is assumed to represent the worst case, single active failure.

~~[RHR Suction Relief Valve Performance~~

~~The RHR suction relief valves do not have variable pressure and temperature lift setpoints like the PORVs. Analyses must show that one RHR suction relief valve with a setpoint at or between [436.5] psig and [463.5] psig will pass flow greater than that required for the limiting LTOP transient while maintaining RCS pressure less than the P/T limit curve. Assuming all relief flow requirements during the limiting LTOP event, an RHR suction relief valve will maintain RCS pressure to within the valve rated lift setpoint, plus an accumulation ≤ 10% of the rated lift setpoint.~~

~~Although each RHR suction relief valve may itself meet single failure criteria, its inclusion and location within the RHR System does not allow it to meet single failure criteria when spurious RHR suction isolation valve closure is postulated. Also, as the RCS P/T limits are decreased to reflect the loss of toughness in the reactor vessel materials due to neutron embrittlement, the RHR suction relief valves must be analyzed to still accommodate the design basis transients for LTOP.~~

~~The RHR suction relief valves are considered active components. Thus, the failure of one valve is assumed to represent the worst case single active failure.]~~ 2

RCS Vent Performance

With the RCS depressurized, analyses show a vent size of ~~2.07~~ 2.20 square inches is capable of mitigating the allowed ~~LTOP~~ OMS overpressure transient. 1
The capacity of a vent this size is greater than the flow of the limiting transient ~~for the LTOP configuration~~, [one] ~~HPI~~ RHR pump ~~[and one charging pump]~~ OPERABLE, maintaining RCS pressure less than the maximum pressure on the P/T limit curve. 1 2

The RCS vent size will be re-evaluated for compliance each time the P/T limit curves are revised based on the results of the vessel material surveillance.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The RCS vent is passive and is not subject to active failure.

The ~~LTOP System~~ OMS satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

This LCO requires that the ~~LTOP System~~ OMS is OPERABLE. The ~~LTOP System~~ OMS 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.

To limit the coolant input capability, the LCO requires that a maximum of ~~[~~one~~]~~ ~~[HPI]~~ safety injection pump ~~[and one charging pump]~~ be capable of injecting into the RCS~~, and all accumulator discharge isolation valves be 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 LCO is modified by two Notes. Note 1 allows [two charging pumps] to be made capable of injecting for ≤ 1 hour during pump swap operations. One hour provides sufficient time to safely complete the actual transfer and to complete the administrative controls and Surveillance Requirements associated with the swap. The intent is to minimize the actual time that more than [one] charging pump is physically capable of injection. Note 2 states that accumulator isolation is only required when the accumulator pressure is more than or at the maximum RCS pressure for the existing temperature, as allowed by the P/T limit curves. This Note permits the accumulator discharge isolation valve Surveillance to be performed only under these pressure and temperature conditions.~~

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

a. Two OPERABLE PORVs,

A PORV is OPERABLE for ~~LTOP~~ OMS when its block valve is open, its lift setpoint is set to the required limit ~~required by the PTLR~~ and testing proves its ability to open at this setpoint, and motive power is available to the two valves and their control circuits.

BASES

LCO (continued)

~~[b. Two OPERABLE RHR suction relief valves,~~

~~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.~~

~~c. One OPERABLE PORV and one OPERABLE RHR suction relief valve, or]~~

b ~~d~~. A depressurized RCS and an RCS vent. 1

An RCS vent is OPERABLE when open with an area of ≥ ~~[2.07]~~ 2.20 square inches. 2

Each of these methods of overpressure prevention is capable of mitigating the limiting ~~LTOP~~ OMS transient. 1

APPLICABILITY

This LCO is applicable in MODE 4 when any RCS cold leg temperature is ≤ ~~[~~275°F~~]~~ ~~[LTOP arming temperature specified in the PTLR]~~, 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 ~~[~~275°F~~]~~ ~~[LTOP arming temperature specified in the PTLR]~~. When the reactor vessel head is off, overpressurization cannot occur. 2 2

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 ~~[~~275°F~~]~~ ~~[LTOP arming temperature specified in the PTLR]~~. 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.

ACTIONS

A Note prohibits the application of LCO 3.0.4.b to an inoperable ~~LTOP System~~ OMS. There is an increased risk associated with entering MODE 4 from MODE 5 with ~~LTOP~~ OMS inoperable and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance. 1 1

BASES

ACTIONS (continued)

A.1 ~~and [B.1]~~ 1

With ~~two~~ one or more ~~HPI~~ SI pumps capable of injecting into the RCS, RCS overpressurization is possible. 3

To immediately initiate action to restore restricted coolant input capability to the RCS reflects the urgency of removing the RCS from this condition.

With the high pressure safety injection flow paths to the RCS unisolated, isolation of these flow paths is performed within 4 hours.

~~C.1, D.1, and D.2~~

~~An unisolated accumulator requires isolation within 1 hour. This is only required when the accumulator pressure is at or more than the maximum RCS pressure for the existing temperature allowed by the P/T limit curves.~~

~~If isolation is needed and cannot be accomplished in 1 hour, Required Action D.1 and Required Action D.2 provide two options, either of which must be performed in the next 12 hours. By increasing the RCS temperature to > [275°F] [LTOP arming temperature specified in the PTLR], an accumulator pressure of [600] psig cannot exceed the LTOP limits if the accumulators are fully injected. Depressurizing the accumulators below the LTOP limit from the PTLR also gives this protection.~~ 3

~~The Completion Times are based on operating experience that these activities can be accomplished in these time periods and on engineering evaluations indicating that an event requiring LTOP is not likely in the allowed times.~~

~~E.1~~ B.1 and B.2 1

In MODE 4 when any RCS cold leg temperature is ≤ ~~[~~275°F~~] [LTOP arming temperature specified in the PTLR]~~, with one required ~~RCS relief valve~~ PORV inoperable, the ~~RCS relief valve~~ PORV must be restored to OPERABLE status within a Completion Time of ~~7 days~~ 168 hours (7 days). Two ~~RCS relief valves [in any combination of the PORVS and the RHR suction relief valves]~~ PORVs are required to provide low temperature overpressure mitigation while withstanding a single failure of an active component. 2 1 2 3

The Completion Time considers the facts that only one of the ~~RCS relief valves~~ PORVs is required to mitigate an overpressure transient and that the likelihood of an active failure of the remaining valve path during this time period is very low. 1

B.2 depressurizes and vents the RCS through at least a 2.20 square inch vent. Completion Time is 176 hours. 3

BASES

ACTIONS (continued)

C.1, C.2.1, and C.2.2

~~F~~.1 1

5

The consequences of operational events that will overpressurize the RCS are more severe at lower temperature (Ref. ~~7~~). Thus, with one of the two 1 PORVs ~~RCS relief valves~~ inoperable in MODE 5 or in MODE 6 with the head on, 1 the Completion Time to restore two valves to OPERABLE status is 24 hours.

The Completion Time represents a reasonable time to investigate and repair several types of relief valve failures without exposure to a lengthy period with only one OPERABLE ~~RCS relief valve~~ PORV to protect against overpressure events. 1

D

~~G~~.1 1

The RCS must be depressurized and a vent must be established within 12 hours when~~:~~

~~a.~~ Both required PORVs ~~RCS relief valves~~ are inoperable, 1

~~b. A Required Action and associated Completion Time of Condition A, [B], D, E, or F is not met, or~~

~~c. The LTOP System is inoperable for any reason other than Condition A, [B], C, D, E, or F.~~ 1

2.20

The vent must be sized ≥ ~~[2.07]~~ square inches to ensure that the flow capacity is greater than that required for the worst case mass input transient reasonable during the applicable MODES. This action is needed to protect the RCPB from a low temperature overpressure event and a possible brittle failure of the reactor vessel. 2

The Completion Time considers the time required to place the plant in this Condition and the relatively low probability of an overpressure event during this time period due to increased operator awareness of administrative control requirements.

SURVEILLANCE REQUIREMENTS

SR 3.4.12.1~~, [SR 3.4.12.2], and SR 3.4.12.3~~ 1

s ,

safety injection

To minimize the potential for a low temperature overpressure event by limiting the mass input capability, ~~a maximum of [one] [HPI]~~ pump ~~[and a maximum of one charging pump]~~ are ~~verified~~ incapable of injecting into the RCS ~~and the accumulator discharge isolation valves are verified closed and locked out~~. 2 1 1

Verify the 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

Since safety injection

The ~~[HPI]~~ pump~~[~~s~~]~~ ~~and charging pump[s]~~ are ~~rendered incapable of injecting into the RCS through removing the power from the pumps by racking the breakers out under administrative control. An alternate method of LTOP control may be employed using at least two independent means to prevent a pump start such that a single failure or single action will not result in an injection into the RCS.~~ This may be accomplished through the pump control switch being placed in ~~[~~pull to lock~~]~~ ~~and~~ or at least one valve in the discharge flow path being closed~~.~~ 2 1 2 1

shared between both units and feed into common headers the flow paths are required, to be isolated to prevent an inadvertent SI into the RCS.

(i.e., by a power operated valve failed/de-energized closed or by a locked manual valve). If the opposite unit is in MODES 1, 2, or 3, three SI pumps are required to be OPERABLE; however, because both SI pumps feed into a common header, both flow paths are required to be isolated. Only when both units are in MODES 4, 5, 6, or defueled and when the SI pumps are no longer required, may the pump control switch on all the SI pumps be placed in pull to lock to prevent SI flow into the RCS as an alternate to isolating SI flow paths.

~~[The Frequency of 12 hours is sufficient, considering other indications and alarms available to the operator in the control room, to verify the required status of the equipment.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~---]~~

~~[SR 3.4.12.4~~ 2

~~Each required RHR suction relief valve shall be demonstrated OPERABLE by verifying its RHR suction valve and RHR suction isolation valves are open and by testing it in accordance with the INSERVICE TESTING PROGRAM. (Refer to SR 3.4.12.7 for the RHR suction isolation valve Surveillance.) This Surveillance is only required to be performed if the RHR suction relief valve is being used to meet this LCO.~~

~~The RHR suction valve is verified to be opened. [The Frequency of 12 hours is considered adequate in view of other administrative controls such as valve status indications available to the operator in the control room that verify the RHR suction valve remains open.~~

~~OR~~

1

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----REVIEWER'S NOTE-----~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~----------]~~ 4

~~The ASME Code (Ref. 8), test per INSERVICE TESTING PROGRAM verifies OPERABILITY by proving proper relief valve mechanical motion and by measuring and, if required, adjusting the lift setpoint.]~~

SR 3.4.12.~~5~~ 2 1

The RCS vent of ≥ ~~[2.07]~~ 2.20 square inches is proven OPERABLE by verifying its open condition ~~[either:~~ 2 2

A Note has been added indicating that this SR is not required to be performed for paths which have open valve(s) that are locked, sealed, or otherwise secured in the open position.

~~a. Once every 12 hours for a valve that is not locked (valves that are sealed or secured in the open position are considered "locked" in this context) or~~

~~b. Once every 31 days for other vent path(s) (e.g., a vent valve that is locked, sealed, or secured in position). A removed pressurizer safety valve or open manway also fits this category.~~

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----REVIEWER'S NOTE-----~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~----------]~~ 4

BASES

SURVEILLANCE REQUIREMENTS (continued)

The passive vent path arrangement must only be open to be OPERABLE. This Surveillance is required to be met if the vent is being used to satisfy the pressure relief requirements of the LCO 3.4.12~~d~~b. 1

SR 3.4.12.~~6~~3 1

The PORV block valve must be verified open to provide the flow path for each required PORV to perform its function when actuated. The valve must be remotely verified open in the main control room. ~~[This Surveillance is performed if the PORV satisfies the LCO.]~~ 2

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, that verify that the PORV block valve remains open.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~---]~~

~~[SR 3.4.12.7~~ 2

~~Each required RHR suction relief valve shall be demonstrated OPERABLE by verifying its RHR suction valve and RHR suction isolation valve are open and by testing it in accordance with the INSERVICE TESTING PROGRAM. (Refer to SR 3.4.12.4 for the RHR suction valve Surveillance and for a description of the requirements of the INSERVICE TESTING PROGRAM.) This Surveillance is only performed if the RHR suction relief valve is being used to satisfy this LCO.]~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~The RHR suction isolation valve is verified locked open, with power to the valve operator removed, to ensure that accidental closure will not occur. The "locked open" valve must be locally verified in its open position with the manual actuator locked in its inactive position. [The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve position.~~ 1 2

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~---]~~

SR 3.4.12.~~8~~ 4 1

Performance of a COT is required within 12 hours after decreasing RCS temperature to ≤ ~~[~~275°F~~]~~ ~~[LTOP arming temperature specified in the PTLR] 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 COT 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 verify the setpoint is within the ~~PTLR~~ allowed maximum limits ~~in the PTLR~~. PORV actuation could depressurize the RCS and is not required. 2 1 1

~~The 12 hour Frequency considers the unlikelihood of a low temperature overpressure event during this time. [The 31 day Frequency considers experience with equipment reliability.~~ 3 2

~~OR~~

 1

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-------------------------------REVIEWER'S NOTE-------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~ 4

A Note has been added indicating that this SR is required to be performed 12 hours after decreasing RCS cold leg temperature to ≤ ~~[~~275°F~~]~~ ~~[LTOP arming temperature specified in the PTLR]~~. The COT cannot be performed until in the ~~LTOP~~ OMS MODES when the PORV lift setpoint can be reduced to the ~~LTOP~~ OMS setting. The test must be performed within 12 hours after entering the ~~LTOP~~ OMS MODES. 2 1

SR 3.4.12.~~9~~ 5 1

Performance of a CHANNEL CALIBRATION on each required PORV actuation channel is required ~~every [18] months~~ to adjust the whole channel so that it responds and the valve opens within the required range and accuracy to known input. ~~[The [18] month Frequency considers operating experience with equipment reliability and matches the typical refueling outage schedule.~~ 3 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-------------------------------REVIEWER'S NOTE-------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~ 4

REFERENCES

1. 10 CFR 50, Appendix G.
2. ~~Generic Letter 88-11.~~ NRC Letter, April 22, 1985, "Safety Evaluation by NRR Related to Amendment No. 112 to Facility Operating License No. DPR-31 and Amendment No. 106 to Facility Operating License No. DPR-41", D.G. MacDonald to J.W. Williams". 1

BASES

REFERENCES (continued)

~~3. ASME, Boiler and Pressure Vessel Code, Section III.~~

~~4~~ 3. FSAR, Chapter ~~[15]~~ 14.

~~5. 10 CFR 50, Section 50.46.~~

4. CN-CPS-09-79, LTOPS Analysis for Turkey Point Units 3 and 4 Extended Power Uprate Program, September 21, 2009.

~~6. 10 CFR 50, Appendix K.~~

~~7~~ 5. Generic Letter 90-06.

~~8. ASME Code for Operation and Maintenance of Nuclear Power Plants.~~

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.12 Bases, OVERPRESSURE MITIGATING SYSTEMS

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

2. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. Changes have been made to be consistent with changes made to the Specification.

4. The Reviewer's Note has been deleted, because it is not meant to be retained in the plant specific Improved Technical Specifications (ITS) submittal.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.12, OVERPRESSURE MITIGATING SYSTEMS

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 13

ITS 3.4.13 – RCS OPERATIONAL LEAKAGE

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

REACTOR COOLANT SYSTEM

OPERATIONAL LEAKAGE

LIMITING CONDITION FOR OPERATING

LCO 3.4.13 3.4.6.2 Reactor Coolant System operational leakage shall be limited to:

LCO 3.4.13.a a. No PRESSURE BOUNDARY LEAKAGE,

LCO 3.4.13.b b. 1 GPM UNIDENTIFIED LEAKAGE,

LCO 3.4.13.d c. 150 gallons per day primary-to-secondary leakage through any one steam generator (SG),

LCO 3.4.13.c d. 10 GPM IDENTIFIED LEAKAGE from the Reactor Coolant System, and

e. Leakage as specified in Table 3.4-1 up to a maximum of 5 GPM at a Reactor Coolant System pressure of 2235 ± 20 psig from any Reactor Coolant System Pressure Isolation Valve specified in Table 3.4-1.*

See ITS 3.4.14

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

ACTION:

INSERT 1

L01

ACTION A
ACTION C

a. With any PRESSURE BOUNDARY LEAKAGE, or with primary-to-secondary leakage not within limit, be in at least HOT STANDBY within 6 hours ~~and in COLD SHUTDOWN within the following 30 hours.~~ L02

ACTION B

b. With any Reactor Coolant System operational leakage greater than any one of the above limits, excluding primary-to-secondary leakage, PRESSURE BOUNDARY LEAKAGE, and leakage from Reactor Coolant System Pressure Isolation Valves, reduce the leakage rate to within limits within 4 hours or be in at least HOT STANDBY within the next 6 hours ~~and in COLD SHUTDOWN within the following 30 hours.~~ L02

ACTION C

INSERT Required Action C.2 Note

A02

c. With any Reactor Coolant System Pressure Isolation Valve leakage greater than allowed by 3.4.6.2.e above operation may continue provided:

1. Within 4 hours verify that at least two valves in each high pressure line having a non-functional valve are in, and remain in that mode corresponding to the isolated condition, i.e., manual valves shall be locked in the closed position; motor operated valves shall be placed in the closed position and power supplies deenergized. Follow applicable ACTION statement for the affected system, and

---

* Test pressure less than 2235 psig are allowed. Minimum differential test pressure shall not be less than 150 psid. Observed leakage shall be adjusted for the actual test pressure up to 2235 psig assuming the leakage to be-directly proportional to pressure differential to the one-half power.

See ITS 3.4.14

ITS

L01 **INSERT 1**

ACTION A.1 Isolate affected component, pipe, or vessel from the RCS by use of a closed manual valve, closed and de-activated automatic valve, blind flange, or check valve.

~~ACTION A~~

2. The leakage* from the remaining isolating valves in each high pressure line having a valve not meeting the criteria of Table 3.4-1, as listed in Table 3.4-1, shall be determined and recorded daily. The positions of the other valves located in the high pressure line having the leaking valve shall be recorded daily unless they are manual valves located inside containment.

Otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

NOTE: Enter applicable ACTIONS for systems made inoperable by an inoperable pressure isolation valve.

d. With any Reactor Coolant System Pressure Isolation Valve leakage greater than 5 gpm, reduce leakage to below 5 gpm within 1 hour, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

See ITS 3.4.14

SURVEILLANCE REQUIREMENTS

SR 3.4.13.1 SR 3.4.13.2 4.4.6.2.1 Reactor Coolant System operational leakages shall be demonstrated to be within each of the above limits by:

~~a. Monitoring the containment atmosphere gaseous or particulate radioactivity monitor in accordance with the Surveillance Frequency Control Program.~~ LA01

~~b. Monitoring the containment sump level in accordance with the Surveillance Frequency Control Program.~~ LA01

SR 3.4.13.1 c.** Performance of a Reactor Coolant System water inventory balance in accordance with the Surveillance Frequency Control Program***; and

~~d. Monitoring the Reactor Head Flange Leakoff System in accordance with the Surveillance Frequency Control Program; and~~ LA01

SR 3.4.13.2 e. Verifying primary-to-secondary leakage is ≤ 150 gallons per day through any one SG in accordance with the Surveillance Frequency Control Program***.

4.4.6.2.2 Each Reactor Coolant System Pressure Isolation Valve specified in Table 3.4-1 shall be demonstrated OPERABLE by verifying leakage* to be within its limit:

a. When tested in accordance with the INSERVICE TESTING PROGRAM.

b. Prior to entering MODE 2 whenever the plant has been in COLD SHUTDOWN for 7 days or more and if leakage testing has not been performed in the previous 9 months.

c. DELETED

* To satisfy ALARA requirements, leakage may be measured indirectly (as from the performance of pressure indicators) if accomplished in accordance with approved procedures and supported by computations showing that the method is capable of demonstrating valve compliance with the leakage criteria.

