ATTACHMENT 1

VOLUME 7

SAN ONOFRE NUCLEAR GENERATING STATION

IMPROVED TECHNICAL SPECIFICATIONS CONVERSION

ITS SECTION 3.4 REACTOR COOLANT SYSTEM (RCS)

LIST OF ATTACHMENTS

NOTE: There is no ITS 3.4.11

ATTACHMENT 1

ITS 3.4.1, RCS PRESSURE, TEMPERATURE, AND FLOW DNB

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

ITS

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS DNB (Pressure, Temperature, and Flow) Limits

LCO 3.4.1

LCO 3.4.1 RCS parameters for pressurizer pressure, cold leg temperature, and RCS total flow rate shall be within the limits specified in the COLR.

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

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer pressure or RCS flow rate not within limits.	A.1 Restore parameter(s) to within limit.	2 hours

(continued)

A01

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION B	B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
ACTION C	C. RCS cold leg temperature not within limits.	C.1 Restore cold leg temperature to within limits.	2 hours
ACTION D	D. Required Action and associated Completion Time of Condition C not met.	D.1 Reduce THERMAL POWER to ≤ 30% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.1.1	SR 3.4.1.1 Verify pressurizer pressure is within the limits specified in the COLR.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.1.2	SR 3.4.1.2 Verify RCS cold leg temperature is within the limits specified in the COLR.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01

(continued)

ITS

A01

ACTIONS (continued)

SURVEILLANCE	FREQUENCY
~~NOTE~~ ~~Required to be met in MODE 1 with all RCPs running.~~	
SR 3.4.1.3 Verify RCS total flow rate is greater than or equal to the limits specified in the COLR.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program

A02

LA01

SR 3.4.1.3

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A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS DNB (Pressure, Temperature, and Flow) Limits

LCO 3.4.1

LCO 3.4.1 RCS parameters for pressurizer pressure, cold leg temperature, and RCS total flow rate shall be within the limits specified in the COLR.

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	A. Pressurizer pressure or RCS flow rate not within limits.	A.1 Restore parameter(s) to within limit.	2 hours

(continued)

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ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION B	B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
ACTION C	C. RCS cold leg temperature not within limits.	C.1 Restore cold leg temperature to within limits.	2 hours
ACTION D	D. Required Action and associated Completion Time of Condition C not met.	D.1 Reduce THERMAL POWER to ≤ 30% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.1.1	SR 3.4.1.1 Verify pressurizer pressure is within the limits specified in the COLR.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.1.2	SR 3.4.1.2 Verify RCS cold leg temperature is within the limits specified in the COLR.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01

(continued)

ITS

A01

ACTIONS (continued)

SURVEILLANCE	FREQUENCY
~~NOTE~~ ~~Required to be met in MODE 1 with all RCPs running.~~	
SR 3.4.1.3 Verify RCS total flow rate is greater than or equal to the limits specified in the COLR.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program

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LA01

SR 3.4.1.3

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DISCUSSION OF CHANGES
ITS 3.4.1, RCS PRESSURE, TEMPERATURE, AND FLOW DNB

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS SR 3.4.1.3 is modified by a Note, in part, that states, "Required to be met in MODE 1 with all RCPs running." ITS SR 3.4.1.3 will not contain this Note. This changes the CTS by deleting the Note that modifies SR 3.4.1.3.

CTS SR 3.4.1.3 Bases states the purpose of the Note is to allow measurement of RCS flow rate at normal operating conditions at power with all RCPs running. Currently SONGS performs this SR in MODE 2, prior to entering MODE 1, with all RCPs running. SONGS is required to have all four RCPs running in MODE 1. Furthermore, the LCO is only required to be applicable in MODE 1. Thus, as required by SR 3.0.1, the SR is required to be met in MODE 1. The Note is redundant to the general requirements of SR 3.0.1, as all LCOs that have an Applicability of MODE 1 must have all of their SRs met in MODE 1. It is also noted that the other two SRs (CTS SRs 3.4.1.1 and 3.4.1.2) do not have this Note. Therefore, this change is acceptable because SONGS does not need the Note to successfully perform the SR. This change clarifies the CTS SR to delete an unneeded Note that could cause confusion. This change is designated as administrative because the SR is not technically affected.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.1.1 requires verifying that pressurizer pressure is within the limits specified in the COLR every 12 hours. CTS SR 3.4.1.2 requires verifying that RCS cold leg temperature is within limits specified in the COLR every 12 hours. CTS SR 3.4.1.3 requires verifying that RCS total flow rate is greater than or equal to the limits specified in the COLR every 12 hours. ITS SRs 3.4.1.1, 3.4.1.2, and 3.4.1.3 require similar Surveillances and

DISCUSSION OF CHANGES
ITS 3.4.1, RCS PRESSURE, TEMPERATURE, AND FLOW DNB

specify the periodic Frequencies as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequencies for the SRs and the Bases for the Frequencies to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality

DISCUSSION OF CHANGES
ITS 3.4.1, RCS PRESSURE, TEMPERATURE, AND FLOW DNB

of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

- A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
- Independence of barriers is not degraded;
- Defenses against human errors are preserved; and
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation.

DISCUSSION OF CHANGES
ITS 3.4.1, RCS PRESSURE, TEMPERATURE, AND FLOW DNB

Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequencies are being removed from the Technical Specifications.

<u>LESS RESTRICTIVE CHANGES</u>

None

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 2

LCO 3.4.1

LCO 3.4.1 RCS DNB parameters for pressurizer pressure, cold leg temperature, and RCS total flow rate shall be within the limits specified ~~below:~~ in the COLR.

3

~~a. Pressurizer pressure ≥ [2025] psia and ≤ [2275] psia,~~

~~b. RCS cold leg temperature (T_c) ≥ [535]°F and ≤ [558]°F for < [70]% RTP or ≥ [544]°F and ≤ [588]°F for ≥ [70]% RTP, and~~

~~c. RCS total flow rate ≥ [148 E6] lb/hour.~~

Applicability

APPLICABILITY: MODE 1.

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

a. THERMAL POWER ramp > 5% RTP per minute ~~or~~ ; 6

b. THERMAL POWER step > 10% RTP.

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A	A. Pressurizer pressure or RCS flow rate not within limits.	A.1 Restore parameter(s) to within limit.	2 hours
ACTION B	B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION C	C. RCS cold leg temperature not within limits.	C.1 Restore cold leg temperature to within limits.	2 hours	
ACTION D	D. Required Action and associated Completion Time of Condition C not met.	D.1 Reduce THERMAL POWER to ≤ [30]% RTP.	6 hours	2

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY		
SR 3.4.1.1	SR 3.4.1.1	Verify pressurizer pressure ~~≥ [2025] psia and ≤ [2275] psia~~ is within the limits specified in the COLR.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	3	TSTF-425-A
SR 3.4.1.2	SR 3.4.1.2	Verify RCS cold leg temperature ~~≥ [535]°F and ≤ [558]°F for < [70]% RTP or ≥ [544]°F and ≤ [558]°F for ≥ [70]% RTP~~ is within the limits specified in the COLR.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	3	TSTF-425-A
SR 3.4.1.3	SR 3.4.1.3	~~------NOTE------ Only required to be met in MODE 1. ------~~ Verify RCS total flow rate ~~≥ [148 E6] lb/hour~~ is greater than or equal to the limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~	4, 3	TSTF-425-A
	~~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 within limits specified in the COLR.~~	~~[18] months~~	5	

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

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

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. ISTS LCO 3.4.1 and SRs 3.4.1.1, 3.4.1.2, and 3.4.1.3 are being revised to relocate the specific pressure, temperature, and flow limits from TS to the COLR. This change is consistent with approved TSTF-487, which has already been adopted into the SONGS Units 2 and 3 CTS, as documented in the NRC Safety Evaluation for Amendments 219 and 212, respectively, dated 02/03/2009 (ADAMS Accession No. ML083470091).

4. ISTS SR 3.4.1.3 contains a Note which states "Only required to be met in MODE 1." SONGS ITS SR 3.4.1.3 deletes this Note. This Note is not required for SONGS because SONGS performs this SR in MODE 2 when all RCPs are running. Furthermore, the LCO is only required to be applicable in MODE 1. Thus, as required by SR 3.0.1, the SR is required to be met in MODE 1. The Note is redundant to the general requirements of SR 3.0.1, as all LCOs that have an Applicability of MODE 1 must have all of their SRs met in MODE 1. It is also noted that the other two SRs (CTS SRs 3.4.1.1 and 3.4.1.2) do not have this Note.

5. ISTS SR 3.4.1.4 is being deleted. SCE currently performs CTS SR 3.3.1.2 which requires verification of total RCS flow rate as indicated by each CPC is less than or equal to the RCS total flow rate once per 12 hours and CTS SR 3.3.1.5 which requires verification of total RCS flow rate indicated by each CPC is less than or equal to the RCS flow determined by calorimetric calculations once per 31 days. The performance of these two current Surveillances (CTS SRs 3.3.1.2 and 3.3.1.5) preclude the performance of this SR. These Surveillances will continue to be performed in the SONGS ITS; however the SR frequency for these SRs are being relocated to the Surveillance Frequency Control Program TSTF-425.

6. Changes were made to use correct punctuation, typographical errors, or to make other corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

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

2

B 3.4 REACTOR COOLANT SYSTEM (RCS)

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

2

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 departure from nucleate boiling (DNB) related parameters ensure that these parameters will not be less conservative than were assumed in the analyses and thereby provide assurance that the minimum departure from nucleate boiling ratio (DNBR) will meet the required criteria for each of the transients analyzed.

and design basis accidents

1

The LCO limits for minimum and maximum RCS pressures as measured at the pressurizer are consistent with operation within the nominal operating envelope and are bounded by those used as the initial pressures in the analyses.