See ITS 3.4.14

SR 3.4.13.1 Note 2 ** Not applicable to primary-to-secondary leakage.

SR 3.4.13.1 Note 1 SR 3.4.13.2 Note *** Not required to be performed until 12 hours after establishment of steady state operation.

REACTOR COOLANT SYSTEM

OPERATIONAL LEAKAGE

LIMITING CONDITION FOR OPERATION (Continued)

d. Following valve actuation due to automatic or manual action or flow through the valve*:

1. Within 24 hours by verifying valve closure, and

2. Prior to entering Mode 2 by verifying leakage rate.

The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.

See ITS 3.4.14

* RCS Pressure Isolation Valves actuated during the performance of this surveillance are not required to be tested more than once if a repetitive testing loop cannot be avoided.

See ITS 3.4.14

TABLE 3.4-1

REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES

VALVE NUMBER		FUNCTION
Unit 3	Unit 4	High-Head Safety Injection Check Valves
3-874A	4-874A	Loop A, hot leg
3-875A	4-875A	cold leg
3-873A	4-873A	cold leg
3-874B	4-874B	Loop B, hot leg
3-875B	4-875B	cold leg
3-873B	4-873B	cold leg
3-875C	4-875C	Loop C,cold leg
3-873C	4-873C	cold leg
		Residual Heat Removal Line Check Valves
3-876A	4-876A 4-876E	Loop A, cold leg
3-876B 3-876D	4-876B 4-876D	Loop B, cold leg
3-876C 3-876E	4-876C	Loop C, cold leg
	MOV4-750 MOV4-751	Loop A, hot leg to RHR
MOV3-750 MOV3-751		Loop C, hot leg to RHR

ACCEPTABLE LEAKAGE LIMITS

1. Leakage rates less than or equal to 1.0 gpm are considered acceptable.

2. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered acceptable provided that the latest measured rate has not exceeded the rate determined by the previous test by an amount that reduces the margin between previously measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.

3. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered unacceptable if the latest measured rate exceeded the rate determined by the previous test by an amount that reduces the margin between previously measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.

4. Leakage rates greater than 5.0 gpm are considered unacceptable.

See ITS 3.4.14

~~REACTOR COOLANT SYSTEM~~

~~3/4.4.7 DELETED~~

~~TABLE 3.4-2~~

~~DELETED~~

~~TABLE 4.4-3~~

~~DELETED~~

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generation Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications - Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 Required Action C.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. If appropriate, LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

This change is designated as an administrative change and is acceptable because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of SR to the TRM)* CTS SR 4.4.6.2.1 states that the "Reactor Coolant System operational leakages shall be demonstrated to be within each of the above limits by: a. Monitoring the containment atmosphere gaseous or particulate radioactivity monitor in accordance with the Surveillance Frequency Control Program, b. Monitoring the containment sump level in accordance with the Surveillance Frequency Control Program, and d. Monitoring the Reactor Head Flange Leakoff System in accordance with the Surveillance Frequency Control Program." ITS 3.4.13 does not contain these Surveillance Requirements. This changes the CTS by removing these leakage monitoring surveillance requirements.

The removal of these SRs from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. These Surveillances are not required to verify that the Reactor Coolant System (RCS) operational leakage requirements are being met. The RCS operational leakage requirements are maintained by periodically performing the RCS inventory balance and verifying primary to secondary leakage. These surveillances will continue to be performed in the ITS. In addition, the instrumentation required to monitor the containment sump and the containment atmosphere are required by ITS 3.4.15. The other methods of monitoring will be relocated to the Technical Requirements Manual (TRM). Changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because three portions of the CTS SRs are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.4.6.2 a states, in part, to be in at least HOT STANDBY within 6 hours if not within the limits for any PRESSURE BOUNDARY LEAKAGE, or with any primary-to-secondary leakage. ITS 3.4.13 states to "isolate affected component, pipe, or vessel from the RCS by use of a closed manual valve, closed and de-activated automatic valve, blind flange, or check valve within 4 hours." This changes the CTS by allowing 4 hours to isolate the leakage versus shutting down to MODE 3 in 6 hours.

The purpose of CTS 3.4.6.2 is to limit operational leakage of the RCS. 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 isolate the leakage. The Required Actions are consistent with safe operation under the specified Condition. This includes a reasonable time for repairs or replacement, and the low probability of a Design Basis Accident (DBA) occurring during this period. ITS 3.4.13 allows 4 hours to isolate the leakage, which prevents further deterioration of the reactor coolant pressure boundary. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L02 *(Category 4 – Relaxation of Required Action)* CTS 3.4.6.2 a. and b. specify that if the requirements of CTS 3.4.6.2.a or b are not satisfied, the reactor shall be placed in COLD SHUTDOWN. ITS 3.4.13 Condition C requires that if the Required Actions and associated Completion Times have not been met, the reactor must be placed in MODE 3 within 6 hours and in MODE 4 within a total of 12 hours, which is consistent with the CTS Applicability. This changes CTS 3.4.6.2.a and b requirement to be in COLD SHUTDOWN by adopting the ITS requirement to be in MODE 4.

The purpose of the shutdown requirements of CTS 3.4.6.2 Actions a and b is to place the reactor in a lower pressure condition to reduce the severity of leakage and its potential consequences. Remaining within the Applicability of the Limiting Condition for Operation (LCO) (MODE 4) is acceptable to accomplish short duration repairs because the plant risk in MODE 4 is similar to or lower than MODE 5. In MODE 4 the Steam Generators and Residual Heat Removal capability are available to remove decay heat, which provides diversity and defense in depth. This change is designated as less restrictive because the ITS only requires a cool down to MODE 4 (< 350 °F) while the CTS requires a cool down to COLD SHUTDOWN (≤ 200 °F).

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 RCS Operational LEAKAGE

LCO 3.4.6.2 LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

LCO 3.4.6.2.a a. No pressure boundary LEAKAGE,

LCO 3.4.6.2.b b. 1 gpm unidentified LEAKAGE,

LCO 3.4.6.2.d c. 10 gpm identified LEAKAGE, and

LCO 3.4.6.2.c d. 150 gallons per day primary to secondary LEAKAGE through any one steam generator (SG).

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

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a	A. Pressure boundary LEAKAGE exists.	A.1 Isolate affected component, pipe, or vessel from the RCS by use of a closed manual valve, closed and de-activated automatic valve, blind flange, or check valve.	4 hours
ACTION b	B. RCS operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	B.1 Reduce LEAKAGE to within limits.	4 hours

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a ACTION b	C. Required Action and associated Completion Time not met. OR Primary to secondary LEAKAGE not within limit.	C.1 Be in MODE 3. AND C.2 --------------NOTE-------------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------------- Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
4.4.6.2.1.c 4.4.6.2.1.c** 4.4.6.2.1.c ***	SR 3.4.13.1	-----------------------------NOTES---------------------------- 1. Not required to be performed until 12 hours after establishment of steady state operation. 2. Not applicable to primary to secondary LEAKAGE. --- Verify RCS operational LEAKAGE is within limits by performance of RCS water inventory balance.	~~[72 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
4.4.6.2.1.e 4.4.6.2.1.e *** SR 3.4.13.2	------------------------------NOTE------------------------------ Not required to be performed until 12 hours after establishment of steady state operation. --- Verify primary to secondary LEAKAGE is ≤ 150 gallons per day through any one SG.	~~[72 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 2

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.13, RCS OPERATIONAL LEAKAGE

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

2. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed, and the proper plant specific information/value is inserted to reflect the current licensing basis.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.13 RCS Operational LEAKAGE

BASES

BACKGROUND

Components that contain or transport the coolant to or from the reactor core make up the RCS. Component joints are made by welding, bolting, rolling, or pressure loading, and valves isolate connecting systems from the RCS.

During plant life, the joint and valve interfaces can produce varying amounts of reactor coolant LEAKAGE, through either normal operational wear or mechanical deterioration. The purpose of the RCS Operational LEAKAGE LCO is to limit system operation in the presence of LEAKAGE from these sources to amounts that do not compromise safety. This LCO specifies the types and amounts of LEAKAGE.

10 CFR 50, Appendix A, GDC 30 (Ref. 1), requires means for detecting and, to the extent practical, identifying the source of reactor coolant LEAKAGE. Regulatory Guide 1.45 (Ref. 2) describes acceptable methods for selecting leakage detection systems.

The safety significance of RCS LEAKAGE varies widely depending on its source, rate, and duration. Therefore, detecting and monitoring reactor coolant LEAKAGE into the containment area is necessary. Quickly separating the identified LEAKAGE from the unidentified LEAKAGE is necessary to provide quantitative information to the operators, allowing them to take corrective action should a leak occur that is detrimental to the safety of the facility and the public.

A limited amount of leakage inside containment is expected from auxiliary systems that cannot be made 100% leaktight. Leakage from these systems should be detected, located, and isolated from the containment atmosphere, if possible, to not interfere with RCS leakage detection.

This LCO deals with protection of the reactor coolant pressure boundary (RCPB) from degradation and the core from inadequate cooling, in addition to preventing the accident analyses radiation release assumptions from being exceeded. The consequences of violating this LCO include the possibility of a loss of coolant accident (LOCA).

BASES

APPLICABLE SAFETY ANALYSES

Except for primary to secondary LEAKAGE, the safety analyses do not address operational LEAKAGE. However, other operational LEAKAGE is related to the safety analyses for LOCA; the amount of leakage can affect the probability of such an event. The safety analysis for an event resulting in steam discharge to the atmosphere assumes that primary to secondary LEAKAGE from all steam generators (SGs) is ~~[1~~ 0.60 gallon per minute~~]~~ ~~or increases to [1 gallon per minute] as a result of accident induced conditions.~~ The LCO requirement to limit primary to secondary LEAKAGE through any one SG to less than or equal to 150 gallons per day is significantly less than the conditions assumed in the safety analysis. 2 1

Primary to secondary LEAKAGE is a factor in the dose releases outside containment resulting from a steam line break (SLB) accident. To a lesser extent, other accidents or transients involve secondary steam release to the atmosphere, such as a steam generator tube rupture (SGTR). The leakage contaminates the secondary fluid.

The U FSAR (Ref. 3) analysis for SGTR assumes the contaminated secondary fluid is only briefly released via safety valves and the majority is steamed to the condenser. The ~~[1~~ 0.60 gpm~~]~~ primary to secondary LEAKAGE safety analysis assumption is relatively inconsequential. 1 2

~~The SLB is more limiting for site radiation releases. The safety analysis for the SLB accident assumes the entire [1 gpm] primary to secondary LEAKAGE is through the affected generator as an initial condition. The dose consequences resulting from the SLB accident are well within the limits defined in 10 CFR 100 or the staff approved licensing basis (i.e., a small fraction of these limits).~~

INSERT 1 1

The RCS operational LEAKAGE satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

RCS operational LEAKAGE shall be limited to:

a. Pressure Boundary LEAKAGE

Pressure boundary LEAKAGE is prohibited as the leak itself could cause further RCPB deterioration, resulting in higher LEAKAGE.

1 **INSERT 1**

For Control Room doses, primary-to-secondary LEAKAGE is a factor in the dose releases outside containment resulting from a RCCA Ejection accident. To a lesser extent, other accidents or transients involve secondary steam release to the atmosphere, such as a SG tube rupture (SGTR). The leakage contaminates the secondary fluid.

Accidents for which the radiation dose release path is primary-to-secondary LEAKAGE, the RCCA Ejection accident is more limiting for site radiation dose releases. The safety analysis for the RCCA Ejection accident assumes that primary-to-secondary LEAKAGE from all SGs is 0.60 gpm total. The dose consequences resulting from the RCCA Ejection Accident are well within the limits defined in 10 CFR 50.67.

BASES

LCO (continued)

b. Unidentified LEAKAGE

One gallon per minute (gpm) of unidentified LEAKAGE is allowed as a reasonable minimum detectable amount that the containment air monitoring and containment sump level monitoring equipment can detect within a reasonable time period. Separating the sources of leakage (i.e., leakage from an identified source versus leakage from an unidentified source) is necessary for prompt identification of potentially adverse conditions, assessment of the safety significance, and corrective action.

c. Identified LEAKAGE

Up to 10 gpm of identified LEAKAGE is considered allowable because LEAKAGE is from known sources that do not interfere with detection of unidentified LEAKAGE and is well within the capability of the RCS Makeup System. Identified LEAKAGE includes LEAKAGE to the containment from specifically known and located sources, but does not include controlled reactor coolant pump (RCP) seal leakoff (a normal function not considered LEAKAGE).

d. Primary to Secondary LEAKAGE Through Any One SG

The limit of 150 gallons per day per SG is based on the operational LEAKAGE performance criterion in NEI 97-06, Steam Generator Program Guidelines (Ref. 4). The Steam Generator Program operational LEAKAGE performance criterion in NEI 97-06 states, "The RCS operational primary to secondary leakage through any one SG shall be limited to 150 gallons per day." The limit is based on operating experience with SG tube degradation mechanisms that result in tube leakage. The operational leakage rate criterion in conjunction with the implementation of the Steam Generator Program is an effective measure for minimizing the frequency of steam generator tube ruptures.

APPLICABILITY

In MODES 1, 2, 3, and 4, the potential for RCPB LEAKAGE is greatest when the RCS is pressurized.

In MODES 5 and 6, LEAKAGE limits are not required because the reactor coolant pressure is far lower, resulting in lower stresses and reduced potentials for LEAKAGE.

BASES

APPLICABILITY (continued)

LCO 3.4.14, "RCS Pressure Isolation Valve (PIV) Leakage," measures leakage through each individual PIV and can impact this LCO. Of the two PIVs in series in each isolated line, leakage measured through one PIV does not result in RCS LEAKAGE when the other is leak tight. If both valves leak and result in a loss of mass from the RCS, the loss must be included in the allowable identified LEAKAGE.

ACTIONS

A.1

If pressure boundary LEAKAGE exists, the affected component, pipe, or vessel must be isolated from the RCS by a closed manual valve, closed and de-activated automatic valve, blind flange, or check valve within 4 hours. While in this condition, structural integrity of the system should be considered because the structural integrity of the part of the system within the isolation boundary must be maintained under all licensing basis conditions, including consideration of the potential for further degradation of the isolated location. Normal LEAKAGE past the isolation device is acceptable as it will limit RCS LEAKAGE and is included in identified or unidentified LEAKAGE. This action is necessary to prevent further deterioration of the RCPB.

B.1

Unidentified LEAKAGE or identified LEAKAGE in excess of the LCO limits must be reduced to within limits within 4 hours. This Completion Time allows time to verify leakage rates and either identify unidentified LEAKAGE or reduce LEAKAGE to within limits before the reactor must be shut down. This action is necessary to prevent further deterioration of the RCPB.

C.1 and C.2

If primary to secondary LEAKAGE is not within limit, or if any of the Required Actions and associated Completion Times cannot be met, the reactor must be brought to lower pressure conditions to reduce the severity of the LEAKAGE and its potential consequences. The reactor must be brought to MODE 3 within 6 hours and MODE 4 within 12 hours. This action reduces the LEAKAGE and also reduces the factors that tend to degrade the pressure boundary.

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.

BASES

ACTIONS continued

In MODE 4, the pressure stresses acting on the RCPB are much lower, and further deterioration is much less likely.

Remaining within the Applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 5). In MODE 4 the steam generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 5, the steam turbine driven auxiliary feedwater pump must be available to remain in MODE 4. Should steam generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

Required Action C.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

SURVEILLANCE REQUIREMENTS

SR 3.4.13.1

Verifying RCS LEAKAGE to be within the LCO limits ensures the integrity of the RCPB is maintained. Pressure boundary LEAKAGE would at first appear as unidentified LEAKAGE and can only be positively identified by inspection. Unidentified LEAKAGE and identified LEAKAGE are determined by performance of an RCS water inventory balance.

The RCS water inventory balance must be met with the reactor at steady state operating conditions (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown~~, [and RCP seal injection and return flows]~~). The Surveillance is modified by two Notes. Note 1 states that this SR is not required to be performed until 12 hours after establishing steady state operation. The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established. 2

BASES

SURVEILLANCE REQUIREMENTS (continued)

Steady state operation is required to perform a proper inventory balance since calculations during maneuvering are not useful. For RCS operational LEAKAGE determination by water inventory balance, steady state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows.

An early warning of pressure boundary LEAKAGE or unidentified LEAKAGE is provided by the automatic systems that monitor the containment atmosphere radioactivity and the containment sump level. These leakage detection systems are specified in LCO 3.4.15, "RCS Leakage Detection Instrumentation."

Note 2 states that this SR is not applicable to primary to secondary LEAKAGE because LEAKAGE of 150 gallons per day cannot be measured accurately by an RCS water inventory balance.

~~[The 72 hour Frequency is a reasonable interval to trend LEAKAGE and recognizes the importance of early leakage detection in the prevention of accidents.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~---]~~

SR 3.4.13.2

This SR verifies that primary to secondary LEAKAGE is less or equal to 150 gallons per day through any one SG. Satisfying the primary to secondary LEAKAGE limit ensures that the operational LEAKAGE performance criterion in the Steam Generator Program is met. If this SR is not met, compliance with LCO 3.4.~~20~~17, "Steam Generator Tube Integrity," should be evaluated. The 150 gallons per day limit is measured at room temperature as described in Reference 6. The operational LEAKAGE rate limit applies to LEAKAGE through any one 1

BASES

SURVEILLANCE REQUIREMENTS (continued)

SG. If it is not practical to assign the LEAKAGE to an individual SG, all the primary to secondary LEAKAGE should be conservatively assumed to be from one SG.

The Surveillance is modified by a Note which states that the Surveillance is not required to be performed until 12 hours after establishment of steady state operation. For RCS primary to secondary LEAKAGE determination, steady state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows.

~~[The Surveillance Frequency of 72 hours is a reasonable interval to trend primary to secondary LEAKAGE and recognizes the importance of early leakage detection in the prevention of accidents.~~ 2

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------REVIEWER'S NOTE-----------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~---]~~

The primary to secondary LEAKAGE is determined using continuous process radiation monitors or radiochemical grab sampling in accordance with the EPRI guidelines (Ref. 6).

REFERENCES

1. 10 CFR 50, Appendix A, GDC 30.
2. Regulatory Guide 1.45, May 1973.
3. U FSAR, Section ~~[15]~~ 14.2.4. 1 2
4. NEI 97-06, "Steam Generator Program Guidelines."
5. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.
6. EPRI, "Pressurized Water Reactor Primary-to-Secondary Leak Guidelines."