The LCO limits for minimum and maximum RCS cold leg temperatures are consistent with operation at the indicated power level and are bounded by those used as the initial temperatures in the analyses.

The LCO limit~~s~~ for minimum RCS flow rate is bounded by the initial flow rate in the analyses. The RCS flow rate is not expected to vary during plant operation with all pumps running.

volumetric

volumetric

7 1

APPLICABLE SAFETY ANALYSES

The requirements of LCO 3.4.1 represent the initial conditions for DNB limited transients analyzed in the safety analyses (Ref. 1). The safety analyses have shown that transients initiated from the limits of this LCO will meet the DNBR criterion of ≥ ~~[1.3]~~. This is the acceptance limit for the RCS DNB parameters. Changes to the facility that could impact these parameters must be assessed for their impact on the DNBR criterion. The transients analyzed for include loss of coolant flow events and dropped or ~~struck~~ control element assembly (CEA) 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~~, "Regulating CEA Insertion Limits," LCO 3.1.~~7~~, "Part Length CEA Insertion Limits," LCO 3.2.3, "AZIMUTHAL POWER TILT (~~Tq~~)," and LCO 3.2.5, "AXIAL SHAPE INDEX (ASI)"~~]~~. The safety analyses are performed over the following range of initial values: RCS pressure ~~[1785-2400] psig~~, core inlet temperature ~~[500-580]~~°F, and reactor vessel inlet coolant flow rate ~~>~~ [95]%.

1.31

stuck

7

8

T_q

2000 – 2300 psia

533 - 560

(for > 30% power), 520 - 560°F (for ≤ 30% power)

volumetric

≥

2

7

2

1

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

2

BASES

LCO

These variables are contained in the COLR to provide operating and analysis flexibility from cycle to cycle.

This LCO specifies limits on the monitored process variables - RCS pressurizer pressure, RCS cold leg temperature, and RCS total flow rate - to ensure that the core operates within the limits assumed for the plant safety analyses. Operating within these limits will result in meeting the DNBR criterion in the event of a DNB limited transient.

specified in the COLR

4

The LCO numerical values for pressure, temperature, and flow rate are given for the measurement location but have not been adjusted for instrument error. Plant specific limits of instrument error are established by the plant staff to meet the operational requirements of this LCO.

APPLICABILITY

In MODE 1, the limits on RCS pressurizer pressure, RCS cold leg temperature, and RCS flow rate must be maintained during steady state operation in order to ensure that 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 so that DNBR is not a concern.

A Note has been added to indicate the limit on pressurizer pressure may be exceeded during short term operational transients such as a THERMAL POWER ramp increase of > 5% RTP per minute or a THERMAL POWER step increase of > 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.

Another set of limits on DNB related parameters is provided in Safety Limit (SL) 2.1.1, "Reactor Core Safety Limits." Those limits are less restrictive than the limits of this LCO, but violation of SLs merits a stricter, more severe Required Action. Should a violation of this LCO occur, the operator should check whether or not an SL may have been exceeded.

ACTIONS

A.1

Pressurizer pressure is a controllable and measurable parameter. RCS flow rate is not a controllable parameter and is not expected to vary during steady state operation. With either parameter not within the LCO limits, action must be taken to restore the out of limit parameter.

The 2 hour Completion Time for restoration of the parameters provides sufficient time to adjust plant parameters, to determine the cause of the off normal condition, and to restore the readings within limits. The Completion Time is based on plant operating experience that shows the parameter can be restored in this time period.

 2

BASES

ACTIONS (continued)

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.

Six hours is a reasonable time that permits the plant power to be reduced at an orderly rate in conjunction with even control of steam generator (SG) heat removal.

C.1

Cold leg temperature is a controllable and measurable parameter. If this parameter is not within the LCO limits, action must be taken to restore the parameter.

The 2 hour Completion Time is based on plant operating experience that shows that the parameter can be restored in this time period.

D.1

If Required Action C.1 is not met within the associated Completion Time, THERMAL POWER must be reduced to ≤ [30%] RTP. Plant operation may continue for an indefinite period of time in this condition. At the reduced power level, the potential for violation of the DNB limits is greatly reduced. 2

The 6 hour Completion Time is a reasonable time that permits power reduction at an orderly rate in conjunction with even control of SG heat removal.

SURVEILLANCE REQUIREMENTS

SR 3.4.1.1

INSERT 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 that 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 verify operation is within safety analysis assumptions.~~ TSTF-425-A

TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 5

~~--- Reviewers 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 3.4.1.2

INSERT 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 cold leg temperature is sufficient to ensure that the RCS coolant 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.~~ TSTF-425-A

SR 3.4.1.3

INSERT 2

~~The 12 hour Surveillance Frequency for RCS total flow rate is performed using the installed flow instrumentation. The 12 hour Frequency has been shown by operating experience to be sufficient to assess for potential degradation and to verify operation is within safety analysis assumptions.~~ TSTF-425-A

The Surveillance for RCS total flow rate is normally performed using the Core Operating Limits Supervisory System (COLSS) generated flow. 1

~~This SR is modified by a Note that only requires performance of this SR in MODE 1. The Note is necessary to allow measurement of RCS flow rate at normal operating conditions at power with all RCPs running.~~ 4

~~SR 3.4.1.4~~

~~Measurement of RCS total flow rate by performance of a precision calorimetric heat balance once every [18] months. This allows the installed RCS flow instrumentation to be calibrated and verifies that the actual RCS flow rate is within the bounds of the analyses.~~

~~The Frequency of [18] months reflects the importance of verifying flow after a refueling outage where the core has been altered, which may have caused an alteration of flow resistance.~~ 6

~~The SR is modified by a Note that states the SR is only required to be performed [24] hours after ≥ [90]% RTP. The Note is necessary to allow measurement of the flow rate at normal operating conditions at power in MODE 1. The Surveillance cannot be performed in MODE 2 or below, and will not yield accurate results if performed below 90% RTP.~~

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

TSTF-425-A

INSERT 2

The Frequency is controlled under the Surveillance Frequency Control Program. 5

-- Reviewers 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

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

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

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. Changes are made to be consistent with changes made to the Specification. Additionally the changes made to the LCO Section are consistent with approved TSTF-487.

5. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

6. Changes are made to be consistent with changes made to the Specifications. Additionally, TSTF-425 has not been incorporated for ISTS SR 3.4.1.4.

7. Changes were made to use correct punctuation, typographical errors, or to make other corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.1, RCS PRESSURE, TEMPERATURE, AND FLOW DNB

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

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ATTACHMENT 2

ITS 3.4.2, RCS MINIMUM TEMPERATURE FOR CRITICALITY

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

ITS

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 RCS Minimum Temperature for Criticality

LCO 3.4.2

LCO 3.4.2 Each RCS loop cold leg temperature (T_c) shall be ≥ 522°F.

Applicability

APPLICABILITY: MODE 1, ~~THERMAL POWER ≤ 30% RTP and~~ T_c in one or more RCS loops < 535°F, and MODE 2, K_{eff} ≥ 1.0 and T_c in one or more RCS loops < 535°F.

M01 A02

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A	A. T_c in one or more RCS loops not within limit.	A.1 Be in MODE ~~3~~ 2 with k_{eff} < 1.0.	30 minutes

A03

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.2.1	SR 3.4.2.1 Verify RCS T_c in each loop ≥ 522°F.	~~30 minutes~~ In accordance with the Surveillance Frequency Control Program

LA01

ITS

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 RCS Minimum Temperature for Criticality

LCO 3.4.2

LCO 3.4.2 Each RCS loop cold leg temperature (T_c) shall be ≥ 522°F.

Applicability

APPLICABILITY: MODE 1, ~~THERMAL POWER ≤ 30% RTP and~~ T_c in one or more RCS loops < 535°F, and
MODE 2, K_{eff} ≥ 1.0 and T_c in one or more RCS loops < 535°F.

M01 A02

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_c in one or more RCS loops not within limit.	A.1 Be in MODE ~~3~~ 2 with k_{eff} < 1.0.	30 minutes

ACTION A

A03

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_c in each loop ≥ 522°F.	~~30 minutes~~ In accordance with the Surveillance Frequency Control Program

SR 3.4.2.1

LA01

DISCUSSION OF CHANGES
ITS 3.4.2, RCS MINIMUM TEMPERATURE FOR CRITICALITY

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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 contains a statement for T_c to be < 535°F in the Applicability for MODE 1 and for MODE 2. ITS 3.4.2 contains a statement for T_c "in one or more RCS loops" to be < 535°F in the Applicability for MODE 1 and for MODE 2. This changes the CTS by adding the statement, "in one or more RCS loops," to the Applicability for MODE 1 and for MODE 2.

The proposed change to the CTS adds a statement to the Applicability to clarify that T_c < 535°F applies to one or more RCS loops. This change is acceptable because a clarifying statement is being added to ensure the LCO applies whenever T_c < 535°F in any of the RCS loops and to be consistent with Condition A, which includes the clarifying statement, "in one or more RCS loops." This change is designated as administrative because a clarifying statement is added without changing the intent of the TS Applicability.

A03 CTS 3.4.2 ACTION A states that with Tc in one or more loops not within limit, to be in MODE 3 within 30 minutes. ITS 3.4.2 ACTION A states that with Tc in one or more loops not within limit, to be in MODE 2 with k_{eff} < 1.0 within 30 minutes. This changes the CTS by requiring entry into MODE 2 with k_{eff} < 1.0 instead of entry into MODE 3. This changes the CTS by revising the Required Action for the unit to be in MODE 2 with k_{eff} < 1.0 versus MODE 3.