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.13 Bases, RCS OPERATIONAL LEAKAGE

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

2. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. The Reviewer's Note has been deleted, because it is not meant to be retained in the plant specific Improved Technical Specifications (ITS) submittal.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.13, RCS OPERATIONAL LEAKAGE

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 14

ITS 3.4.14 – RCS PRESSURE ISOLATION VALVE (PIV) LEAKAGE

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

REACTOR COOLANT SYSTEM

OPERATIONAL LEAKAGE

LIMITING CONDITION FOR OPERATING

PIV within limit. See ITS 3.4.13

LCO 3.4.14 3.4.6.2 Reactor Coolant System ~~operational~~ leakage shall be ~~limited to~~:

a. No PRESSURE BOUNDARY LEAKAGE,

b. 1 GPM UNIDENTIFIED LEAKAGE,

c. 150 gallons per day primary-to-secondary leakage through any one steam generator (SG),

d. 10 GPM IDENTIFIED LEAKAGE from the Reactor Coolant System, and

SR 3.4.14.1 e. Leakage ~~as specified in Table 3.4-1~~ up to a maximum of 5 GPM at a Reactor Coolant System pressure of 2235 ± 20 psig from any Reactor Coolant System Pressure Isolation Valve ~~specified in Table 3.4-1.*~~ LA01 LA02

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

ACTION Note 1 Separate Condition entry is allowed for each flow path A02

a. With any PRESSURE BOUNDARY LEAKAGE, or with primary-to-secondary leakage not within limit, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

See ITS 3.4.13 b. With any Reactor Coolant System operational leakage greater than any one of the above limits, excluding primary-to-secondary leakage, PRESSURE BOUNDARY LEAKAGE, and leakage from Reactor Coolant System Pressure Isolation Valves, reduce the leakage rate to within limits within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Add Required Action A Note. A03

ACTION A c. With any Reactor Coolant System Pressure Isolation Valve leakage greater than allowed by 3.4.6.2.e above operation may continue provided:

ACTION A.1 1. Within 4 hours verify that at least ~~two~~ one valve~~s~~ in each high pressure line having a non-functional valve are in, and remain in that mode corresponding to the isolated condition, i.e., manual valves shall be locked in the closed position; motor operated valves shall be placed in the closed position and power supplies deenergized. ~~Follow applicable ACTION statement for the affected system,~~ and L02

ACTIONS Note 2

~~* Test pressure less than 2235 psig are allowed. Minimum differential test pressure shall not be less than 150 psid. Observed leakage shall be adjusted for the actual test pressure up to 2235 psig assuming the leakage to be directly proportional to pressure differential to the one-half power.~~ LA02

REACTOR COOLANT SYSTEM
OPERATIONAL LEAKAGE
LIMITING CONDITION FOR OPERATION (Continued)

~~2.~~ ~~The leakage* from the remaining isolating valves in each high pressure line having a valve not meeting the criteria of Table 3.4-1, as listed in Table 3.4-1, shall be determined and recorded daily. The positions of the other valves located in the high pressure line having the leaking valve shall be recorded daily unless they are manual valves located inside containment.~~ LA04

Add Required Action B.2 A04

ACTION B Otherwise be in at least HOT STANDBY within the next 6 hours and ~~in COLD SHUTDOWN within the following 30 hours~~. L01

ACTION Note 2 NOTE: Enter applicable ACTIONS for systems made inoperable by an inoperable pressure isolation valve.

72 hours L03

ACTION A.2 d. With any Reactor Coolant System Pressure Isolation Valve leakage greater than 5 gpm, reduce leakage to below 5 gpm within ~~1 hour~~, [or be in at least HOT STANDBY within the next 6 hours

ACTION B and in ~~COLD SHUTDOWN within the following 30 hours~~.] L01

SURVEILLANCE REQUIREMENTS

See ITS 3.4.13

4.4.6.2.1 Reactor Coolant System operational leakages shall be demonstrated to be within each of the above limits by:

a. Monitoring the containment atmosphere gaseous or particulate radioactivity monitor in accordance with the Surveillance Frequency Control Program.

b. Monitoring the containment sump level in accordance with the Surveillance Frequency Control Program.

c.** Performance of a Reactor Coolant System water inventory balance in accordance with the Surveillance Frequency Control Program***; and

d. Monitoring the Reactor Head Flange Leakoff System in accordance with the Surveillance Frequency Control Program; and

e. Verifying primary-to-secondary leakage is $\leq$ 150 gallons per day through any one SG in accordance with the Surveillance Frequency Control Program***.

SR 3.4.14.1 4.4.6.2.2 Each Reactor Coolant System Pressure Isolation Valve ~~specified in Table 3.4-1~~ shall be demonstrated OPERABLE by verifying leakage~~*~~ to be within its limit: LA01

a. When tested in accordance with the INSERVICE TESTING PROGRAM.

b. Prior to entering MODE 2 whenever the plant has been in COLD SHUTDOWN for 7 days or more and if leakage testing has not been performed in the previous 9 months.

INSERT SR 3.4.14.1 Note 2 A05

c. DELETED

~~* To satisfy ALARA requirements, leakage may be measured indirectly (as from the performance of pressure indicators) if accomplished in accordance with approved procedures and supported by computations showing that the method is capable of demonstrating valve compliance with the leakage criteria.~~ LA03

See ITS 3.4.13

** Not applicable to primary-to-secondary leakage.

*** Not required to be performed until 12 hours after establishment of steady state operation.

REACTOR COOLANT SYSTEM

OPERATIONAL LEAKAGE

LIMITING CONDITION FOR OPERATION (Continued)

SR 3.4.14.1 d. Following valve actuation due to automatic or manual action or flow through the valve*:

1. Within 24 hours by verifying valve closure, and

2. Prior to entering Mode 2 by verifying leakage rate.

SR 3.4.14.1 Note 1 The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.

SR 3.4.14.1 Note 3 * RCS Pressure Isolation Valves actuated during the performance of this surveillance are not required to be tested more than once if a repetitive testing loop cannot be avoided.

TABLE 3.4-1

REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES

VALVE NUMBER		FUNCTION
Unit 3	Unit 4	High-Head Safety Injection Check Valves
3-874A	4-874A	Loop A, hot leg
3-875A	4-875A	cold leg
3-873A	4-873A	cold leg
3-874B	4-874B	Loop B, hot leg
3-875B	4-875B	cold leg
3-873B	4-873B	cold leg
3-875C	4-875C	Loop C, cold leg
3-873C	4-873C	cold leg
		Residual Heat Removal Line Check Valves
3-876A	4-876A 4-876E	Loop A, cold leg
3-876B 3-876D	4-876B 4-876D	Loop B, cold leg
3-876C 3-876E	4-876C	Loop C, cold leg
	MOV4-750 MOV4-751	Loop A, hot leg to RHR
MOV3-750 MOV3-751		Loop C, hot leg to RHR

LA01

ACCEPTABLE LEAKAGE LIMITS

SR 3.4.14.1

1. Leakage rates less than or equal to 1.0 gpm are considered acceptable.

2. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered acceptable provided that the latest measured rate has not exceeded the rate determined by the previous test by an amount that reduces the margin between previously measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.

3. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered unacceptable if the latest measured rate exceeded the rate determined by the previous test by an amount that reduces the margin between previously measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.

4. Leakage rates greater than 5.0 gpm are considered unacceptable.

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generation Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications - Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 ITS 3.4.14 Action Note 1 states "Separate Condition entry is allowed for each flow path." CTS 3.4.6.2 does not contain this Note. ITS 3.4.14 ACTION Note 1 provides clarification that each flow path allows separate entry into a Condition. This is allowed based upon the functional independence of the flow path.

The purpose of the Note is to provide explicit instructions for proper application of the Action for Technical Specification compliance. In conjunction with proposed Specification 1.3, "Completion Times," this Note provides direction consistent with the intent of the existing Action for inoperable pressure isolation valves (PIVs). This change is designated as administrative change and is acceptable because it does not result in technical changes to the CTS.

A03 ITS 3.4.14 Required Action A.1 Note states "Each valve used to satisfy Required Action A.1 must have been verified to meet SR 3.4.14.1 and be in the reactor coolant pressure boundary." CTS 3.4.6.2 does not contain this Note. Required Action A.1 is modified by this Note such that the valves used for isolation must meet the same leakage requirements as the PIVs and must be within the reactor coolant pressure boundary (RCPB).

The purpose of CTS ACTION c and ITS ACTION A is to isolate the affected flow path if PIV leakage is not within limits. If a valve is used to isolate the flow path, it is required to meet the requirements to perform the function. The function is verified by performing the Surveillance Requirement (SR). The note simply reaffirms an existing practice. This change is designated as administrative change and is acceptable because it does not result in technical changes to the CTS.

A04 ITS 3.4.14 Required Action B.2 states "LCO 3.0.4.a is not applicable when entering MODE 4." CTS 3.4.6.2 does not contain this Note. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the Limiting Condition for Operation (LCO) not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

A05 CTS SR 4.4.6.2.2 requires leak testing of PIVs in accordance with the INSERVICE INSPECTION PROGRAM and prior to entering MODE 2 when the plant has been in COLD SHUTDOWN for 7 days or more. ITS SR 3.4.14.1 in modified by a Note 2 stating the Surveillance is not required to be performed on the Residual Heat Removal (RHR) System PIVs when the RHR System is aligned to the Reactor Coolant System (RCS) in the shutdown cooling mode of operation. This changes the CTS by exempting RHR System PIVs from leak testing until the shutdown cooling mode of operation is exited during plant heatup.

This change is acceptable because the PIVs contained in the RHR shutdown cooling flow path must be leakage rate tested prior to entry into MODE 2 after RHR is secured. This is also consistent with ITS SR 3.4.14.1 Note 1 which states that the PIV leak testing is not required to be performed in MODES 3 and 4. This allows the proper plant conditions and differential pressures to be obtained to establish the prerequisites for the leak testing. This change is designated as an administrative change and is acceptable because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.4.6.2 requires the leakage from each RCS PIV specified in Table 3.4-1 to be limited and CTS 4.4.6.2 requires the RCS PIVs in Table 3.4-1 to be periodically tested. ITS 3.4.14 does not contain nor make reference to an RCS PIV Table. This changes the CTS by relocating the list of the PIVs to the Bases.

The removal of these details, which are related to system design, 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 the public health and safety. The ITS still requires the RCS PIVs to be OPERABLE. It is not necessary for the list of the RCS PIVs to be in the Technical Specifications in order to ensure that the RCS PIVs are OPERABLE. Also, this change is acceptable because these types of details 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 less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA02 *(Type 4 – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS LCO 3.4.6.2.e contains a footnote that states "Test pressure less than 2235 psig are allowed. Minimum differential test pressure shall not be less than 150 psid. Observed leakage shall be adjusted for the actual test pressure up to 2235 psig assuming the leakage to be directly proportional to pressure differential to the one-half power." ITS 3.4.14 does not contain this information. This changes the CTS by relocating the information in the footnote to the Bases.

The removal of these details from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The ITS retains the requirement to be OPERABLE. Also, this change is acceptable because these types of procedural details will be adequately controlled in the TS 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 procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA03 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.4.6.2 SR 4.4.6.2.2 contains a footnote that states "To satisfy ALARA requirements, leakage may be measured indirectly (as from the performance of pressure indicators) if accomplished in accordance with approved procedures and supported by computations showing that the method is capable of demonstrating valve compliance with the leakage criteria." ITS 3.4.14 SRs do not contain this statement. This changes the CTS by relocating this statement to the Bases.

The removal of these details, which are related to system design, 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 the public health and safety. This change is acceptable because these types of details 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 less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA04 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 3.4.6.2 Action c.2 states "The leakage (see LA03) from the remaining isolating valves in each high pressure line having a valve not meeting the criteria of Table 3.4-1, as listed in Table 3.4-1, shall be determined and recorded daily. The positions of the other valves located in the high pressure line having the leaking valve shall be recorded daily unless they are manual valves located inside containment." ITS 3.4.14 does not contain this statement. This changes the CTS by relocating this requirement to the Technical Requirements Manual (TRM).

.

The removal of these details for performing actions 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 recording of valves not meeting criteria. Also, this change is acceptable because these types of procedural details will be adequately controlled in the TRM. Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.4.6.2 ACTION 2 specifies, part, that if the leakage requirements not satisfied, the reactor shall be placed in COLD SHUTDOWN. ITS 3.4.13 Condition C requires that if the Required Actions and associated Completion Times have not been met, the reactor must be placed in MODE 3 within 6 hours and in MODE 4 within a total of 12 hours, which is consistent with the CTS Applicability. This changes CTS 3.4.6.2 ACTION c requirement to be in COLD SHUTDOWN by adopting the ITS requirement to be in MODE 4.

The purpose of the shutdown requirements of CTS 3.4.6.2 ACTION c.2 is to place the reactor in a lower pressure condition to reduce the severity of leakage and its potential consequences. Remaining within the Applicability of the LCO (MODE 4) is acceptable to accomplish short duration repairs because the plant risk in MODE 4 is similar to or lower than MODE 5. In MODE 4 the Steam Generators and Residual Heat Removal capability are available to remove decay heat, which provides diversity and defense in depth. This change is designated as less restrictive because the ITS only requires a cool down to MODE 4 (< 350 °F) while the CTS requires a cool down to COLD SHUTDOWN (≤ 200 °F).

L02 *(Category 4 – Relaxation of Required Action)* CTS 3.4.6.2 ACTION c.1 states "Within 4 hours verify that at least two valves in each high pressure line having a non-functional valve are in, and remain in that mode corresponding to the isolated condition." ITS 3.4.14 Required Action A.1 states that the flow path must be isolated by one valve. This changes the CTS by changing from isolating with two valves to one valve.

The purpose of CTS 3.4.6.2 Action c.1 is to isolate the RCS using PIVs within limits. CTS is changing from isolating with two valves to one valve. 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 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 Design Basis Accident (DBA) occurring during the repair period. The ITS 3.4.14 Required Action contains a Note that requires the valve used to isolate the penetration to be verified to meet SR 3.4.14.1. Therefore, the one valve is capable of adequately isolating the penetration. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L03 *(Category 3 – Relaxation of Completion Time)* CTS 3.4.6 Action d states "With any Reactor Coolant System Pressure Isolation Valve leakage greater than 5 gpm, reduce leakage to below 5 gpm within 1 hour." ITS Required Action A.2 requires restoration of the PIV leakage limits within 72 hours. This changes the CTS by increasing the completion time.

The purpose of CTS 3.4.6 ACTION d is to reduce the PIV leakage to within limits. This change is acceptable because the Completion Time is consistent with safe operation under the specified Condition, considering the OPERABLE status of the valve currently being used to isolate the flow path and the low probability of the valve also failing during this period. This includes a reasonable time for repairs or replacement and the low probability of a DBA occurring during the allowed Completion Time. 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.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 RCS Pressure Isolation Valve (PIV) Leakage

3.4.6.2 LCO 3.4.14 Leakage from each RCS PIV shall be within limit.

Applicability APPLICABILITY: MODES 1, 2, 3, and ~~3,~~ 4.
~~MODE 4, except valves in the residual heat removal (RHR) flow path when in, or during the transition to or from, the RHR mode of operation.~~ 3

ACTIONS

--NOTES--

1. Separate Condition entry is allowed for each flow path.

ACTION c 1 2. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable RCS PIV. 1

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION c A. One or more flow paths with leakage from one or more RCS PIVs not within limit.	-------------------NOTE------------------ Each valve used to satisfy Required Action A.1 ~~and Required Action A.2~~ must have been verified to meet SR 3.4.14.1 and be in the reactor coolant pressure boundary ~~[or the high pressure portion of the system]~~. --	1 2
	A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed manual, deactivated automatic, or check valve. AND	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 ~~[Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve.~~ ~~[or]~~ Restore RCS PIV to within limits.	~~72 hours~~ 72 hours ~~]~~
B. Required Action and associated Completion Time for Condition A not met.	B.1 Be in MODE 3. AND B.2 --------------NOTE-------------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------------- Be in MODE 4.	6 hours 12 hours
~~C. [RHR System autoclosure interlock function inoperable.~~	~~C.1 Isolate the affected penetration by use of one closed manual or deactivated automatic valve.~~	~~4 hours]~~

ACTION d

ACTION c

2

2

1

CTS

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
4.4.6.2.2 SR 3.4.14.1	-----------------------------NOTES---------------------------- 1. Not required to be performed in MODES 3 and 4. 2. Not required to be performed on the RCS PIVs located in the RHR flow path when in the shutdown cooling mode of operation. 3. RCS PIVs actuated during the performance of this Surveillance are not required to be tested more than once if a repetitive testing loop cannot be avoided. --- ~~Verify leakage from each RCS PIV is equivalent to ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure ≥ [2215] psig and ≤ [2255] psig.~~ INSERT 1	In accordance with the INSERVICE TESTING PROGRAM, ~~and [[18] months~~ 3 2 OR 3 ~~In accordance with the Surveillance Frequency Control Program]~~ AND Prior to entering MODE 2 whenever the unit has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous 9 months AND

3 **INSERT 1**

Verify leakage from each RCS PIV is as specified below:

1. Leakage rates less than or equal to 1.0 gpm are considered acceptable.

2. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered acceptable provided that the latest measured rate has not exceeded the rate determined by the previous test by an amount that reduces the margin between previously measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.

3. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered unacceptable if the latest measured rate exceeded the rate determined by the previous test by an amount that reduces the margin between previously measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.

4. Leakage rates greater than 5.0 gpm are considered unacceptable.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
	Within 24 hours following valve actuation due to automatic or manual action or flow through the valve
~~SR 3.4.14.2 -----NOTE----- [Not required to be met when the RHR System autoclosure interlock is disabled in accordance with SR 3.4.12.7. ----- Verify RHR System autoclosure interlock prevents the valves from being opened with a simulated or actual RCS pressure signal ≥ [425] psig.~~ 2	~~[[18] months OR In accordance with the Surveillance Frequency Control Program]]~~
~~SR 3.4.14.3 -----NOTE----- [Not required to be met when the RHR System autoclosure interlock is disabled in accordance with SR 3.4.12.7. ----- Verify RHR System autoclosure interlock causes the valves to close automatically with a simulated or actual RCS pressure signal ≥ [600] psig.~~ 2	~~[[18] months OR In accordance with the Surveillance Frequency Control Program]]~~

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.14, RCS PRESSURE ISOLATION VALVE (PIV) LEAKAGE

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

2. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. Changes are made to be consistent with the current licensing basis.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.14 RCS Pressure Isolation Valve (PIV) Leakage

General Design Criteria (GDC) 53

BASES

BACKGROUND

~~10 CFR 50.2, 10 CFR 50.55a(c), and GDC 55 of 10 CFR 50, Appendix A~~ 1
~~(~~Ref~~s~~. 1~~, 2, and 3),~~ define s RCS PIVs as any two normally closed valves in series within the reactor coolant pressure boundary (RCPB), which separate the high pressure RCS from an attached low pressure system. During their lives, these valves can produce varying amounts of reactor coolant leakage through either normal operational wear or mechanical deterioration. The RCS PIV Leakage LCO allows RCS high pressure operation when leakage through these valves exists in amounts that do not compromise safety.

The PIV leakage limit applies to each individual valve. Leakage through both series PIVs in a line must be included as part of the identified LEAKAGE, governed by LCO 3.4.13, "RCS Operational LEAKAGE." This is true during operation only when the loss of RCS mass through two series valves is determined by a water inventory balance (SR 3.4.13.1). A known component of the identified LEAKAGE before operation begins is the least of the two individual leak rates determined for leaking series PIVs during the required surveillance testing; leakage measured through one PIV in a line is not RCS operational LEAKAGE if the other is leaktight.

Although this specification provides a limit on allowable PIV leakage rate, its main purpose is to prevent overpressure failure of the low pressure portions of connecting systems. The leakage limit is an indication that the PIVs between the RCS and the connecting systems are degraded or degrading. PIV leakage could lead to overpressure of the low pressure piping or components. Failure consequences could be a loss of coolant accident (LOCA) outside of containment, an unanalyzed accident, that could degrade the ability for low pressure injection.

2
The basis for this LCO is the 1975 NRC "Reactor Safety Study" (Ref. 4) 1
that identified potential intersystem LOCAs as a significant contributor to 3
the risk of core melt. A subsequent study (Ref. ~~5~~) evaluated various PIV 1
configurations to determine the probability of intersystem LOCAs.

PIVs are provided to isolate the RCS from the following typically connected systems:

a. Residual Heat Removal (RHR) System,

BASES

BACKGROUND (continued)

b. Safety Injection System, and

c. Chemical and Volume Control System.

Table B 3.4.14-1 2

The PIVs are listed in ~~the FSAR, Section [ ] (Ref. 6)~~.

Violation of this LCO could result in continued degradation of a PIV, which could lead to overpressurization of a low pressure system and the loss of the integrity of a fission product barrier.