This change is acceptable because it results in no technical change to the Technical Specifications. CTS 3.4.2 is applicable in MODE 1 and MODE 2 with $k_{eff} \geq 1.0$. CTS LCO 3.0.1 and ITS LCO 3.0.1 states that ACTIONS are applicable during the MODES or other conditions specified for the Specification. Therefore, the CTS 3.4.2 ACTION to enter MODE 3 ceases to be applicable once the unit enters MODE 2 with k_{eff} < 1.0. 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

M01 CTS 3.4.2 Applicability for MODE 1 is, "MODE 1, THERMAL POWER ≤ 30% RTP and Tc < 535°F." ITS 3.4.2 Applicability for MODE 1 is, "MODE 1,

DISCUSSION OF CHANGES
ITS 3.4.2, RCS MINIMUM TEMPERATURE FOR CRITICALITY

T_c in one or more RCS Loops < 535°F." This changes the CTS by requiring the CTS to be Applicable in all of MODE 1 while T_c < 535°F, not just when THERMAL POWER is ≤ 30% RTP. The addition of the clarifying statement , "in one or more RCS loops" is discussed in DOC A02.

The purpose of CTS 3.4.2 is to prevent criticality outside the normal RCS loop cold leg temperature operating range (522°F - 558°F). The reactor has been designed and analyzed to be critical in MODES 1 and 2. The LCO requires each RCS loop T_c to be ≥ 522°F. This change is acceptable because while there may be additional limitations on T_c above 30% RTP (LCS 3.4.100 requires T_c to be ≥ the 535°F), T_c is required to still be ≥ 522°F at all times while in MODE 1, not just when THERMAL POWER is ≤ 30% RTP. This change is designated as more restrictive, because it expands the Applicability in the ITS than what was required in the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.2.1 requires verifying that RCS T_c in each loop ≥ 522°F every 30 minutes. ITS SR 3.4.2.1 requires a similar Surveillance and specifies the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequency for the SR and the Bases for the Frequency to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

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DISCUSSION OF CHANGES
ITS 3.4.2, RCS MINIMUM TEMPERATURE FOR CRITICALITY

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;

DISCUSSION OF CHANGES
ITS 3.4.2, RCS MINIMUM TEMPERATURE FOR CRITICALITY

- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
- Independence of barriers is not degraded;
- Defenses against human errors are preserved; and
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

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DISCUSSION OF CHANGES
ITS 3.4.2, RCS MINIMUM TEMPERATURE FOR CRITICALITY

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequency is 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)

3.4.2 RCS Minimum Temperature for Criticality

LCO 3.4.2

LCO 3.4.2 Each RCS loop ~~average~~ cold leg temperature (~~T_{avg}~~ T_c) shall be ≥ ~~[520]~~ 522°F. 1 2

Applicability

APPLICABILITY: MODE 1 with ~~T_{avg}~~ T_c in one or more RCS loops < ~~[~~535~~]~~°F,
MODE 2 with ~~T_{avg}~~ T_c in one or more RCS loops < ~~[~~535~~]~~°F and ~~K_{eff}~~ k_{eff} ≥ 1.0. 1 2 3

ACTIONS

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

ACTION A — 1 3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS ~~T_{avg}~~ T_c in each loop ≥ ~~[520]~~ 522°F.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program

SR 3.4.2.1 — 1 2 TSTF-425-A

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.2, RCS MINIMUM TEMPERATURE FOR CRITICALITY

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

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

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

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.2 RCS Minimum Temperature for Criticality

BASES

BACKGROUND

Establishing the value for the minimum temperature for reactor criticality is based upon considerations for:

a. Operation within the existing instrumentation ranges and accuracies, ; 4

b. Operation within the bounds of the existing accident analyses, ; and

c. Operation with the reactor vessel above its minimum nil ductility reference temperature when the reactor is critical.

~~The reactor coolant moderator temperature coefficient used in core operating and accident analysis is typically defined for the normal operating temperature range (532°F to 573°F). The Reactor Protection System receives inputs from the narrow range hot leg temperature detectors, which have a range of 520°F to 620°F. The RCS loop average temperature (T_{avg}) is controlled using inputs of the same range. Nominal T_{avg} for making the reactor critical is 532°F. Safety and operating analyses for lower temperature have not been made.~~ 1

APPLICABLE SAFETY ANALYSES

There are no accident analyses that dictate the minimum temperature for criticality, but all low power safety analyses assume initial temperatures near the ~~[520]~~ 522 °F limit (Ref. 1). 2

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

LCO

The purpose of the LCO is to prevent criticality outside the T_c normal operating ~~regime~~ range (~~532~~ 522 °F to ~~573~~ 558 °F) and to prevent operation in an unanalyzed condition. 1 4

The LCO is only applicable below ~~[~~535~~]~~ °F and provides a reasonable distance to the limit of ~~[520]~~ 522 °F. This allows adequate time to trend its approach and take corrective actions prior to exceeding the limit. 2