APPLICABLE SAFETY ANALYSES

Reference 4 identified potential intersystem LOCAs as a significant contributor to the risk of core melt. The dominant accident sequence in the intersystem LOCA category is the failure of the low pressure portion of the RHR System outside of containment. The accident is the result of a postulated failure of the PIVs, which are part of the RCPB, and the subsequent pressurization of the RHR System downstream of the PIVs from the RCS. Because the low pressure portion of the RHR System is typically designed for 600 psig, overpressurization failure of the RHR low pressure line would result in a LOCA outside containment and subsequent risk of core melt. 2 1

Reference ~~5~~ evaluated various PIV configurations, leakage testing of the valves, and operational changes to determine the effect on the probability of intersystem LOCAs. This study concluded that periodic leakage testing of the PIVs can substantially reduce the probability of an intersystem LOCA. 3 1

RCS PIV leakage satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

RCS PIV leakage is identified LEAKAGE into closed systems connected to the RCS. Isolation valve leakage is usually on the order of drops per minute. Leakage that increases significantly suggests that something is operationally wrong and corrective action must be taken.

The LCO PIV leakage limit is 0.5 gpm per nominal inch of valve size with a maximum limit of 5 gpm. The previous criterion of 1 gpm for all valve sizes imposed an unjustified penalty on the larger valves without providing information on potential valve degradation and resulted in higher personnel radiation exposures. ~~A study concluded a leakage rate limit based on valve size was superior to a single allowable value.~~ 1

BASES

LCO (continued)

5 Reference ~~8~~ permits leakage testing at a lower pressure differential than between the specified maximum RCS pressure and the normal pressure of the connected system during RCS operation (the maximum pressure differential) in those types of valves in which the higher service pressure will tend to diminish the overall leakage channel opening. In such cases, the observed rate may be adjusted to the maximum pressure differential by assuming leakage is directly proportional to the pressure differential to the one half power. 1

APPLICABILITY

In MODES 1, 2, 3, and 4, this LCO applies because the PIV leakage potential is greatest when the RCS is pressurized. In MODE 4, valves in the RHR flow path are not required to meet the requirements of this LCO when in, or during the transition to or from, the RHR mode of operation.

In MODES 5 and 6, leakage limits are not provided because the lower reactor coolant pressure results in a reduced potential for leakage and for a LOCA outside the containment.

ACTIONS

The Actions are modified by two Notes. Note 1 provides clarification that each flow path allows separate entry into a Condition. This is allowed based upon the functional independence of the flow path. Note 2 requires an evaluation of affected systems if a PIV is inoperable. The leakage may have affected system operability, or isolation of a leaking flow path with an alternate valve may have degraded the ability of the interconnected system to perform its safety function.

A.1 and A.2

The flow path must be isolated by one ~~two~~ valve~~s~~. Required Action~~s~~ A.1 ~~and A.2 are~~ is modified by a Note that the valves used for isolation must meet the same leakage requirements as the PIVs and must be within the RCPB ~~[or the high pressure portion of the system].~~ 1 2

Required Action A.1 requires that the isolation with one valve must be performed within 4 hours. Four hours provides time to reduce leakage in excess of the allowable limit and to isolate the affected system if leakage cannot be reduced. The 4 hour Completion Time allows the actions and restricts the operation with leaking isolation valves.

BASES

ACTIONS (continued)

~~[Required Action A.2 specifies that the double isolation barrier of two valves be restored by closing some other valve qualified for isolation or restoring one leaking PIV. The 72 hour Completion Time after exceeding the limit considers the time required to complete the Action and the low probability of a second valve failing during this time period.~~ 2

~~[or]~~

The 72 hour Completion Time after exceeding the limit allows for the restoration of the leaking PIV to OPERABLE status. This timeframe considers the time required to complete this Action and the low probability of a second valve failing during this period. ~~]~~

~~------------------------------REVIEWER'S NOTE------------------------------~~
~~Two options are provided for Required Action A.2. The second option (72 hour restoration) is appropriate if isolation of a second valve would place the unit in an unanalyzed condition.~~ 3
~~--~~

B.1 and B.2

required Actions and associated Completion Times of Condition A are not met

If leakage cannot be reduced, ~~[the system can not be isolated,] or the other Required Actions accomplished~~, the plant must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the plant must be brought to MODE 3 within 6 hours and MODE 4 within 12 hours. This Action may reduce the leakage and also reduces the potential for a LOCA outside the containment. 2

Remaining within the Applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. ~~7~~ 4). In MODE 4 the steam generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference ~~7~~ 4, the steam turbine driven auxiliary feedwater pump must be available to remain in MODE 4. Should steam generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective. 1 1

BASES

ACTIONS (continued)

Required Action B.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

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.

~~C.1~~

~~The inoperability of the RHR autoclosure interlock renders the RHR suction isolation valves incapable of isolating in response to a high pressure condition and preventing inadvertent opening of the valves at RCS pressures in excess of the RHR systems design pressure. If the RHR autoclosure interlock is inoperable, operation may continue as long as the affected RHR suction penetration is closed by at least one closed manual or deactivated automatic valve within 4 hours. This Action accomplishes the purpose of the autoclosure function.~~ 4

SURVEILLANCE REQUIREMENTS

SR 3.4.14.1

Performance of leakage testing on each RCS PIV or isolation valve used to satisfy Required Action A.1 and Required Action A.2 is required to verify that leakage is below the specified limit and to identify each leaking valve. ~~The leakage limit of 0.5 gpm per inch of nominal valve diameter up to 5 gpm maximum applies to each valve.~~ Leakage testing requires a stable pressure condition. 4

For the two PIVs in series, the leakage requirement applies to each valve individually and not to the combined leakage across both valves. If the PIVs are not individually leakage tested, one valve may have failed completely and not be detected if the other valve in series meets the leakage requirement. In this situation, the protection provided by redundant valves would be lost.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~Testing is to be performed every [9] months, but may be extended, if the plant does not go into MODE 5 for at least 7 days. [The [18 month] Frequency is consistent with 10 CFR 50.55a(g) (Ref. 9) and the INSERVICE TESTING PROGRAM, is within frequency allowed by the American Society of Mechanical Engineers (ASME) Code (Ref. 8), and is based on the need to perform such surveillances under the conditions that apply during an outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.~~ 2 1

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 3
~~--]~~

In addition, testing must be performed once after the valve has been opened by flow or exercised to ensure tight reseating. PIVs disturbed in the performance of this Surveillance should also be tested unless documentation shows that an infinite testing loop cannot practically be avoided. Testing must be performed within 24 hours after the valve has been reseated. Within 24 hours is a reasonable and practical time limit for performing this test after opening or reseating a valve.

The leakage limit is to be met at the RCS pressure associated with MODES 1 and 2. This permits leakage testing at high differential pressures with stable conditions not possible in the MODES with lower pressures.

Entry into MODES 3 and 4 is allowed to establish the necessary differential pressures and stable conditions to allow for performance of this Surveillance. The Note that allows this provision is complementary to the Frequency of prior to entry into MODE 2 whenever the unit has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous 9 months. In addition, this Surveillance is not required to be performed on the RHR System when the RHR System is aligned to the RCS in the shutdown cooling mode of operation. PIVs contained in the RHR shutdown cooling flow path must be leakage rate tested after RHR is secured and stable unit conditions and the necessary differential pressures are established.

INSERT 1 4

4 **INSERT 1**

For Reactor Coolant System Pressure Isolation Valves, test pressures less than 2235 psig are allowed. Minimum differential test pressure shall not be less than 150 psid. Observed leakage shall be adjusted for the actual test pressure up to 2235 psig assuming the leakage to be directly proportional to pressure differential to the one-half power.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~[SR 3.4.14.2 and SR 3.4.14.3~~

2

~~Verifying that the RHR autoclosure interlocks are OPERABLE ensures that RCS pressure will not pressurize the RHR system beyond 125% of its design pressure of [600] psig. The interlock setpoint that prevents the valves from being opened is set so the actual RCS pressure must be < [425] psig to open the valves. This setpoint ensures the RHR design pressure will not be exceeded and the RHR relief valves will not lift. [The [18] month Frequency is based on the need to perform the Surveillance under conditions that apply during a plant outage. The [18] month Frequency is also acceptable based on consideration of the design reliability (and confirming operating experience) of the equipment.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]~~

~~These SRs are modified by Notes allowing the RHR autoclosure function to be disabled when using the RHR System suction relief valves for cold overpressure protection in accordance with SR 3.4.12.7.]~~

REFERENCES

1. ~~10 CFR 50.2.~~ 1967 AEC Proposed General Design Criteria, GDC 53

1

~~2. 10 CFR 50.55a(c).~~

~~3. 10 CFR 50, Appendix A, Section V, GDC 55.~~

2 ~~4~~. WASH-1400 (NUREG-75/014), Appendix V, October 1975.

3 ~~5~~. NUREG-0677, May 1980.

~~[6. Document containing list of PIVs.]~~

2

BASES

REFERENCES (continued)

4 ~~7~~. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.

5 ~~8~~. ASME Code for Operation and Maintenance of Nuclear Power Plants.

~~9. 10 CFR 50.55a(g).~~

INSERT 2

4

4 **INSERT 2**

TABLE 3.4-1

REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES

VALVE NUMBER		FUNCTION
Unit 3	Unit 4	High-Head Safety Injection Check Valves
3-874A	4-874A	Loop A, hot leg
3-875A	4-875A	cold leg
3-873A	4-873A	cold leg
3-874B	4-874B	Loop B, hot leg
3-875B	4-875B	cold leg
3-873B	4-873B	cold leg
3-875C	4-875C	Loop C,cold leg
3-873C	4-873C	cold leg
		Residual Heat Removal Line Check Valves
3-876A	4-876A	Loop A, cold leg
	4-876E	
3-876B	4-876B	Loop B, cold leg
3-876D	4-876D	
3-876C	4-876C	Loop C, cold leg
3-876E		
	MOV4-750	Loop A,
	MOV4-751	hot leg to RHR
MOV3-750		Loop C,
MOV3-751		hot leg to RHR

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.14 BASES, RCS PRESSURE ISOLATION VALVE (PIV) LEAKAGE

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

2. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

3. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

4. The Bases are changed to reflect changes made to the Specification.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.14, RCS PRESSURE ISOLATION VALVE LEAKAGE

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 15

ITS 3.4.15 – RCS LEAKAGE DETECTION INSTRUMENTATION

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

REACTOR COOLANT SYSTEM

3/4.4.6 REACTOR COOLANT SYSTEM LEAKAGE

LEAKAGE DETECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

LCO 3.4.15 3.4.6.1 The following Reactor Coolant System Leakage Detection Systems shall be OPERABLE:

LCO 3.4.15.b a. The Containment Atmosphere Gaseous or Particulate Radioactivity Monitoring System, and

LCO 3.4.15.a b. A Containment Sump Level Monitoring System.

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

ACTION:

ACTION B ACTION A a. With both the Particulate and Gaseous Radioactivity Monitoring Systems inoperable, operation may continue for up to ~~7~~ 30 days provided: L01

ACTION A 1) A Containment Sump Level Monitoring System is OPERABLE;

ACTION B 2) Appropriate grab samples are obtained and analyzed at least once per 24 hours;

ACTION B.1.2 3) A Reactor Coolant System water inventory balance is performed at least once per ~~8~~* 24 hours except when operating in shutdown cooling mode. L02

ACTION C Otherwise, be in at least ~~HOT STANDBY~~ MODE 3 within the next 6 hours and in ~~COLD SHUTDOWN~~ MODE 4 within the following ~~30~~ 12 hours. L03 M02

Add proposed ACTION A.1

ACTION A ACTION C b. With no Containment Sump Level Monitoring System operable, restore at least one Containment Sump Level Monitoring System to OPERABLE status within ~~7 days~~ 30, [or be in at least ~~HOT STANDBY~~ MODE 3 within 6 hours and in ~~COLD SHUTDOWN~~ MODE 4 within the following ~~30~~ 12 hours.] L03 L04

Add proposed ACTION D A02

SURVEILLANCE REQUIREMENTS

4.4.6.1 The Leakage Detection System shall be demonstrated OPERABLE by:

SR 3.4.15.1 SR 3.4.15.2 SR 3.4.15.4 a. Containment Atmosphere Gaseous and Particulate Monitoring System performance of CHANNEL CHECK, CHANNEL CALIBRATION and ~~ANALOG~~ CHANNEL OPERATIONAL TEST in accordance with the Surveillance Frequency Control Program, and M01

SR 3.4.15.3 b. Containment Sump Level Monitoring System-performance of CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program.

ACTION A.1 Note ACTION B.1.2 Note * Not required to be performed until 12 hours after establishment of steady state operation.

A01

M01

TABLE 4.3-3
RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS SURVEILLANCE REQUIREMENTS

	CHANNEL CHECK	CHANNEL CALIBRATION	~~ANALOG~~ CHANNEL OPERATIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Containment				
a. Containment Atmosphere Radioactivity--High	SFCP	SFCP	SFCP	All

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications - Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 ITS 3.4.15 ACTION D requires entry into Limiting Condition for Operation (LCO) 3.0.3 when no Reactor Coolant System (RCS) leak detection instruments are OPERABLE. The CTS does not contain this Action. This changes the CTS by adding Action requiring entry into LCO 3.0.3 when no RCS leak detection instruments are OPERABLE.

With all required monitors inoperable, no required means of monitoring leakage are available, and immediate plant shutdown in accordance with LCO 3.0.3 is required. Because the CTS does not contain an Action associated with all instruments being inoperable, entry into LCO 3.0.3 would be required by default; therefore, the adoption of ITS 3.4.15 ACTION D simply provides clarity for the operators. This change is designated as an administrative change and is acceptable because the change does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 3.4.6.1 requires, in part, the containment atmosphere radioactivity monitor to be demonstrated OPERABLE by the performance of a CHANNEL CHECK, CHANNEL CALIBRATION, and ANALOG CHANNEL OPERATIONAL TEST. ITS Surveillance Requirement (SR) 3.4.15.2 requires the performance of a CHANNEL OPERATIONAL TEST (COT). This changes the CTS by changing the ANALOG CHANNEL OPERATIONAL TEST requirements to a COT.

CTS defines an ANALOG CHANNEL OPERATIONAL TEST as the injection of a simulated signal into the sensor as close to the sensor as practicable to verify OPERABILITY. ITS defines a COT as the injection of an actual or simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. This changes the CTS by requiring adjustments of the setpoint so that the containment atmosphere radioactivity monitor is within the necessary range and accuracy. This change is designated as more restrictive because it imposes additional requirements on testing.

M02 CTS 3.4.6.1 ACTION b does not contain a requirement to perform an RCS water inventory balance when the Containment Sump Monitor is inoperable. ITS 3.4.15 Required Action A.1 requires the performance of SR 3.4.13.1 once per 24 hours. This changes the CTS by adding the requirement to perform ITS SR 3.4.13.1 once per 24 hours.

The purpose of performing ITS SR 3.4.13.1 once per 24 hours is to provide information that is adequate to detect leakage while the containment sump monitor is inoperable. This will provide additional assurance that operational leakage is limited. This change is designated as more restrictive because it adds an additional requirement to the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

L01 *(Category 3 – Relaxation of Completion Time)* CTS 3.4.6.1 ACTION a states, in part, "With both the Particulate and Gaseous Radioactivity Monitoring Systems inoperable, operation may continue for up to 7 days." ITS 3.4.15 ACTION B.2.1 states "Restore required containment atmosphere gaseous or particulate radioactivity monitor to OPERABLE status within 30 days." This changes the CTS by increasing the completion time.

The purpose of CTS 3.4.6.1 ACTION a is to provide actions when the Particulate and Gaseous Radioactive Monitoring Systems are inoperable. 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 Design Basis Accident (DBA) occurring during the allowed Completion Time. In addition, alternative action is required (an RCS inventory balance or grab samples) to supplement the Containment Sump Monitor while the particulate and gaseous radioactive monitoring system is being restored. 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.

L02 *(Category 3 – Relaxation of Completion Time)* CTS 3.4.6.1 ACTION A.3 states, in part, "Reactor Coolant System water inventory balance is performed at least once per 8 hours." ITS 3.4.15 ACTION B.1.2 states, in part, to perform SR 3.4.13.1 once per 24 hours. This changes the CTS by decreasing the performance frequency.

The purpose of CTS 3.4.6.1 ACTION A.3, is to provide for performing an RCS inventory balance when the Particulate and Gaseous Radioactive Monitoring Systems are inoperable. 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. The change, decreasing the frequency from 8 to 24 hours, to verify RCS operational LEAKAGE is adequate to provide the information at a frequency to detect leakage. 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.

L03 *(Category 4 – Relaxation of Required Action)* CTS 3.4.6.1 ACTIONS a and b state that if the specified requirements are not satisfied, the reactor shall be placed in COLD SHUTDOWN. ITS 3.4.15 Condition C requires that if the Required Actions and associated Completion Times have not been met, the reactor must be placed in MODE 3 within 6 hours and in MODE 4 within a total of 12 hours, which is consistent with the CTS Applicability. This changes CTS 3.4.6.2 ACTIONS a and b requirements to be in COLD SHUTDOWN by adopting the ITS requirement to be in MODE 4.

The purpose of the shutdown requirements of CTS 3.4.6.1 ACTIONS a and b is to place the reactor in a lower pressure condition to reduce the severity of leakage and its potential consequences. Remaining within the Applicability of the LCO (MODE 4) is acceptable to accomplish short duration repairs because the plant risk in MODE 4 is similar to or lower than MODE 5. In MODE 4 the Steam Generators and Residual Heat Removal capability are available to remove decay heat, which provides diversity and defense in depth. This change is designated as less restrictive because the ITS only requires a cool down to MODE 4 (< 350 °F) while the CTS requires a cool down to COLD SHUTDOWN (≤ 200 °F).

L04 *(Category 3 – Relaxation of Completion Time)* CTS 3.4.6.1 ACTION b states "With no Containment Sump Level Monitoring System operable, restore at least one Containment Sump Level Monitoring System to OPERABLE status within 7 days." ITS 3.4.15 Required Action A.1 states to perform SR 3.4.13.1 once per 24 hours and restore the required containment sump monitor to OPERABLE status within 30 days. This changes the CTS by increasing the Completion Time to restore the sump monitor from 7 days to 30 days.

The purpose of CTS 3.4.6.1 ACTION b is to restore at least containment sump monitor to OPERABLE status. 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. ITS 3.4.15 provides restoration of the required sump monitor to OPERABLE status within a Completion Time of 30 days which is required to regain the function after the monitor's failure. This time is acceptable, considering the Frequency and adequacy of the RCS water inventory balance required by Required Action A.1. 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.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

3.4.6.1 LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

3.4.6.1.b a. One containment sump ~~(~~level ~~or discharge flow)~~ monitor~~,~~ ; and 1

3.4.6.1.a b. One containment atmosphere radioactivity monitor (gaseous or particulate)~~, and~~

~~[c. One containment air cooler condensate flow rate monitor.]~~ 2

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
3.4.6.1 ACTION b — A. Required containment sump monitor inoperable.	A.1 --------------NOTE-------------- Not required until 12 hours after establishment of steady state operation. -------------------------------------	
	Perform SR 3.4.13.1.	Once per 24 hours
	AND	
	A.2 Restore required containment sump monitor to OPERABLE status.	30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
3.4.6.1 ACTION a B. Required containment atmosphere radioactivity monitor inoperable.	B.1.1 Analyze grab samples of the containment atmosphere. OR B.1.2 --------------NOTE-------------- Not required until 12 hours after establishment of steady state operation. ------------------------------------- Perform SR 3.4.13.1. AND B.2.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status. ~~OR~~ ~~[B.2.2 Verify containment air cooler condensate flow rate monitor is OPERABLE.~~	Once per 24 hours Once per 24 hours 30 days
~~C. [Containment air cooler condensate flow rate monitor inoperable.~~	~~C.1 Perform SR 3.4.15.1.~~ ~~OR~~ ~~C.2 --------------NOTE--------------~~ ~~Not required until 12 hours after establishment of steady state operation.~~ ~~-------------------------------------~~ ~~Perform SR 3.4.13.1.~~	~~Once per 8 hours~~ ~~Once per 24 hours]~~

2

2

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~------------- NOTE -------------~~ ~~Only applicable when the containment atmosphere gaseous radiation monitor is the only OPERABLE monitor.~~ ~~-----------------------------------~~ ~~D. Required containment sump monitor inoperable.~~ ~~AND~~ ~~[Containment air cooler condensate flow rate monitor inoperable.]~~	~~D.1 Analyze grab samples of the containment atmosphere.~~ ~~AND~~ ~~D.2.1 Restore required containment sump monitor to OPERABLE status.~~ ~~OR~~ ~~[D.2.2 Restore containment air cooler condensate flow rate monitor to OPERABLE status.]~~	~~Once per 12 hours~~ ~~7 days~~ ~~7 days~~
~~E. [Required containment atmosphere radioactivity monitor inoperable.~~ ~~AND~~ ~~[Containment air cooler condensate flow rate monitor inoperable.]~~	~~E.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status.~~ ~~OR~~ ~~[E.2 Restore containment air cooler condensate flow rate monitor to OPERABLE status.]~~	~~30 days~~ ~~30 days]~~
C ~~F~~. Required Action and associated Completion Time of Condition A or B not met.	C ~~F~~.1 Be in MODE 3. AND C ~~F~~.2 --------------NOTE-------------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------------- Be in MODE 4.	6 hours 12 hours

3.4.6.1 ACTION b
3.4.6.1 ACTION a

1
2
2
1

1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D ~~G~~. All required monitors inoperable.	D ~~G~~.1 Enter LCO 3.0.3.	Immediately

1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
4.4.6.1.a SR 3.4.15.1	Perform CHANNEL CHECK of the required containment atmosphere radioactivity monitor.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 2
4.4.6.1.a SR 3.4.15.2	Perform COT of the required containment atmosphere radioactivity monitor.	~~[92 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 2

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
4.4.6.1.b	SR 3.4.15.3	Perform CHANNEL CALIBRATION of the required containment sump monitor.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	2
4.4.6.1.b	SR 3.4.15.4	~~[~~ Perform CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitor.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]]~~	2
	~~SR 3.4.15.5~~	~~[Perform CHANNEL CALIBRATION of the required containment air cooler condensate flow rate monitor.~~	~~[[18] months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~	

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.15, RCS LEAKAGE DETECTION INSTRUMENTATION

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

2. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.15 RCS Leakage Detection Instrumentation

BASES

1967 AEC Proposed GDC 49

BACKGROUND

~~GDC 30 of Appendix A to 10 CFR 50~~ (Ref. 1) requires means for detecting and, to the extent practical, identifying the location of the source of RCS LEAKAGE. Regulatory Guide 1.45, Revision 0, (Ref. 2) describes acceptable methods for selecting leakage detection systems.

Leakage detection systems must have the capability to detect significant reactor coolant pressure boundary (RCPB) degradation as soon after occurrence as practical to minimize the potential for propagation to a gross failure. Thus, an early indication or warning signal is necessary to permit proper evaluation of all unidentified LEAKAGE. ~~[In addition to meeting the OPERABILITY requirements, the monitors are typically set to provide the most sensitive response without causing an excessive number of spurious alarms.]~~ 1

The containment sump used to collect unidentified LEAKAGE ~~[~~is~~]~~ ~~[(or) and the containment air cooler condensate flow rate monitor] [are]~~ instrumented to alarm for increases above the normal flow rates. 1

The reactor coolant contains radioactivity that, when released to the containment, may be detected by radiation monitoring instrumentation. Radioactivity detection systems are included for monitoring both particulate and gaseous activities because of their sensitivities and rapid responses to RCS LEAKAGE.

Other indications may be used to detect an increase in unidentified LEAKAGE; however, they are not required to be OPERABLE by this LCO. An increase in humidity of the containment atmosphere would indicate release of water vapor to the containment. Dew point temperature measurements can thus be used to monitor humidity levels of the containment atmosphere as an indicator of potential RCS LEAKAGE.

Since the humidity level is influenced by several factors, a quantitative evaluation of an indicated leakage rate by this means may be questionable and should be compared to observed increases in liquid flow into or from the containment sump ~~[and condensate flow from air coolers]~~. Humidity level monitoring is considered most useful as an indirect alarm or indication to alert the operator to a potential problem. Humidity monitors are not required by this LCO. 1

BASES

BACKGROUND (continued)

Air temperature and pressure monitoring methods may also be used to infer unidentified LEAKAGE to the containment. Containment temperature and pressure fluctuate slightly during plant operation, but a rise above the normally indicated range of values may indicate RCS leakage into the containment. The relevance of temperature and pressure measurements is affected by containment free volume and, for temperature, detector location. ~~[~~Alarm signals from these instruments can be valuable in recognizing rapid and sizable leakage to the containment. Temperature and pressure monitors are not required by this LCO.~~]~~

operators serve

The above-mentioned LEAKAGE detection methods or systems differ in sensitivity and response time. ~~[~~Some of these systems could ~~service~~ as early alarm systems signaling the ~~operations~~ that closer examination of other detection systems is necessary to determine the extent of any corrective action that may be required.~~]~~ 1 3

APPLICABLE SAFETY ANALYSES

The need to evaluate the severity of an alarm or an indication is important to the operators, and the ability to compare and verify with indications from other systems is necessary.

The safety significance of RCS LEAKAGE varies widely depending on its source, rate, and duration. Therefore, detecting and monitoring RCS LEAKAGE into the containment area is necessary. Quickly separating the identified LEAKAGE from the unidentified LEAKAGE provides quantitative information to the operators, allowing them to take corrective action should a leakage occur detrimental to the safety of the unit and the public.

RCS leakage detection instrumentation satisfies Criterion 1 of 10 CFR 50.36(c)(2)(ii).

LCO

This LCO requires instruments of diverse monitoring principles to be OPERABLE to provide confidence that small amounts of unidentified LEAKAGE are detected in time to allow actions to place the plant in a safe condition, when RCS LEAKAGE indicates possible RCPB degradation.

two

The LCO requires ~~[three]~~ instruments to be OPERABLE. 1

The containment sump is used to collect unidentified LEAKAGE. ~~[The containment sump consists of the normal sump and the emergency sump. The LCO requirements apply to the total amount of unidentified LEAKAGE collected in [the][both] sump[s].]~~ The monitor on the containment sump detects ~~[~~level ~~or flow rate or the operating frequency of a pump]~~ and is instrumented to detect when there is ~~[leakage of]~~ ~~[~~an 1

BASES

LCO (continued)

increase above the normal value by~~]~~ 1 gpm. The identification of ~~[~~an increase in~~]~~ unidentified LEAKAGE will be delayed by the time required for the unidentified LEAKAGE to travel to the containment sump and it may take longer than one hour to detect a 1 gpm increase in unidentified LEAKAGE, depending on the origin and magnitude of the LEAKAGE. This sensitivity is acceptable for containment sump monitor OPERABILITY. 1

The reactor coolant contains radioactivity that, when released to the containment, can be detected by the gaseous or particulate containment atmosphere radioactivity monitor. Only one of the two detectors is required to be OPERABLE. Radioactivity detection systems are included for monitoring both particulate and gaseous activities because of their sensitivities and rapid responses to RCS LEAKAGE, but have recognized limitations. Reactor coolant radioactivity levels will be low during initial reactor startup and for a few weeks thereafter, until activated corrosion products have been formed and fission products appear from fuel element cladding contamination or cladding defects. If there are few fuel element cladding defects and low levels of activation products, it may not be possible for the gaseous or particulate containment atmosphere radioactivity monitors to detect a 1 gpm increase within 1 hour during normal operation. However, the gaseous or particulate containment atmosphere radioactivity monitor is OPERABLE when it is capable of detecting a 1 gpm increase in unidentified LEAKAGE within 1 hour given an RCS activity equivalent to that assumed in the design calculations for the monitors (Reference 3).

~~[An increase in humidity of the containment atmosphere could indicate the release of water vapor to the containment. Condensate flow from air coolers is instrumented to detect when there is an increase above the normal value by 1 gpm. The time required to detect a 1 gpm increase above the normal value varies based on environmental and system conditions and may take longer than 1 hour. This sensitivity is acceptable for containment air cooler condensate flow rate monitor OPERABILITY.]~~ 1

The LCO is satisfied when monitors of diverse measurement means are available. Thus, the containment sump monitor, in combination with a gaseous or particulate radioactivity monitor ~~[and a containment air cooler condensate flow rate monitor],~~ provides an acceptable minimum. 1

APPLICABILITY

Because of elevated RCS temperature and pressure in MODES 1, 2, 3, and 4, RCS leakage detection instrumentation is required to be OPERABLE.

BASES

APPLICABILITY (continued)

In MODE 5 or 6, the temperature is to be ≤ 200°F and pressure is maintained low or at atmospheric pressure. Since the temperatures and pressures are far lower than those for MODES 1, 2, 3, and 4, the likelihood of leakage and crack propagation are much smaller. Therefore, the requirements of this LCO are not applicable in MODES 5 and 6.

ACTIONS

A.1 and A.2

With the required containment sump monitor inoperable, no other form of sampling can provide the equivalent information; however, the containment atmosphere radioactivity monitor will provide indications of changes in leakage. Together with the containment atmosphere radioactivity monitor, the periodic surveillance for RCS water inventory balance, SR 3.4.13.1, must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, ~~[~~and RCP seal injection and return flows~~]~~). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established. 1

Restoration of the required sump monitor to OPERABLE status within a Completion Time of 30 days is required to regain the function after the monitor's failure. This time is acceptable, considering the Frequency and adequacy of the RCS water inventory balance required by Required Action A.1.

and

B.1.1, B.1.2~~,~~ B.2.1~~, and B.2.2~~ 2

With both gaseous and particulate containment atmosphere radioactivity monitoring instrumentation channels inoperable, alternative action is required. Either grab samples of the containment atmosphere must be taken and analyzed or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information.

With a sample obtained and analyzed or water inventory balance performed every 24 hours, the reactor may be operated for up to 30 days to allow restoration of the required containment atmosphere radioactivity monitors. ~~[Alternatively, continued operation is allowed if the air cooler condensate flow rate monitoring system is OPERABLE, provided grab samples are taken or water inventory balances performed every 24 hours.]~~ 1

BASES

ACTIONS (continued)

The 24 hour interval provides periodic information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, [and RCP seal injection and return flows]). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established. The 30 day Completion Time recognizes at least one other form of leakage detection is available.

~~[C.1 and C.2~~ 1

~~With the containment air cooler condensate flow rate monitor inoperable, alternative action is again required. Either SR 3.4.15.1 must be performed or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information. Provided a CHANNEL CHECK is performed every 8 hours or a water inventory balance is performed every 24 hours, reactor operation may continue while awaiting restoration of the containment air cooler condensate flow rate monitor to OPERABLE status.~~

~~The 24 hour interval provides periodic information that is adequate to detect RCS LEAKAGE. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable temperature, power level, pressurizer and makeup tank levels, makeup and letdown, [and RCP seal injection and return flows]). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.]~~

~~D.1, D.2.1, and D.2.2~~ 2 1

~~With the required containment sump monitor [and the containment air cooler condensate flow rate monitor] inoperable, the only means of detecting LEAKAGE is the required containment atmosphere radiation monitor. A Note clarifies that this Condition is only applicable when the only OPERABLE monitor is the required containment atmosphere gaseous radiation monitor. The containment atmosphere gaseous radioactivity monitor typically cannot detect a 1 gpm leak within one hour when RCS activity is low. In addition, this configuration does not provide the required diverse means of leakage detection. Indirect methods of monitoring RCS leakage must be implemented. Grab samples of the containment atmosphere must be taken to provide alternate periodic information. The 12 hour interval is sufficient to detect increasing RCS~~

BASES

ACTIONS (continued)

~~leakage. The Required Action provides 7 days to restore another RCS leakage monitor to OPERABLE status to regain the intended leakage detection diversity. The 7 day Completion Time ensures that the plant will not be operated in a degraded configuration for a lengthy time period.~~

~~[E.1 and E.2~~ 1

~~With the required containment atmosphere radioactivity monitor [and the containment air cooler condensate flow rate monitor] inoperable, the only means of detecting leakage is the containment sump monitor. This Condition does not provide the required diverse means of leakage detection. The Required Action is to restore either of the inoperable required monitors to OPERABLE status within 30 days to regain the intended leakage detection diversity. The 30 day Completion Time ensures that the plant will not be operated in a reduced configuration for a lengthy time period.]~~

C C
~~F~~.1 and ~~F~~.2 2

or
If a Required Action of Condition A~~,~~ B~~, [C], [D] or [E]~~ cannot be met, the plant must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. 2 1

Remaining within the Applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 4). In MODE 4 the steam generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 4, the steam turbine driven auxiliary feedwater pump must be available to remain in MODE 4. Should steam generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

C
Required Action ~~F~~.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the 2

BASES

ACTIONS (continued)

results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

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.

D

~~G~~.1 2

With all required monitors inoperable, no automatic means of monitoring leakage are available, and immediate plant shutdown in accordance with LCO 3.0.3 is required.

SURVEILLANCE REQUIREMENTS

SR 3.4.15.1

SR 3.4.15.1 requires the performance of a CHANNEL CHECK of the required containment atmosphere radioactivity monitor. The check gives reasonable confidence that the channel is operating properly. ~~[The Frequency of 12 hours is based on instrument reliability and is reasonable for detecting off normal conditions.~~ 1

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~---]~~

SR 3.4.15.2

SR 3.4.15.2 requires the performance of a COT on the required containment atmosphere radioactivity monitor. The test ensures that the monitor can perform its function in the desired manner. 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

BASES

SURVEILLANCE REQUIREMENTS (continued)

clarifies what is an acceptable COT 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 test verifies the alarm setpoint and relative accuracy of the instrument string. ~~[The Frequency of 92 days considers instrument reliability, and operating experience has shown that it is proper for detecting degradation.~~ 1

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~ 4

4

SR 3.4.15.3~~, [SR 3.4.15.4,~~ and SR 3.4.15.~~5]~~ 1

These SRs require the performance of a CHANNEL CALIBRATION for each of the RCS leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument string, including the instruments located inside containment. ~~[The Frequency of [18] months is a typical refueling cycle and considers channel reliability. Again, operating experience has proven that this Frequency is acceptable.~~ 1

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~ 4

BASES

REFERENCES

1. ~~10 CFR 50, Appendix A, Section IV, GDC 30~~ 1967 AEC Proposed GDC 49. 2

2. Regulatory Guide 1.45, Revision 0, "Reactor Coolant Pressure Boundary Leakage Detection Systems," May 1973.

3. ~~FSAR, Section [ ]~~ 0-ADM-536, Rev. 39, Technical Specification Bases Control Program. 2

4. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.15 BASES, RCS LEAKAGE DETECTION INSTRUMENTATION

1. The Improved Standard Technical Specifications (ISTS) contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

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

3. Editorial/grammatical error corrected.

4. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.15, RCS LEAKAGE DETECTION INSTRUMENTATION

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 16

ITS 3.4.16 – RCS SPECIFIC ACTIVITY

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

REACTOR COOLANT SYSTEM

3/4.4.8 SPECIFIC ACTIVITY

LIMITING CONDITION FOR OPERATION

LCO 3.4.16 3.4.8 The specific activity of the primary coolant shall be ~~limited to:~~

SR 3.4.16.2 a. Less than or equal to 0.25 microcuries per gram DOSE EQUIVALENT I-131, and

SR 3.4.16.1 b. Less than or equal to 447.7 microcuries per gram DOSE EQUIVALENT XE-133.

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

ACTION:

and DOSE EQUIVALENT XE-133 L01

ACTION A Note
ACTION B Note

NOTE: LCO 3.0.4.c is applicable to DOSE EQUIVALENT I-131.

ACTION A a. DOSE EQUIVALENT I-131 not within limit ~~With the specific activity of the reactor coolant greater than 0.25 microcuries per gram DOSE EQUIVALENT I-131~~, verify DOSE EQUIVALENT I-131 is less than or equal to 60 microcuries per gram once per 4 hours. A02

ACTION A b. DOSE EQUIVALENT I-131 not within limit ~~With the specific activity of the reactor coolant greater than 0.25 microcuries per gram DOSE EQUIVALENT I-131~~, but less than or equal to 60 microcuries per gram, operation may continue for up to 48 hours while efforts are made to restore DOSE EQUIVALENT I-131 to within the ~~0.25 microcuries per gram limit~~. A02

ACTION A c. DOSE EQUIVALENT I-131 not within limit ~~With the specific activity of the reactor coolant greater than 0.25 microcuries per gram DOSE EQUIVALENT I-131~~ for greater than or equal to 48 hours during one continuous time interval, A02

ACTION C or greater than 60 microcuries per gram DOSE EQUIVALENT I-131, be in HOT STANDBY within 6 hours and COLD SHUTDOWN within the next 30 hours.

ACTION B d. DOSE EQUIVALENT XE-133 not within limit ~~With the specific activity of the reactor coolant greater than 447.7 microcuries per gram DOSE EQUIVALENT XE-133~~, operation may continue for up to 48 hours while efforts are made to restore DOSE EQUIVALENT XE-133 to within the 447.7 microcuries per gram limit. A02

ACTION B e. DOSE EQUIVALENT XE-133 not within limit ~~With the specific activity of the reactor coolant greater than 447.7 microcuries per gram DOSE EQUIVALENT XE-133~~ for greater than or equal to 48 hours during one continuous time A02

ACTION C interval, be in HOT STANDBY within 6 hours and COLD SHUTDOWN within the next 30 hours.

SR 3.4.16.1 Note 1
SR 3.4.16.2 Note 2

SURVEILLANCE REQUIREMENTS

NOTE: Only required to be performed in MODE 1. L02

SR 3.4.16.1
SR 3.4.16.2 4.4.8 The specific activity of the reactor coolant shall be determined to be within the limits by performing the sampling and analysis described in Table 4.4-4.

A01

~~TABLE 4.4-4~~

~~REACTOR COOLANT SPECIFIC ACTIVITY SAMPLE AND ANALYSIS~~

	~~TYPE OF MEASUREMENT AND ANALYSIS~~	~~SAMPLE AND ANALYSIS FREQUENCY~~	~~MODES IN WHICH SAMPLE AND ANALYSIS REQUIRED~~	
	~~1. NOT USED~~			
	~~2. Tritium Activity Determination~~	~~SFCP.~~	~~1, 2, 3, 4~~	LA01
SR 3.4.16.2	3. ~~Isotopic Analysis for~~ DOSE EQUIVALENT I-131	a) SFCP. b) One sample between 2 and 6 hours following a THERMAL POWER change ≥ ~~exceeding~~ 15% of the RATED THERMAL POWER within a 1 hour period.	1, 2, 3, 4	LA02 M01
	4. Radiochemical Isotopic Determination Including Gaseous Activity	SFCP	1, 2, 3, 4	
SR 3.4.16.1	5. ~~Isotopic Analysis for~~ DOSE EQUIVALENT XE-133	SFCP	1, 2, 3, 4	LA02
	6. NOT USED			

DISCUSSION OF CHANGES
ITS 3.4.16, RCS SPECIFIC ACTIVITY

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generation Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications - Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.4.8 ACTIONS a through e state "With the specific activity of the reactor coolant greater than (e.g 0.25) microcuries per gram DOSE EQUIVALENT I - (e.g. 131)." ITS 3.4.16 Conditions A and B states RCS DOSE EQUIVALENT XE-131 not within limit and DOSE EQUIVALENT XE-133 not within limit, respectively. This changes the CTS by listing the limiting values in the Surveillance Requirements (SRs) versus the Actions.

This change is acceptable because the limiting value is still being listed; it is being listed in the SRs versus the Actions. These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS SR 4.4.8 states "Between 2 and 6 hours after a THERMAL POWER change of exceeding 15% RTP within a 1 hour period." Exceeding means greater than. ITS SR 3.4.16.2 states "Between 2 and 6 hours after a THERMAL POWER change of ≥ 15% RTP within a 1 hour period." This changes the CTS by requiring a sample to be taken following a power change of 15% RATED THERMAL POWER (RTP) instead of only when an RTP change is greater than 15%.