APPLICABILITY

The reactor has been designed and analyzed to be critical in MODES 1 and 2 only and in accordance with this specification. Criticality is not permitted in any other MODE. Therefore, this LCO is applicable in MODE 1, and MODE 2 when $k_{eff} \geq 1.0$. Coupled with the applicability definition for criticality is a temperature limit. Monitoring is required at or below a ~~T_{avg}~~ T_c of ~~[~~535~~]~~ °F. The no load temperature of ~~544~~ approximately 545 °F is maintained by the Steam ~~Dump~~ Bypass Control System. 4 1 2

BASES

ACTIONS

A.1

T_c 522

If ~~T_{avg}~~ is below ~~[520]~~°F, 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~~k_{eff} < 1.0 within 30 minutes. Rapid reactor shutdown can be readily and practically achieved within a 30 minute period. The allowed time reflects the ability to perform this action and to maintain the plant within the analyzed range. 1 2 4

SURVEILLANCE REQUIREMENTS

SR 3.4.2.1

cold leg (T_c)

RCS loop ~~average~~ temperature is required to be verified at or above 522 ~~[520]~~°F ~~every 12 hours~~. INSERT 1 ~~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.~~ 1 2 TSTF-425-A

REFERENCES

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

TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 5

-- Reviewers 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

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 Specification (ISTS) Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk is not always true for each of the Frequencies.

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)

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.3

LCO 3.4.3 The combination of RCS pressure, RCS temperature and RCS heatup and cooldown rates shall be maintained within the limits as specified in the RCS PRESSURE-TEMPERATURE LIMITS REPORT (PTLR).

Applicability

APPLICABILITY: At all times.

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A	A. ---------NOTE--------- Required Action A.2 shall be completed whenever this Condition is entered. ---------------------- Requirements of LCO not met in MODE 1, 2, 3, or 4.	A.1 Restore parameter(s) to within limits. AND A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
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 psia.	6 hours 36 hours
ACTION C	C. ---------NOTE--------- Required Action C.2 shall be completed whenever this Condition is entered. ---------------------- 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

A01

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.3.1 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 within limits specified in the PTLR.	~~30 minutes~~ In accordance with the Surveillance Frequency Control Program LA01
~~SR 3.4.3.2~~	~~The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, as required by 10 CFR 50 Appendix H. The results of these examinations shall be used to update the PTLR.~~	~~In accordance with requirements of 10CFR 50 Appendix H~~ A02

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A01

~~Figure 3.4.3-1~~
~~DELETED~~

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~~FIGURE 3.4.3-2~~
~~DELETED~~

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~~FIGURE 3.4.3-3~~
~~DELETED~~

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~~FIGURE 3.4.3-4~~
~~DELETED~~

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~~FIGURE 3.4.3-5~~
~~DELETED~~

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A01

~~TABLE 3.4.3-1~~
~~DELETED~~

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A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.3

LCO 3.4.3 The combination of RCS pressure, RCS temperature and RCS heatup and cooldown rates shall be maintained within the limits as specified in the RCS PRESSURE-TEMPERATURE LIMITS REPORT (PTLR).

Applicability

APPLICABILITY: At all times.

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A	A. ---------NOTE--------- Required Action A.2 shall be completed whenever this Condition is entered. ---------------------- Requirements of LCO not met in MODE 1, 2, 3, or 4.	A.1 Restore parameter(s) to within limits. AND A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
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 psia.	6 hours 36 hours
ACTION C	C. ---------NOTE--------- Required Action C.2 shall be completed whenever this Condition is entered. ---------------------- 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

A01

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.3.1 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 within limits specified in the PTLR.	~~30 minutes~~ In accordance with the Surveillance Frequency Control Program LA01
~~SR 3.4.3.2~~	~~The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, as required by 10 CFR 50 Appendix H. The results of these examinations shall be used to update the PTLR.~~	~~In accordance with requirements of 10CFR 50 Appendix H~~ A02

~~Figure 3.4.3-1~~
~~DELETED~~

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A01

~~FIGURE 3.4.3-2~~
~~DELETED~~

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~~FIGURE 3.4.3-3~~
~~DELETED~~

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~~FIGURE 3.4.3-4~~
~~DELETED~~

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~~FIGURE 3.4.3-5~~
~~DELETED~~

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~~TABLE 3.4.3-1~~
~~DELETED~~

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DISCUSSION OF CHANGES
ITS 3.4.3, RCS PRESSURE AND TEMPERATURE (P/T) LIMITS

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS SR 3.4.3.2 requires the reactor vessel material irradiation surveillance specimens to be removed and examined, to determine changes in material propertied, as required by 10 CFR 50 Appendix H. The results of these examinations shall be used to update the PTLR. The ITS does not contain this Surveillance Requirement. This changes the CTS by deleting the reactor vessel material irradiation Surveillance Requirement.