The purpose of the proposed CTS SR 4.4.8 and ITS SR 3.4.16.2 is to ensure iodine specific activity remains within the Limiting Condition for Operation (LCO) limit during normal operation and following fast power changes when iodine spiking is more apt to occur. The Frequency, between 2 and 6 hours after a power change > 15% RTP within a 1-hour period, is established because the iodine levels peak during this time following iodine spike initiation; samples at other times would provide inaccurate results. This change is acceptable because it provides additional assurance that dose equivalent Iodine-131 (DEI-131) is within limits after a power change of 15% RTP. This change is designated as more restrictive because it requires a DEI-131 sample taken after a power increase of 15% RTP versus greater than 15% RTP.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 4.4.8 requires a tritium activity determination. ITS 3.4.16 does not contain this SR. This changes the CTS by removing the tritium activity determination.

The removal of Tritium Activity Determination from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. The ITS retains the requirement to verify specific activity. The requirements to verify DEI-131 and dose equivalent Xenon-133 (DEX-133) is sufficient to ensure the specific activity is maintained within limits. Also, this change is acceptable because the tritium activity determination will be adequately controlled in the Technical Requirements Manual (TRM). Changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because tritium activity determination is being removed from the Technical Specifications.

LA02 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS Table 4.4-4 Item 3 and 5 requires an isotopic analysis to determine whether DEI-131 and DEX-133 concentration is within limit. ITS SR 3.4.16.2 and SR 3.4.16.1 require the verification that the reactor coolant DEI-131 and DEX-133 specific activity is within limit. ITS 3.4.16 Required Action A.1 requires the verification that DEI-131 is ≤ 60.0 μCi/gm. ITS 3.4.16 Required Action B.1 requires the verification that DEX-133 is within limits. This changes the CTS by moving the detail that an Isotopic Analysis for DEI-131, and DEX-133 must be performed to satisfy the requirements of the Surveillance and Action to the ITS Bases.

The removal of these details for performing SRs from the Technical Specifications is acceptable because the type of information is not necessary to be included in the Technical Specifications to provide adequate protection to public health and safety. ITS SR 3.4.16.2, ITS SR 3.4.16.1, and ITS 3.4.16 Required Actions A.1 and B.1 still retain the requirements to verify the reactor coolant DEI-131 and DEX-133 is within limit. Also, this change is acceptable because these types of procedural details 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 procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 9 – Relaxation of Mode Definitions)* CTS 3.4.8 Note states "LCO 3.0.4.c is applicable to DOSE EQUIVALENT I-131." ITS 3.4.16 ACTION A (I-131) and ACTION B (Xe-133) contains a Note that states "LCO 3.0.4.c is applicable." This changes the CTS by including DEX-133 in the allowance that makes LCO 3.0.4.c applicable.

The purpose of CTS 3.4.8 Actions Note is to allow Mode changes when the DEI-131 may not have been verified to be within limits. This change, which makes LCO 3.0.4.c allowance applicable to DEX-133, is acceptable because the LCO requirements applied in the ITS MODES continue to ensure process variables, structures, systems, and components are maintained in the conditions assumed in the safety analyses and licensing basis. This allowance permits entry into the applicable MODES(S), relying on Required Action B.1 while the DEX-133 LCO limit is not met or has not been verified to be met. This allowance is acceptable due to the significant conservatism incorporated into the specific activity limit, the low probability of an event which is limiting due to exceeding this limit, and the ability to restore transient-specific activity excursions while the plant remains at, or proceeds to, power operation. This change is designated as less restrictive because the LCO requirements will not be applied under plant conditions in which the limits would be applied under the CTS.

L02 *(Category 9 – Relaxation of Mode Definitions)* ITS SR 3.4.16.1 and SR 3.4.16.2 contain a Note that states "Only required to be performed in MODE 1." The CTS SRs do not contain this allowance. This changes the CTS by adding the SR Note to the SRs that verify DEI-131 and DEX-133.

The purpose of the proposed SR Note is to allow entry into and operation in MODE 4, MODE 3, and MODE 2 prior to performing the SR. This allows the Surveillance to be performed in those MODES, prior to entering MODE 1. This change is acceptable because the LCO requirements applied in the ITS MODES continue to ensure process variables, structures, systems, and components are maintained in the conditions assumed in the safety analyses and licensing basis. This change is designated as less restrictive because the LCO requirements will not be applied under plant conditions in which the requirements would be applied under the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

3.4.8 LCO 3.4.16 RCS DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133 specific activity shall be within limits.

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

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a	A. DOSE EQUIVALENT I-131 not within limit.	-------------------NOTE------------------ LCO 3.0.4.c is applicable. --- A.1 Verify DOSE EQUIVALENT I-131 ≤ [60] µCi/gm. AND A.2 Restore DOSE EQUIVALENT I-131 to within limit.	 Once per 4 hours 48 hours
ACTION d	B. DOSE EQUIVALENT XE-133 not within limit.	-------------------NOTE------------------ LCO 3.0.4.c is applicable. --- B.1 Restore DOSE EQUIVALENT XE-133 to within limit.	 48 hours

1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION c ACTION e C. Required Action and associated Completion Time of Condition A or B not met. OR DOSE EQUIVALENT I-131 > ~~[~~60~~]~~ µCi/gm.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
4.4.8 Table 4.4-4 Item 5 SR 3.4.16.1	------------------------------NOTE------------------------------ Only required to be performed in MODE 1. -- Verify reactor coolant DOSE EQUIVALENT XE-133 specific activity ≤ ~~[280]~~ 447.7 µCi/gm.	~~[7 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

1

2

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY
4.4.8 Table 4.4-4 Item 3	SR 3.4.16.2	------------------------------NOTE------------------------------ Only required to be performed in MODE 1. -- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ ~~[1.0]~~ 0.25 μCi/gm.	~~[14 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ AND Between 2 and 6 hours after a THERMAL POWER change of ≥ 15% RTP within a 1 hour period

1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.16, RCS SPECIFIC ACTIVITY

1. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

2. 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.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.16 RCS Specific Activity

BASES

BACKGROUND

The maximum dose that an individual at the exclusion area boundary can receive for 2 hours following an accident, or at the low population zone outer boundary for the radiological release duration, is specified in ~~[10 CFR 100.11]~~[10 CFR 50.67] (Ref. 1). Doses to control room operators must be limited per 1967 proposed GDC 11 ~~GDC 19~~. The limits on specific activity ensure that the offsite and control room doses are appropriately limited during analyzed transients and accidents. 1 2

The RCS specific activity LCO limits the allowable concentration level of radionuclides in the reactor coolant. The LCO limits are established to minimize the dose consequences in the event of a steam line break (SLB) or steam generator tube rupture (SGTR) accident.

The LCO contains specific activity limits for both DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133. The allowable levels are intended to ensure that offsite and control room doses meet the appropriate acceptance criteria in the Standard Review Plan (SRP) (Ref. 2).

APPLICABLE SAFETY ANALYSES

The LCO limits on the specific activity of the reactor coolant ensure that the resulting offsite and control room doses meet the appropriate SRP acceptance criteria following a SLB or SGTR accident. The safety analyses (Refs. 3 and 4) assume the specific activity of the reactor coolant is at the LCO limits, and an existing reactor coolant steam generator (SG) tube leakage rate of 0.20 gpm ~~[1 gpm]~~ exists. The safety analyses assume the specific activity of the secondary coolant is at its limit of 0.1 ~~[0.1]~~ μCi/gm DOSE EQUIVALENT I-131 from LCO 3.7.1~~8~~4, "Secondary Specific Activity." 1 1 2

The analyses for the SLB and SGTR accidents establish the acceptance limits for RCS specific activity. Reference to these analyses is used to assess changes to the unit that could affect RCS specific activity, as they relate to the acceptance limits.

The safety analyses consider two cases of reactor coolant iodine specific activity. One case assumes specific activity at 0.25 ~~[1.0]~~ μCi/gm DOSE EQUIVALENT I-131 with a concurrent large iodine spike that increases the rate of release of iodine from the fuel rods containing cladding defects to the primary coolant immediately after a SLB (by a factor of 500), or SGTR (by a factor of 335), respectively. The second case assumes the initial reactor coolant iodine activity at ~~[~~60.0~~]~~ μCi/gm DOSE EQUIVALENT I-131 due to an iodine spike caused by a reactor or an RCS transient prior 1 1

BASES

APPLICABLE SAFETY ANALYSES (continued)

to the accident. In both cases, the noble gas specific activity is assumed to be 447.7 ~~[280]~~ μCi/gm DOSE EQUIVALENT XE-133. 1

The SGTR analysis also assumes a loss of offsite power at the same time as the reactor trip. The SGTR causes a reduction in reactor coolant inventory. The reduction initiates a reactor trip from a low pressurizer pressure signal ~~[or an RCS overtemperature ΔT signal].~~ 1

The loss of offsite power causes the steam dump valves to close to protect the condenser. The rise in pressure in the ruptured SG discharges radioactively contaminated steam to the atmosphere through the SG power operated relief valves ~~[~~and the main steam safety valves~~]~~. The unaffected SGs remove core decay heat by venting steam to the atmosphere until the cooldown ends and the Residual Heat Removal (RHR) System is placed in service.

The SLB radiological analysis assumes that offsite power is lost at the same time as the pipe break occurs outside containment. Reactor trip occurs after the generation of an SI signal on low steam line pressure. The affected SG blows down completely and steam is vented directly to the atmosphere. The unaffected SGs remove core decay heat by venting steam to the atmosphere until the cooldown ends and the RHR system is placed in service.

Operation with iodine specific activity levels greater than the LCO limit is permissible, if the activity levels do not exceed ~~[~~60.0~~]~~ μCi/gm for more than 48 hours. 1

The limits on RCS specific activity are also used for establishing standardization in radiation shielding and plant personnel radiation protection practices.

RCS specific activity satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

The iodine specific activity in the reactor coolant is limited to 0.25 ~~[1.0]~~ μCi/gm DOSE EQUIVALENT I-131, and the noble gas specific activity in the reactor coolant is limited to 447.7 ~~[280]~~ μCi/gm DOSE EQUIVALENT XE-133. The limits on specific activity ensure that offsite and control room doses will meet the appropriate SRP acceptance criteria (Ref. 2). 1 1

The SLB and SGTR accident analyses (Refs. 3 and 4) show that the calculated doses are within acceptable limits. Violation of the LCO may result in reactor coolant radioactivity levels that could, in the event of a SLB or SGTR, lead to doses that exceed the SRP acceptance criteria (Ref. 2).

BASES

APPLICABILITY

In MODES 1, 2, 3, and 4, operation within the LCO limits for DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133 is necessary to limit the potential consequences of a SLB or SGTR to within the SRP acceptance criteria (Ref. 2).

In MODES 5 and 6, the steam generators are not being used for decay heat removal, the RCS and steam generators are depressurized, and primary to secondary leakage is minimal. Therefore, the monitoring of RCS specific activity is not required.

ACTIONS

A.1 and A.2

With the DOSE EQUIVALENT I-131 greater than the LCO limit, samples at intervals of 4 hours must be taken to demonstrate that the specific activity is ≤ ~~[~~60.0~~]~~ µCi/gm. The Completion Time of 4 hours is required to obtain and analyze a sample. Sampling is continued every 4 hours to provide a trend. 1

The DOSE EQUIVALENT I-131 must be restored to within limit within 48 hours. The Completion Time of 48 hours is acceptable since it is expected that, if there were an iodine spike, the normal coolant iodine concentration would be restored within this time period. Also, there is a low probability of a SLB or SGTR occurring during this time period.

A Note permits the use of the provisions of LCO 3.0.4.c. This allowance permits entry into the applicable MODE(S), relying on Required Actions A.1 and A.2 while the DOSE EQUIVALENT I-131 LCO limit is not met. This allowance is acceptable due to the significant conservatism incorporated into the specific activity limit, the low probability of an event which is limiting due to exceeding this limit, and the ability to restore transient-specific activity excursions while the plant remains at, or proceeds to, power operation.

B.1

With the DOSE EQUIVALENT XE-133 greater than the LCO limit, DOSE EQUIVALENT XE-133 must be restored to within limit within 48 hours. The allowed Completion Time of 48 hours is acceptable since it is expected that, if there were a noble gas spike, the normal coolant noble gas concentration would be restored within this time period. Also, there is a low probability of a SLB or SGTR occurring during this time period.

BASES

ACTIONS (continued)

A Note permits the use of the provisions of LCO 3.0.4.c. This allowance permits entry into the applicable MODES(S), relying on Required Action B.1 while the DOSE EQUIVALENT XE-133 LCO limit is not met. This allowance is acceptable due to the significant conservatism incorporated into the specific activity limit, the low probability of an event which is limiting due to exceeding this limit, and the ability to restore transient-specific activity excursions while the plant remains at, or proceeds to, power operation.

C.1 and C.2

If the Required Action and associated Completion Time of Condition A or B is not met, or if the DOSE EQUIVALENT I-131 is > ~~[~~60.0~~]~~ μCi/gm, the reactor must be brought to MODE 3 within 6 hours and 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. 1

SURVEILLANCE REQUIREMENTS

SR 3.4.16.1

SR 3.4.16.1 requires performing a gamma isotopic analysis as a measure of the noble gas specific activity of the reactor coolant in accordance with the Surveillance Frequency Control Program ~~at least once every 7 days~~. This measurement is the sum of the degassed gamma activities and the gaseous gamma activities in the sample taken. This Surveillance provides an indication of any increase in the noble gas specific activity. 2

Trending the results of this Surveillance allows proper remedial action to be taken before reaching the LCO limit under normal operating conditions. ~~The 7 day Frequency considers the low probability of a gross fuel failure during this time.~~ 2

Due to the inherent difficulty in detecting Kr-85 in a reactor coolant sample due to masking from radioisotopes with similar decay energies, such as F-18 and I-134, it is acceptable to include the minimum detectable activity for Kr-85 in the SR 3.4.16.1 calculation. If a specific noble gas nuclide listed in the definition of DOSE EQUIVALENT XE-133 is not detected, it should be assumed to be present at the minimum detectable activity.

A Note modifies the SR to allow entry into and operation in MODE 4, MODE 3, and MODE 2 prior to performing the SR. This allows the Surveillance to be performed in those MODES, prior to entering MODE 1.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.16.2

This Surveillance is performed to ensure iodine specific activity remains within the LCO limit during normal operation and following fast power changes when iodine spiking is more apt to occur. ~~The 14 day Frequency is adequate to trend changes in the iodine activity level, considering noble gas activity is monitored every 7 days.~~ The Frequency, between 2 and 6 hours after a power change ≥ 15% RTP within a 1 hour period, is established because the iodine levels peak during this time following iodine spike initiation; samples at other times would provide inaccurate results. 2

A Note modifies the SR to allow entry into and operation in MODE 4, MODE 3, and MODE 2 prior to performing the SR. This allows the Surveillance to be performed in those MODES, prior to entering MODE 1.

REFERENCES

~~------------------------------ Reviewer's Note ------------------------------~~
~~The first listed References 1 and 2 are for plants that are licensed to 10 CFR 100.11. The second set of References are for plants that are licensed to 10 CFR 50.67.~~ 3
~~--~~

~~[~~ 1. ~~10 CFR 100.11.~~ 1

~~2. Standard Review Plan (SRP) Section Section 15.6.3 (SGTR).~~

1. 10 CFR 50.67.

2. Standard Review Plan (SRP) Section 15.0.1 "Radiological Consequence Analyses Using Alternative Source Terms." ~~]~~ 1

U

3. FSAR, Section ~~[15.1.5]~~ 14.3.4.2. 2 1

U

4. FSAR, Section ~~[15.6.3]~~ 14.2.4. 2 1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.16 BASES, RCS SPECIFIC ACTIVITY

1. The Improved Standard Technical Specifications (ISTS) contain bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

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

3. The Reviewer's Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This Note is not meant to be retained in the final version of the plant specific submittal.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.16, RCS SPECIFIC ACTIVITY

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 17

ITS 3.4.17 – STEAM GENERATOR (SG) TUBE INTEGRITY

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

REACTOR COOLANT SYSTEM

3/4.4.5 STEAM GENERATOR (SG) TUBE INTEGRITY

LIMITING CONDITION FOR OPERATION

LCO 3.4.17 3.4.5 SG tube integrity shall be maintained

AND

All SG tubes satisfying the tube plugging criteria shall be plugged in accordance with the SG Program.

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

ACTION*:

ACTION A a. With one or more SG tubes satisfying the tube plugging criteria and not plugged in accordance with the Steam Generator Program;

ACTION A 1. Within 7 days verify tube integrity of the affected tube(s) is maintained until the next refueling outage or SG tube inspection, and

ACTION A 2. Plug the affected tube(s) in accordance with the Steam Generator Program prior to entering HOT SHUTDOWN following the next refueling outage or SG tube inspection.

ACTION B b. With the requirements and associated allowable outage time of Action a above not met or SG tube integrity not maintained, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

SR 3.4.17.1 4.4.5.1 Verify SG tube integrity in accordance with the Steam Generator Program.

SR 3.4.17.2 4.4.5.2 Verify that each inspected SG tube that satisfies the tube plugging criteria is plugged in accordance with the Steam Generator Program prior to entering HOT SHUTDOWN following a SG tube inspection.

ACTIONS Note *Separate Action entry is allowed for each SG tube.

DISCUSSION OF CHANGES
ITS 3.4.17, STEAM GENERATOR (SG) TUBE INTEGRITY

ADMINISTRATIVE CHANGES

A01 In the conversion of the Turkey Point Nuclear Generating Station (PTN) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 5.0, "Standard Technical Specifications - Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

1

3.4 REACTOR COOLANT SYSTEM (RCS)

1

3.4.~~20~~ 17 Steam Generator (SG) Tube Integrity

1

LCO 3.4.~~20~~ 17 SG tube integrity shall be maintained.

1

AND

All SG tubes satisfying the tube plugging ~~[or repair]~~ criteria shall be plugged ~~[or repaired]~~ in accordance with the Steam Generator Program.

2

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

ACTIONS

ACTIONS Note *

-----NOTE-----
Separate Condition entry is allowed for each SG tube.

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a	A. One or more SG tubes satisfying the tube plugging ~~[or repair]~~ criteria and not plugged ~~[or repaired]~~ in accordance with the Steam Generator Program.	A.1 Verify tube integrity of the affected tube(s) is maintained until the next refueling outage or SG tube inspection. AND A.2 Plug ~~[or repair]~~ the affected tube(s) in accordance with the Steam Generator Program.	7 days Prior to entering MODE 4 following the next refueling outage or SG tube inspection
ACTION b ACTION b	B. Required Action and associated Completion Time of Condition A not met. OR SG tube integrity not maintained.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

2

1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.~~20~~ 17.1	Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program
SR 3.4.~~20~~ 17.2	Verify that each inspected SG tube that satisfies the tube plugging ~~[or repair]~~ criteria is plugged ~~[or repaired]~~ in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection

1

1
2

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.17, STEAM GENERATOR (SG) TUBE INTEGRITY

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

2. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.~~20~~17 Steam Generator (SG) Tube Integrity 1

BASES

BACKGROUND

Steam generator (SG) tubes are small diameter, thin walled tubes that carry primary coolant through the primary to secondary heat exchangers. The SG tubes have a number of important safety functions. Steam generator tubes are an integral part of the reactor coolant pressure boundary (RCPB) and, as such, are relied on to maintain the primary system's pressure and inventory. The SG tubes isolate the radioactive fission products in the primary coolant from the secondary system. In addition, as part of the RCPB, the SG tubes are unique in that they act as the heat transfer surface between the primary and secondary systems to remove heat from the primary system. This Specification addresses only the RCPB integrity function of the SG. The SG heat removal function is addressed 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," and LCO 3.4.7, "RCS Loops – MODE 5, Loops Filled."

SG tube integrity means that the tubes are capable of performing their intended RCPB safety function consistent with the licensing basis, including applicable regulatory requirements.

Steam generator tubing is subject to a variety of degradation mechanisms. Steam generator tubes may experience tube degradation related to corrosion phenomena, such as wastage, pitting, intergranular attack, and stress corrosion cracking, along with other mechanically induced phenomena such as denting and wear. These degradation mechanisms can impair tube integrity if they are not managed effectively. The SG performance criteria are used to manage SG tube degradation.

Specification 5.5.8, "Steam Generator (SG) Program," requires that a program be established and implemented to ensure that SG tube integrity is maintained. Pursuant to Specification 5.5.8, tube integrity is maintained when the SG performance criteria are met. There are three SG performance criteria: structural integrity, accident induced leakage, and operational LEAKAGE. The SG performance criteria are described in Specification 5.5.8. Meeting the SG performance criteria provides reasonable assurance of maintaining tube integrity at normal and accident conditions.

The processes used to meet the SG performance criteria are defined by the Steam Generator Program Guidelines (Ref. 1).

BASES

APPLICABLE SAFETY ANALYSES

The steam generator tube rupture (SGTR) accident is the limiting design basis event for SG tubes and avoiding an SGTR is the basis for this Specification. The analysis of a SGTR event assumes a bounding primary to secondary LEAKAGE rate equal to the operational LEAKAGE rate limits in LCO 3.4.13, "RCS Operational LEAKAGE," plus the leakage rate associated with a double-ended rupture of a single tube. The accident analysis for a SGTR assumes the contaminated secondary fluid is only briefly released to the atmosphere via safety valves and the majority is discharged to the main condenser.

The analysis for design basis accidents and transients other than a SGTR assume the SG tubes retain their structural integrity (i.e., they are assumed not to rupture.) In these analyses, the steam discharge to the atmosphere is based on the total primary to secondary LEAKAGE from all SGs of ~~[~~1 gallon per minute~~] or is assumed to increase to [1 gallon per minute]~~ as a result of accident induced conditions. For accidents that do not involve fuel damage, the primary coolant activity level of DOSE EQUIVALENT I-131 is assumed to be equal to the LCO 3.4.16, "RCS Specific Activity," limits. For accidents that assume fuel damage, the primary coolant activity is a function of the amount of activity released from the damaged fuel. The dose consequences of these events are within the limits of GDC 11 ~~GDC 19~~ (Ref. 2), 10 CFR 50.67 ~~10 CFR 100~~ (Ref. 3) or the NRC approved licensing basis (e.g., a small fraction of these limits).

Steam generator tube integrity satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

The LCO requires that SG tube integrity be maintained. The LCO also requires that all SG tubes that satisfy the plugging ~~[or repair]~~ criteria be plugged ~~[or repaired]~~ in accordance with the Steam Generator Program.

During an SG inspection, any inspected tube that satisfies the Steam Generator Program plugging ~~[or repair]~~ criteria is ~~[repaired or]~~ removed from service by plugging. If a tube was determined to satisfy the plugging ~~[or repair]~~ criteria but was not plugged ~~[or repaired]~~, the tube may still have tube integrity.

In the context of this Specification, a SG tube is defined as the entire length of the tube, including the tube wall ~~[and any repairs made to it]~~, between the tube-to-tubesheet weld at the tube inlet and the tube-to-tubesheet weld at the tube outlet. The tube-to-tubesheet weld is not considered part of the tube.

A SG tube has tube integrity when it satisfies the SG performance criteria. The SG performance criteria are defined in Specification 5.5.8, "Steam Generator Program," and describe acceptable SG tube performance. The Steam Generator Program also provides the evaluation process for determining conformance with the SG performance criteria.

BASES

LCO (continued)

There are three SG performance criteria: structural integrity, accident induced leakage, and operational LEAKAGE. Failure to meet any one of these criteria is considered failure to meet the LCO.

The structural integrity performance criterion provides a margin of safety against tube burst or collapse under normal and accident conditions, and ensures structural integrity of the SG tubes under all anticipated transients included in the design specification. Tube burst is defined as, "The gross structural failure of the tube wall. The condition typically corresponds to an unstable opening displacement (e.g., opening area increased in response to constant pressure) accompanied by ductile (plastic) tearing of the tube material at the ends of the degradation." Tube collapse is defined as, "For the load displacement curve for a given structure, collapse occurs at the top of the load versus displacement curve where the slope of the curve becomes zero." The structural integrity performance criterion provides guidance on assessing loads that have a significant effect on burst or collapse. In that context, the term "significant" is defined as "An accident loading condition other than differential pressure is considered significant when the addition of such loads in the assessment of the structural integrity performance criterion could cause a lower structural limit or limiting burst/collapse condition to be established." For tube integrity evaluations, except for circumferential degradation, axial thermal loads are classified as secondary loads. For circumferential degradation, the classification of axial thermal loads as primary or secondary loads will be evaluated on a case-by-case basis. The division between primary and secondary classifications will be based on detailed analysis and/or testing.

Structural integrity requires that the primary membrane stress intensity in a tube not exceed the yield strength for all ASME Code, Section III, Service Level A (normal operating conditions) and Service Level B (upset or abnormal conditions) transients included in the design specification. This includes safety factors and applicable design basis loads based on ASME Code, Section III, Subsection NB (Ref. 4) and Draft Regulatory Guide 1.121 (Ref. 5).

The accident induced leakage performance criterion ensures that the primary to secondary LEAKAGE caused by a design basis accident, other than a SGTR, is within the accident analysis assumptions. The accident analysis assumes that accident induced leakage does not exceed ~~[1 gpm per SG, except for specific types of degradation at specific locations where the NRC has approved greater accident induced leakage.]~~ 0.60 gpm total through all SGs and 0.20 gpm through any one of the three SGs at room temperature conditions. The accident induced leakage rate includes any primary to secondary LEAKAGE existing prior to the accident in addition to primary to secondary LEAKAGE induced during the accident. 2

 1

BASES

LCO (continued)

The operational LEAKAGE performance criterion provides an observable indication of SG tube conditions during plant operation. The limit on operational LEAKAGE is contained in LCO 3.4.13, "RCS Operational LEAKAGE," and limits primary to secondary LEAKAGE through any one SG to 150 gallons per day. This limit is based on the assumption that a single crack leaking this amount would not propagate to a SGTR under the stress conditions of a LOCA or a main steam line break. If this amount of LEAKAGE is due to more than one crack, the cracks are very small, and the above assumption is conservative.

APPLICABILITY

Steam generator tube integrity is challenged when the pressure differential across the tubes is large. Large differential pressures across SG tubes can only be experienced in MODE 1, 2, 3, or 4.

RCS conditions are far less challenging in MODES 5 and 6 than during MODES 1, 2, 3, and 4. In MODES 5 and 6, primary to secondary differential pressure is low, resulting in lower stresses and reduced potential for LEAKAGE.

ACTIONS

The ACTIONS are modified by a Note clarifying that the Conditions may be entered independently for each SG tube. This is acceptable because the Required Actions provide appropriate compensatory actions for each affected SG tube. Complying with the Required Actions may allow for continued operation, and subsequent affected SG tubes are governed by subsequent Condition entry and application of associated Required Actions.

A.1 and A.2

Condition A applies if it is discovered that one or more SG tubes examined in an inservice inspection satisfy the tube plugging ~~[or repair]~~ criteria but were not plugged ~~[or repaired]~~ in accordance with the Steam Generator Program as required by SR 3.4.~~20~~ 17.2. An evaluation of SG tube integrity of the affected tube(s) must be made. Steam generator tube integrity is based on meeting the SG performance criteria described in the Steam Generator Program. The SG plugging ~~[or repair]~~ criteria define limits on SG tube degradation that allow for flaw growth between inspections while still providing assurance that the SG performance criteria will continue to be met. In order to determine if a SG tube that should have been plugged ~~[or repaired]~~ has tube integrity, an evaluation must be completed that demonstrates that the SG performance criteria will continue to be met until the next refueling outage or SG tube inspection. The tube integrity determination is based on the estimated condition of the tube at the time the situation is discovered and the estimated growth of the degradation prior to the next SG tube inspection.

 1

 1

BASES

ACTIONS (continued)

If it is determined that tube integrity is not being maintained, Condition B applies.

A Completion Time of 7 days is sufficient to complete the evaluation while minimizing the risk of plant operation with a SG tube that may not have tube integrity.

If the evaluation determines that the affected tube(s) have tube integrity, Required Action A.2 allows plant operation to continue until the next refueling outage or SG inspection provided the inspection interval continues to be supported by an operational assessment that reflects the affected tubes. However, the affected tube(s) must be plugged ~~[or repaired]~~ prior to entering MODE 4 following the next refueling outage or SG inspection. This Completion Time is acceptable since operation until the next inspection is supported by the operational assessment. 2

B.1 and B.2

If the Required Actions and associated Completion Times of Condition A are not met or if SG tube integrity is not being maintained, the reactor must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the desired plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.~~20~~.1 17 1

During shutdown periods the SGs are inspected as required by this SR and the Steam Generator Program. NEI 97-06, Steam Generator Program Guidelines (Ref. 1), and its referenced EPRI Guidelines, establish the content of the Steam Generator Program. Use of the Steam Generator Program ensures that the inspection is appropriate and consistent with accepted industry practices.

During SG inspections a condition monitoring assessment of the SG tubes is performed. The condition monitoring assessment determines the "as found" condition of the SG tubes. The purpose of the condition monitoring assessment is to ensure that the SG performance criteria have been met for the previous operating period.

The Steam Generator Program determines the scope of the inspection and the methods used to determine whether the tubes contain flaws satisfying the tube plugging ~~[or repair]~~ criteria. Inspection scope (i.e., which tubes or areas of tubing within the SG are to be inspected) is a 2

BASES

SURVEILLANCE REQUIREMENTS (continued)

function of existing and potential degradation locations. The Steam Generator Program also specifies the inspection methods to be used to find potential degradation. Inspection methods are a function of degradation morphology, non-destructive examination (NDE) technique capabilities, and inspection locations.

17

The Steam Generator Program defines the Frequency of SR 3.4.~~20~~.1. 1
The Frequency is determined by the operational assessment and other limits in the SG examination guidelines (Ref. 6). The Steam Generator Program uses information on existing degradations and growth rates to determine an inspection Frequency that provides reasonable assurance that the tubing will meet the SG performance criteria at the next scheduled inspection. In addition, Specification 5.5.8 contains prescriptive requirements concerning inspection intervals to provide added assurance that the SG performance criteria will be met between scheduled inspections. If crack indications are found in any SG tube, the maximum inspection interval for all affected and potentially affected SGs is restricted by Specification 5.5.8 until subsequent inspections support extending the inspection interval.

SR 3.4.~~20~~.2 1

17

During an SG inspection, any inspected tube that satisfies the Steam Generator Program plugging ~~[or repair]~~ criteria is ~~[repaired or]~~ removed from service by plugging. The tube plugging ~~[or repair]~~ criteria delineated in Specification 5.5.8 are intended to ensure that tubes accepted for continued service satisfy the SG performance criteria with allowance for error in the flaw size measurement and for future flaw growth. In addition, the tube plugging ~~[or repair]~~ criteria, in conjunction with other elements of the Steam Generator Program, ensure that the SG performance criteria will continue to be met until the next inspection of the subject tube(s). Reference 1 provides guidance for performing operational assessments to verify that the tubes remaining in service will continue to meet the SG performance criteria. 2 2

~~[~~Steam generator tube repairs are only performed using approved repair methods as described in the Steam Generator Program.~~]~~ 2

The Frequency of prior to entering MODE 4 following a SG inspection ensures that the Surveillance has been completed and all tubes meeting the plugging ~~[or repair]~~ criteria are plugged ~~[or repaired]~~ prior to subjecting the SG tubes to significant primary to secondary pressure differential. 2

BASES

REFERENCES

1. NEI 97-06, "Steam Generator Program Guidelines."

2. ~~10 CFR 50 Appendix A, GDC 19~~ 1967 AEC Proposed General Design Criteria, GDC 11.

3. ~~10 CFR 100.~~ 10 CFR 50.67

4. ASME Boiler and Pressure Vessel Code, Section III, Subsection NB.

5. Draft Regulatory Guide 1.121, "Basis for Plugging Degraded Steam Generator Tubes," August 1976.

6. EPRI, "Pressurized Water Reactor Steam Generator Examination Guidelines."

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.17 BASES, STEAM GENERATOR (SG) TUBE INTEGRITY

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

2. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed and the proper plant specific information/value is inserted to reflect the current licensing basis.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.17, STEAM GENERATOR (SG) TUBE INTEGRITY

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 18

Relocated/Deleted Current Technical Specifications (CTS)

- 3.4.9.2 – Pressurizer
- 3.4.11 – Reactor Coolant System Vents

ISTS 3.4.9.2, PRESSURIZER

Current Technical Specification (CTS) Markup
and Discussion of Changes (DOCs)

~~REACTOR COOLANT SYSTEM~~

~~PRESSURIZER~~

~~LIMITING CONDITION FOR OPERATION~~

~~3.4.9.2 The pressurizer temperature shall be limited to:~~

~~a. A maximum heatup of 100°F in any 1-hour period,~~

~~b. A maximum cooldown of 200°F in any 1-hour period, and~~

~~c. A maximum spray water temperature differential of 320°F.~~

~~APPLICABILITY: At all times.~~

~~ACTION:~~

~~With the pressurizer temperature limits in excess of any of the above limits, restore the temperature to within the limits within 30 minutes; perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the pressurizer; determine that the pressurizer remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the pressurizer pressure to less than 500 psig within the following 30 hours.~~

~~SURVEILLANCE REQUIREMENTS~~

~~4.4.9.2 The pressurizer temperatures shall be determined to be within the limits in accordance with the Surveillance Frequency Control Program during system heatup or cooldown. The spray water temperature differential shall be determined to be within the limit in accordance with the Surveillance Frequency Control Program during auxiliary spray operation.~~

R01

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

R01 Turkey Point Nuclear Generating Station (PTN) Current Technical Specification (CTS) 3.4.9.2 provides for the maximum cooldown and heatup temperatures per hour (shall not exceed 200 °F/hr and 100 °F/hr, respectively) for the Pressurizer and the maximum spray water temperature differential (>320 °F). The limits meet the requirements given in the ASME Boiler and Pressure Vessel Code, Section III, Appendix G. These limitations are consistent with structural analysis results. However, these limits are not initial condition assumptions of a Design Basis Accident (DBA) or transient. These limits represent operating restrictions and Criterion 2 includes operating restrictions. However, it should be noted that in the Final Policy Station the Criterion 2 discussion specified only those operating restrictions required to preclude unanalyzed accidents and transients be included in Technical Specifications. This Specification does not meet the criteria for retention in the ITS.

10 CFR 50.36(c)(2)(ii) Criteria Evaluation:

1. The pressurizer temperature limits are not installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary. The Pressurizer Specification does not satisfy criterion 1.

2. The pressurizer temperature limits are not a process variable, design feature, or operating restriction that is an initial condition of a DBA or Transient Analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. The Pressurizer Specification does not satisfy criterion 2.

3. The pressurizer temperature limits are not a structure, system, or component that is part of primary success path and which functions or actuates to mitigate a DBA or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. The Pressurizer Specification does not satisfy criterion 3.

4. The pressurizer temperature limits are not a structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety. The pressurizer temperature limits were found to be a non-significant risk contributor to core damage frequency and offsite releases. The Pressurizer Specification does not meet criterion 4.

Because the selection criteria have not been satisfied, Pressurizer temperature limits Limiting Condition for Operation (LCO) and Surveillances, may be relocated to licensee-controlled documents outside the Technical Specifications. The Pressurizer temperature limits Specification will be relocated to the Technical Requirements Manual (TRM). Changes to the TRM will be controlled by the provisions of 10 CFR 50.59. This change is designated as relocation because the Specification did not meet the criteria in 10 CFR 50.36(c)(2)(ii) and will be relocated to the TRM.

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

ISTS 3.4.11, REACTOR COOLANT SYSTEM VENTS

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

~~3/4.4.11 REACTOR COOLANT SYSTEM VENTS~~

~~LIMITING CONDITION FOR OPERATION~~

~~3.4.11 At least one Reactor Coolant System vent path consisting of at least two vent valves in series and powered from emergency busses shall be OPERABLE and closed at each of the following locations:~~

~~a. Reactor vessel head, and~~

~~b. Pressurizer steam space~~

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

~~ACTION:~~

~~a. With one of the above Reactor Coolant System vent paths inoperable, STARTUP and/or POWER OPERATION may continue provided the inoperable vent path is maintained closed with power removed from the valve actuator of all the vent valves in the inoperable vent path; restore the inoperable vent path to OPERABLE status within 30 days, or, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

~~b. With both Reactor Coolant System vent paths inoperable; maintain the inoperable vent path closed with power removed from the valve actuators of all the vent valves in the inoperable vent paths, and restore at least one of the vent paths to OPERABLE status within 72 hours or be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

R01

~~SURVEILLANCE REQUIREMENTS~~

~~4.4.11 Each Reactor Coolant System vent path shall be demonstrated OPERABLE by:~~

~~a. Verifying all manual isolation valves in each vent path are locked in the open position in accordance with the Surveillance Frequency Control Program,~~

~~b. Cycling each vent valve through at least one complete cycle of full travel from the control room in accordance with the INSERVICE TESTING PROGRAM, and~~

~~c. Verifying flow through the Reactor Coolant System vent paths during venting in accordance with the Surveillance Frequency Control Program.~~

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

R01 Turkey Point Nuclear Generating Station (PTN) Current Technical Specification (CTS) 3.4.11 requires at least one Reactor Coolant System (RCS) vent path consisting of at least two vent valves in series powered from emergency busses to be OPERABLE and closed at the reactor vessel head and pressurizer steam space. These vents are provided to exhaust non-condensible gasses and or steam from the RCS that could inhibit natural circulation core cooling. Natural circulation is an alternate method of heat removal that is provided for in the Technical Specifications by requiring certain levels in the Steam Generators (when required) and certain water level above the reactor vessel flange during refueling. The RCS vents help facilitate natural circulation and are not included in the Improved Technical Specifications (ITS). This Specification does not meet the criteria for retention in the ITS.

10 CFR 50.36(c)(2)(ii) Criteria Evaluation:

1. The RCS Vents are not installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary. The Pressurizer Specification does not satisfy criterion 1.

2. The RCS Vents are not a process variable, design feature, or operating restriction that is an initial condition of a DBA or Transient Analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. The Pressurizer Specification does not satisfy criterion 2.

3. The RCS Vents are not a structure, system, or component that is part of primary success path and which functions or actuates to mitigate a DBA or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. The Pressurizer Specification does not satisfy criterion 3.

4. The RCS Vents are not a structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety. The pressurizer temperature limits were found to be a non-significant risk contributor to core damage frequency and offsite releases. The Pressurizer Specification does not meet criterion 4.

Because the selection criteria have not been satisfied, RCS Vents Limiting Condition for Operation (LCO) and Surveillances, may be relocated to licensee-controlled documents outside the Technical Specifications. The RCS Vents Specification will be relocated to the Technical Requirements Manual (TRM). Changes to the TRM will be controlled by the provisions of 10 CFR 50.59. This change is designated as relocation because the Specification did not meet the criteria in 10 CFR 50.36(c)(2)(ii) and will be relocated to the TRM.

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4 4.9.2, PRESSURIZER

There are no specific No Significant Hazards Considerations for this Specification.