The purpose of CTS SR 3.4.3.2 is to ensure the material irradiation surveillance specimens are removed and examined as required by 10 CFR 50, Appendix H. This change is acceptable because the Surveillance is unnecessary and repetitive. The unit is required by applicable regulations to remove material irradiation surveillance specimens and generate P/T curves in accordance with 10 CFR 50, Appendix H. Therefore, the Surveillance serves no purpose and is removed. SONGS Units 2 and 3 are required by their License to meet the 10 CFR 50 requirements. This change is designated as administrative as it eliminates a requirement that is duplicative of a requirement in the CFR.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.3.1 requires verifying that RCS pressure, RCS temperature, and RCS heatup and cooldown rates are within limits specified in the PTLR every 30 minutes. ITS SR 3.4.3.1 requires a similar Surveillance and specifies the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the

DISCUSSION OF CHANGES
ITS 3.4.3, RCS PRESSURE AND TEMPERATURE (P/T) LIMITS

specified Frequency for the SR and the Bases for the Frequency to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

DISCUSSION OF CHANGES
ITS 3.4.3, RCS PRESSURE AND TEMPERATURE (P/T) LIMITS

This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

- A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
- Independence of barriers is not degraded;
- Defenses against human errors are preserved; and
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved

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DISCUSSION OF CHANGES
ITS 3.4.3, RCS PRESSURE AND TEMPERATURE (P/T) LIMITS

understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequency is 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)

3.4.3 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.3

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

Applicability

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A A. ------------NOTE------------ Required Action A.2 shall be completed whenever this Condition is entered. -------------------------------- Requirements of LCO not met in MODE 1, 2, 3, or 4.	A.1 Restore parameter(s) to within limits. AND A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
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~~ psia.	6 hours 36 hours 2 3
ACTION C C. ------------NOTE------------ Required Action C.2 shall be completed whenever this Condition is entered. -------------------------------- 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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.3.1 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 within limits specified in the PTLR.	~~30 minutes~~ In accordance with the Surveillance Frequency Control Program

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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 ISTS which 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 Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. ISTS 3.4.3 Required Action B.2 has been changed to be in MODE 5 with RCS pressure < 500 psia instead of 500 psig. This is acceptable because San Onofre Nuclear Generating Station (SONGS) has adopted a more conservative limit to reduce the possibility of potential flaw propagation by placing the plant at a lower pressure. Additionally, this change is consistent with the current licensing bases.

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Improved Standard Technical Specifications (ISTS) Bases Markup and Bases 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.

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

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 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 ASME Code, Section III, Appendix G (Ref. 3).

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 Reference 3.

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 includes the Reference 2 requirement that the limit be no less than 40°F above the heatup curve or the cooldown curve and not less than the minimum permissible temperature for the ISLH testing. However, the criticality limit 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. 6), 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. Since the P/T limits are not derived from any DBA, there are no acceptance limits related to the P/T limits. Rather, the P/T limits are acceptance limits themselves since they preclude operation in an unanalyzed condition.

The 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 4

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 follows:

a. The severity of the departure from the allowable operating P/T regime or the severity of the rate of change of temperature, 4

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 4

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

APPLICABILITY

The RCS P/T limits Specification 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

BASES

APPLICABILITY (continued)

Temperature for Criticality," and Safety Limit 2.1, "Safety Limits," also provide operational restrictions for pressure and temperature and 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.

The actions of this LCO consider the premise that a violation of the limits occurred during normal plant maneuvering. Severe violations caused by abnormal transients, at times accompanied by equipment failures, may also require additional actions from emergency operating procedures.

ACTIONS

A.1 and A.2

Operation outside the P/T limits 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 to 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. 6), 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:

a. The RCS remained in an unacceptable P/T region for an extended period of increased stress ; ~~or~~ 4

b. 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. With reduced pressure and temperature conditions, the possibility of propagation of undetected flaws is decreased.

Pressure and temperature are reduced by placing the plant in MODE 3 within 6 hours and in MODE 5 with RCS pressure < ~~[~~500~~] psig~~ psia within 36 hours. 2 6

The 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

The actions of this LCO, anytime other than in MODE 1, 2, 3, or 4, consider the premise that a violation of the limits occurred during normal plant maneuvering. Severe violations caused by abnormal transients, at times accompanied by equipment failures, may also require additional actions from emergency operating procedures. Operation outside the P/T limits must be corrected so that the RCPB is returned to a condition that has been verified by stress analyses.

The Completion Time of "immediately" 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 a short period of time in a controlled manner.

Besides restoring operation to 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 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.

BASES

ACTIONS (continued)

ASME Code, Section XI, Appendix E (Ref. 6), may be used to support the evaluation. However, its use is restricted to evaluation of the vessel beltline.

The Completion Time of prior to entering MODE 4 forces the evaluation prior to entering a MODE where temperature and pressure can be significantly increased. The evaluation for a mild violation is possible within several days, but more severe violations may require special, event specific stress analyses or inspections.

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

Verification that operation is within the PTLR limits is required ~~every 30 minutes~~ when RCS pressure and temperature conditions are undergoing planned changes. ~~This Frequency 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.~~

INSERT 1

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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.