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4 4.11, REACTOR COOLANT SYSTEM VENTS

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 19

Improved Standard Technical Specifications (ISTS) Not Adopted in the Turkey Point ITS

- 3.4.17 – RCS Loop Isolation Valves
- 3.3.18 – RCS Isolated Loop Startup
- 3.3.19 – RCS Loops – Test Exceptions

ISTS 3.4.17, RCS LOOP ISOLATION VALVES

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

~~3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~3.4.17 RCS Loop Isolation Valves~~

~~LCO 3.4.17~~ ~~Each RCS hot and cold leg loop isolation valve shall be open with power removed from each isolation valve operator.~~

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

~~ACTIONS~~

--~~NOTE~~--

~~Separate Condition entry is allowed for each RCS loop isolation valve.~~

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. Power available to one or more loop isolation valve operators.~~	~~A.1 Remove power from loop isolation valve operators.~~	~~30 minutes~~ 1
~~B. ------------NOTE------------ All Required Actions shall be completed whenever this Condition is entered.~~ ~~--------------------------------~~ ~~One or more RCS loop isolation valves closed.~~	~~B.1 Maintain valve(s) closed.~~ ~~AND~~ ~~B.2 Be in MODE 3.~~ ~~AND~~ ~~B.3 Be in MODE 5.~~	~~Immediately~~ ~~6 hours~~ ~~36 hours~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.17.1~~	~~Verify each RCS loop isolation valve is open and power is removed from each loop isolation valve operator.~~	~~[31 days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~

1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.17, RCS LOOP ISOLATION VALVES

1. Improved Standard Technical Specification 3.4.17, "RCS Loop Isolation Valves," is not included in the Turkey Point Nuclear Generating Station Improved Technical Specifications because the Reactor Coolant System hot and cold loops do not include isolation valves.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

~~B 3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~B 3.4.17 RCS Loop Isolation Valves~~

~~BASES~~

~~BACKGROUND~~

~~The reactor coolant loops are equipped with loop isolation valves that permit any loop to be isolated from the reactor vessel. One valve is installed on each hot leg and one on each cold leg. The loop isolation valves are used to perform maintenance on an isolated loop. Power operation with a loop isolated is not permitted.~~

~~To ensure that inadvertent closure of a loop isolation valve does not occur, the valves must be open with power to the valve operators removed in MODES 1, 2, 3, and 4. If the valves are closed, a set of administrative controls and equipment interlocks must be satisfied prior to opening the isolation valves as described in LCO 3.4.18, "RCS Isolated Loop Startup."~~

~~APPLICABLE SAFETY ANALYSES~~

~~The safety analyses performed for the reactor at power assume that all reactor coolant loops are initially in operation and the loop isolation valves are open. This LCO places controls on the loop isolation valves to ensure that the valves are not inadvertently closed in MODES 1, 2, 3, and 4. The inadvertent closure of a loop isolation valve when the Reactor Coolant Pumps (RCPs) are operating will result in a partial loss of forced reactor coolant flow (Ref. 1). If the reactor is at power at the time of the event, the effect of the partial loss of forced coolant flow is a rapid increase in the coolant temperature which could result in DNB with subsequent fuel damage if the reactor is not tripped by the Low Flow reactor trip. If the reactor is shutdown and an RCS loop is in operation removing decay heat, closure of the loop isolation valve associated with the operating loop could also result in increasing coolant temperature and the possibility of fuel damage.~~ 1

~~RCS Loop Isolation Valves satisfy Criterion 2 of 10 CFR 50.36(c)(2)(ii).~~

~~LCO~~

~~This LCO ensures that the loop isolation valves are open and power to the valve operators is removed. Loop isolation valves are used for performing maintenance in MODES 5 and 6. The safety analyses assume that the loop isolation valves are open in any RCS loops required to be OPERABLE by LCO 3.4.4, "RCS Loops - MODES 1 and 2," LCO 3.4.5, "RCS Loops - MODE 3," or LCO 3.4.6, "RCS Loops – MODE 4."~~

~~BASES~~

~~APPLICABILITY~~

~~In MODES 1 through 4, this LCO ensures that the loop isolation valves are open and power to the valve operators is removed. The safety analyses assume that the loop isolation valves are open in any RCS loops required to be OPERABLE.~~

~~In MODES 5 and 6, the loop isolation valves may be closed. Controlled startup of an isolated loop is governed by the requirements of LCO 3.4.18, "RCS Isolated Loop Startup."~~

~~ACTIONS~~

~~The Actions have been provided with a Note to clarify that all RCS loop isolation valves for this LCO are treated as separate entities, each with separate Completion Times, i.e., the Completion Time is on a component basis.~~

~~A.1~~

~~If power is inadvertently restored to one or more loop isolation valve operators, the potential exists for accidental isolation of a loop. The loop isolation valves have motor operators. Therefore, these valves will maintain their last position when power is removed from the valve operator. With power applied to the valve operators, only the interlocks prevent the valve from being operated. Although operating procedures and interlocks make the occurrence of this event unlikely, the prudent action is to remove power from the loop isolation valve operators. The Completion Time of 30 minutes to remove power from the loop isolation valve operators is sufficient considering the complexity of the task.~~ 1

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

~~Should a loop isolation valve be closed in MODES 1 through 4, the affected loop must be fully isolated immediately and the plant placed in MODE 5. Once in MODE 5, the isolated loop may be started in a controlled manner in accordance with LCO 3.4.18, "RCS Isolated Loop Startup." Opening the closed isolation valve in MODES 1 through 4 could result in colder water or water at a lower boron concentration being mixed with the operating RCS loops resulting in positive reactivity insertion. The Completion Time of Required Action B.1 allows time for borating the operating loops to a shutdown boration level such that the plant can be brought to MODE 3 within 6 hours and 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.~~

~~BASES~~

~~SURVEILLANCE REQUIREMENTS~~

~~SR 3.4.17.1~~

~~The Surveillance is performed to ensure that the RCS loop isolation valves are open, with power removed from the loop isolation valve operators. The primary function of this Surveillance is to ensure that power is removed from the valve operators, since SR 3.4.4.1 of LCO 3.4.4, "RCS Loops - MODES 1 and 2," ensures that the loop isolation valves are open by verifying every 12 hours that all loops are operating and circulating reactor coolant. [The Frequency of 31 days ensures that the required flow can be made available, is based on engineering judgment, and has proven to be acceptable. Operating experience has shown that the failure rate is so low that the 31 day Frequency is justified.~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---]~~

1

~~REFERENCES~~

~~1. FSAR, Section [15.2.6].~~

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.17 BASES, RCS LOOP ISOLATION VALVES

1. Improved Standard Technical Specification 3.4.17 Bases, "RCS Loop Isolation Valves," is not included in the Turkey Point Nuclear Generating Station Improved Technical Specifications because the Reactor Coolant System hot and cold loops do not include isolation valves.

ISTS 3.4.18, RCS ISOLATED LOOP STARTUP

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

~~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:~~

~~a. The hot and cold leg isolation valves closed if boron concentration of the isolated loop is less than boron concentration required to meet the SDM of LCO 3.1.1 or boron concentration of LCO 3.9.1 and~~

~~b. The cold leg isolation valve closed if the cold leg temperature of the isolated loop is > [20]°F below the highest cold leg temperature of the operating loops.~~

~~APPLICABILITY: MODES 5 and 6.~~

~~ACTIONS~~

1

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~A. Isolated loop hot or cold leg isolation valve open with LCO requirements not met.~~	~~A.1 -------------NOTE------------- Only required if boron concentration requirement not met. ----------------------------------~~	
	~~Close hot and cold leg isolation valves.~~	~~Immediately~~
	~~OR~~	
	~~A.2 -------------NOTE------------- Only required if temperature requirement not met. ----------------------------------~~	
	~~Close cold leg isolation valve.~~	~~Immediately~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.18.1~~	~~Verify cold leg temperature of isolated loop is ≤ [20]°F below the highest cold leg temperature of the operating loops.~~	~~Within 30 minutes prior to opening the cold leg isolation valve in isolated loop~~
~~SR 3.4.18.2~~	~~Verify boron concentration of isolated loop is greater than or equal to the boron concentration required to meet the SDM of LCO 3.1.1 or boron concentration of LCO 3.9.1.~~	~~Within 2 hours prior to opening the hot or cold leg isolation valve in isolated loop~~

1

JUSTIFICATION FOR DEVIATIONS
ISTS 3.4.18, RCS ISOLATION LOOP STARTUP

1. Improved Standard Technical Specification (ISTS) 3.4.18, "RCS Isolation Loop Startup," is not being adopted in the Turkey Point Nuclear Generating Station Improved Technical Specifications (ITS) because the Reactor Coolant System hot and cold leg loops do not include isolation valves. Therefore, ISTS 3.4.18 is not included in the ITS.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

~~B 3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~B 3.4.18 RCS Isolated Loop Startup~~

~~BASES~~

~~BACKGROUND~~

~~The RCS may be operated with loops isolated in MODES 5 and 6 in order to perform maintenance. While operating with a loop isolated, there is potential for inadvertently opening the isolation valves in the isolated loop. In this event, the coolant in the isolated loop would suddenly begin to mix with the coolant in the operating loops. This situation has the potential of causing a positive reactivity addition with a corresponding reduction of SDM if:~~

a. ~~The temperature in the isolated loop is lower than the temperature in the operating loops (cold water incident) or~~

b. ~~The boron concentration in the isolated loop is lower than the boron concentration required to meet the SDM of LCO 3.1.1 or boron concentration of LCO 3.9.1 (boron dilution incident).~~

~~As discussed in the FSAR (Ref. 1), the startup of an isolated loop is done in a controlled manner that virtually eliminates any sudden reactivity addition from cold water or boron dilution because:~~ 1

a. ~~This LCO and plant operating procedures require that the boron concentration in the isolated loop be maintained higher than the boron concentration of the operating loops, thus eliminating the potential for introducing coolant from the isolated loop that could dilute the boron concentration in the operating loops,~~

b. ~~The cold leg loop isolation valve cannot be opened unless the temperatures of both the hot leg and cold leg of the isolated loop are within 20°F of the operating loops. Compliance with the temperature requirement is ensured by operating procedures and automatic interlocks, and~~

c. ~~Other automatic interlocks prevent opening the hot leg loop isolation valve unless the cold leg loop isolation valve is fully closed. All of the interlocks are part of the Reactor Protection System.~~

~~BASES~~

~~APPLICABLE SAFETY ANALYSES~~	~~During startup of an isolated loop, the cold leg loop isolation valve interlocks and operating procedures prevent opening the valve until the isolated loop and operating loop boron concentrations and temperatures are equalized. This ensures that any undesirable reactivity effect from the isolated loop does not occur.~~ ~~The safety analyses assume a minimum SDM as an initial condition for Design Basis Accidents. Violation of this LCO could result in the SDM being reduced in the operating loops to less than that assumed in the safety analyses.~~ ~~The boron concentration of an isolated loop may affect SDM and therefore RCS isolated loop startup satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).~~
~~LCO~~	~~Loop isolation valves are used for performing maintenance when the plant is in MODE 5 or 6. This LCO ensures that the loop isolation valves remain closed until the differentials of temperature and boron concentration between the operating loops and the isolated loops are within acceptable limits.~~
~~APPLICABILITY~~	~~In MODES 5 and 6, the SDM of the operating loops is large enough to permit operation with isolated loops. Controlled startup of isolated loops is possible without significant risk of inadvertent criticality. This LCO is applicable under these conditions.~~
~~ACTIONS~~	~~A.1 and A.2~~ ~~Required Action A.1 and Required Action A.2 assume that the prerequisites of the LCO are not met and a loop isolation valve has been inadvertently opened. Therefore, the Actions require immediate closure of isolation valves to preclude a boron dilution event or a cold water event. However, each Required Action is preceded by a Note that states that Action is required only when a specific concentration or temperature requirement is not met.~~
~~SURVEILLANCE REQUIREMENTS~~	~~SR 3.4.18.1~~ ~~This Surveillance is performed to ensure that the temperature differential between the isolated loop and the operating loops is ≤ [20]°F. Performing the Surveillance 30 minutes prior to opening the cold leg isolation valve in the isolated loop provides reasonable assurance, based~~

1

~~BASES~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~on engineering judgment, that the temperature differential will stay within limits until the cold leg isolation valve is opened. This Frequency has been shown to be acceptable through operating experience.~~

~~SR 3.4.18.2~~

~~To ensure that the boron concentration of the isolated loop is greater than or equal to the boron concentration required to meet the SDM of LCO 3.1.1 or boron concentration of LCO 3.9.1, a Surveillance is performed 2 hours prior to opening either the hot or cold leg isolation valve. Performing the Surveillance 2 hours prior to opening either the hot or cold leg isolation valve provides reasonable assurance the boron concentration difference will stay within acceptable limits until the loop is unisolated. This Frequency has been shown to be acceptable through operating experience.~~

~~REFERENCES~~

~~1. FSAR, Section [15.2.6].~~

1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.18 BASES, RCS ISOLATION LOOP STARTUP

1. Improved Standard Technical Specification (ISTS) 3.4.18 Bases, "RCS Isolation Loop Startup," is not being adopted in the Turkey Point Nuclear Generating Station Improved Technical Specifications (ITS) because the Reactor Coolant System hot and cold leg loops do not include isolation valves. Therefore, ISTS 3.4.18 is not included in the ITS.

ISTS 3.4.19, RCS LOOPS – TEST EXCEPTIONS

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.19 RCS Loops - Test Exceptions

LCO 3.4.19 The requirements of LCO 3.4.4, "RCS Loops - MODES 1 and 2," may be suspended with THERMAL POWER < P-7.

APPLICABILITY: MODES 1 and 2 during startup and PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. THERMAL POWER ≥ P-7.	A.1 Open reactor trip breakers.	Immediately

1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.19.1 Verify THERMAL POWER is < P-7.	[1 hour OR In accordance with the Surveillance Frequency Control Program]
SR 3.4.19.2 Perform a COT for each power range neutron flux - low channel, intermediate range neutron flux channel, P-10, and P-13.	Prior to initiation of startup and PHYSICS TESTS
SR 3.4.19.3 Perform an ACTUATION LOGIC TEST on P-7.	Prior to initiation of startup and PHYSICS TESTS

JUSTIFICATION FOR DEVIATIONS
ISTS 3.4.19, RCS LOOPS – TEST EXCEPTIONS

1. Improved Standard Technical Specification 3.4.19, "RCS Loops – Test Exceptions," is not included in the Turkey Point Nuclear Generating Station Improved Technical Specifications because the exception is not needed to perform any required startup or PHYSICS TESTS.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

~~B 3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~B 3.4.19 RCS Loops - Test Exceptions~~

~~BASES~~

~~BACKGROUND~~

~~The primary purpose of this test exception is to provide an exception to LCO 3.4.4, "RCS Loops - MODES 1 and 2," to permit reactor criticality under no flow conditions during certain PHYSICS TESTS (natural circulation demonstration, station blackout, and loss of offsite power) to be performed while at low THERMAL POWER levels. Section XI of 10 CFR 50, Appendix B (Ref. 1), requires that a test program be established to ensure that structures, systems, and components will perform satisfactorily in service. All functions necessary to ensure that the specified design conditions are not exceeded during normal operation and anticipated operational occurrences must be tested. This testing is an integral part of the design, construction, and operation of the power plant as specified in GDC 1, "Quality Standards and Records" (Ref. 2).~~

~~The key objectives of a test program are to provide assurance that the facility has been adequately designed to validate the analytical models used in the design and analysis, to verify the assumptions used to predict plant response, to provide assurance that installation of equipment at the unit has been accomplished in accordance with the design, and to verify that the operating and emergency procedures are adequate. Testing is performed prior to initial criticality, during startup, and following low power operations.~~ 1

~~The tests will include verifying the ability to establish and maintain natural circulation following a plant trip between 10% and 20% RTP, performing natural circulation cooldown on emergency power, and during the cooldown, showing that adequate boron mixture occurs and that pressure can be controlled using auxiliary spray and pressurizer heaters powered from the emergency power sources.~~

~~APPLICABLE SAFETY ANALYSES~~

~~The tests described above require operating the plant without forced convection flow and as such are not bounded by any safety analyses. However, operating experience has demonstrated this exception to be safe under the present applicability.~~

~~As describe in LCO 3.0.7, compliance with Test Exception LCOs is optional, and therefore no criteria of 10 CFR 50.36(c)(2)(ii) apply. Test Exception LCOs provide flexibility to perform certain operations by appropriately modifying requirements of other LCOs. A discussion of the criteria satisfied for the other LCOs is provided in their respective Bases.~~

BASES

LCO

This LCO provides an exemption to the requirements of LCO 3.4.4.

The LCO is provided to allow for the performance of PHYSICS TESTS in MODE 2 (after a refueling), where the core cooling requirements are significantly different than after the core has been operating. Without the LCO, plant operations would be held bound to the normal operating LCOs for reactor coolant loops and circulation (MODES 1 and 2), and the appropriate tests could not be performed.

In MODE 2, where core power level is considerably lower and the associated PHYSICS TESTS must be performed, operation is allowed under no flow conditions provided THERMAL POWER is ≤ P-7 and the reactor trip setpoints of the OPERABLE power level channels are set ≤ 25% RTP. This ensures, if some problem caused the plant to enter MODE 1 and start increasing plant power, the Reactor Trip System (RTS) would automatically shut it down before power became too high, and thereby prevent violation of fuel design limits.

The exemption is allowed even though there are no bounding safety analyses. However, these tests are performed under close supervision during the test program and provide valuable information on the plant's capability to cool down without offsite power available to the reactor 1
coolant pumps.

APPLICABILITY

This LCO is applicable when performing low power PHYSICS TESTS without any forced convection flow. This testing is performed to establish that heat input from nuclear heat does not exceed the natural circulation heat removal capabilities. Therefore, no safety or fuel design limits will be violated as a result of the associated tests.

ACTIONS

A.1

When THERMAL POWER is ≥ the P-7 interlock setpoint 10%, the only acceptable action is to ensure the reactor trip breakers (RTBs) are opened immediately in accordance with Required Action A.1 to prevent operation of the fuel beyond its design limits. Opening the RTBs will shut down the reactor and prevent operation of the fuel outside of its design limits.

SURVEILLANCE REQUIREMENTS

SR 3.4.19.1

Verification that the power level is < the P-7 interlock setpoint (10%) will ensure that the fuel design criteria are not violated during the performance of the PHYSICS TESTS. [The Frequency of once per hour is adequate to ensure that the power level does not exceed the limit. Plant operations are conducted slowly during the performance of PHYSICS TESTS and monitoring the power level once per hour is sufficient to ensure that the power level does not exceed the limit.

~~BASES~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--]~~

~~SR 3.4.19.2~~

~~The power range and intermediate range neutron detectors. P-10, and the P-13 interlock setpoint must be verified to be OPERABLE and adjusted to the proper value. The Low Power Reactor Trips Block, P-7 interlock, is actuated from either the Power Range Neutron Flux, P-10, or the Turbine Impulse Chamber Pressure, P-13 interlock. The P-7 interlock is a logic Function with train, not channel identity. A COT is performed prior to initiation of the PHYSICS TESTS. This will ensure that the RTS is properly aligned to provide the required degree of core protection during the performance of the PHYSICS TESTS. 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 COT 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 SR 3.3.1.8 Frequency is sufficient for the power range and intermediate range neutron detectors to ensure that the instrumentation is OPERABLE before initiating PHYSICS TESTS.~~ 1

~~SR 3.4.19.3~~

~~The Low Power Reactor Trips Block, P-7 interlock, must be verified to be OPERABLE in MODE 1 by LCO 3.3.1, "Reactor Trip System Instrumentation." The P-7 interlock is actuated from either the Power Range Neutron Flux, P-10, or the Turbine Impulse Chamber Pressure, P-13 interlock. The P-7 interlock is a logic Function. An ACTUATION~~

~~BASES~~

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~LOGIC TEST is performed to verify OPERABILITY of the P-7 interlock prior to initiation of startup and PHYSICS TESTS. This will ensure that the RTS is properly functioning to provide the required degree of core protection during the performance of the PHYSICS TESTS.~~

~~REFERENCES~~

1. ~~10 CFR 50, Appendix B, Section XI.~~

2. ~~10 CFR 50, Appendix A, GDC 1, 1988.~~

1

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.19 BASES, RCS LOOPS – TEST EXCEPTIONS

1. Improved Standard Technical Specification 3.4.19 Bases, "RCS Loops – Test Exceptions," is not included in the Turkey Point Nuclear Generating Station Improved Technical Specifications because the exception is not needed to perform any required startup or PHYSICS TESTS.