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

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INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 5

-- Reviewers 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

REFERENCES

1. ~~[NRC approved topical report that defines the methodology for determining the P/T limits].~~ CE NPSD-683-A, "The Development of a RCS Pressure and Temperature Limits Report for the Removal of P-T Limits and LTOP Setpoints from the Technical Specifications." dated March 16, 2001. 1

2. 10 CFR 50, Appendix G.

3. ASME, Boiler and Pressure Vessel Code, Section III, Appendix G.

4. ASTM E 185-~~82, July 1982~~ 73. 1

5. 10 CFR 50, Appendix H.

6. ASME, Boiler and Pressure Vessel Code, Section XI, Appendix E.

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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 Specification (ISTS) Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

6. Changes are made to be consistent with changes made to the Specification.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.3, RCS PRESSURE AND TEMPERATURE (P/T) 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 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Loops — MODES 1 and 2

LCO 3.4.4

LCO 3.4.4 Two RCS loops shall be OPERABLE and in operation.

Applicability

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.4.1 — SR 3.4.4.1 Verify each RCS loop is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program

LA01

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Loops — MODES 1 and 2

LCO 3.4.4

LCO 3.4.4 Two RCS loops shall be OPERABLE and in operation.

Applicability

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.4.1	SR 3.4.4.1 Verify each RCS loop is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01

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

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.4.1 requires verifying that each RCS loop is in operation every 12 hours. ITS SR 3.4.4.1 requires a similar Surveillance and specifies the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequency for the SR and the Bases for the Frequency to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

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

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

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

- A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
- Independence of barriers is not degraded;
- Defenses against human errors are preserved; and
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

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

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequency is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

None

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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

LCO 3.4.4

LCO 3.4.4 Two RCS loops shall be OPERABLE and in operation.

Applicability

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

ACTION A

SURVEILLANCE REQUIREMENTS

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

SR 3.4.4.1

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

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

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases 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.

4

The RCS configuration for heat transport uses two RCS loops. Each RCS loop contains a SG and two reactor coolant pumps (RCPs). An RCP is located in each of the two SG cold legs. The pump flow rate has been sized to provide core heat removal with appropriate margin to departure from nucleate boiling (DNB) during power operation and for anticipated transients originating from power operation. This Specification requires two RCS loops with both RCPs in operation in each loop. The intent of the Specification is to require core heat removal with forced flow during power operation. Specifying two RCS loops provides the minimum necessary paths (two SGs) for heat removal.

APPLICABLE SAFETY ANALYSES

Safety analyses contain various assumptions for the Design Bases Accident (DBA) 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.

BASES

APPLICABLE SAFETY ANALYSES (continued)

Both transient and steady state analyses have been performed to establish the effect of flow on DNB. The transient or accident analysis for the plant has been performed assuming four RCPs are in operation. The majority of the plant safety analyses are based on initial conditions at high core power or zero power. The accident analyses that are of most importance to RCP operation are the four pump coastdown, single pump locked rotor, single pump (broken shaft or coastdown), and rod withdrawal events (Ref. 1).

~~Steady state DNB analysis had been performed for the [four] pump combination. For [four] pump operation, the steady state DNB analysis, which generates the pressure and temperature and Safety Limit (i.e., the departure from nucleate boiling ratio (DNBR) limit), assumes a maximum power level of 107% RTP. This is the design overpower condition for four pump operation. The 107% value is the accident analysis setpoint of the nuclear overpower (high flux) trip 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.~~ 6

RCS Loops - MODES 1 and 2 satisfy Criteria 2 and 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The purpose of this LCO is to require adequate forced flow for core heat removal. Flow is represented by having both RCS loops with both RCPs in each loop in operation for removal of heat by the two SGs. To meet safety analysis acceptance criteria for DNB, four pumps are required at rated power.

Each OPERABLE loop consists of two RCPs providing forced flow for heat transport to an SG that is OPERABLE. SG, and hence RCS loop, OPERABILITY with regard to SG water level is ensured by the Reactor Protection System (RPS) in MODES 1 and 2. A reactor trip places the plant in MODE 3 if any SG level is ≤ ~~[25]~~ 20 % as sensed by the RPS. The minimum water level to declare the SG OPERABLE is ~~[25]~~ 20 %. 2

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.

BASES

APPLICABILITY (continued)

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, 5, and 6.

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 3.9.4, "Shutdown Cooling (SDC) and Coolant Circulation - High Water Level" (MODE 6),; and
LCO 3.9.5, "Shutdown Cooling (SDC) and Coolant Circulation - Low Water Level" (MODE 6). 4

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. It should be noted that the reactor will trip and place the plant in MODE 3 as soon as the RPS senses less than four RCPs operating.

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 ~~every 12 hours~~ of the required number of loops in operation. Verification includes flow rate, temperature, or pump status monitoring, which help to ensure that forced flow is providing heat removal while maintaining the margin to DNB. ~~The Frequency of 12 hours has been shown by operating practice to be sufficient to regularly assess degradation and verify operation within safety analyses assumptions. In addition, control room indication and alarms will normally indicate loop status.~~ TSTF-425-A TSTF-425-A

INSERT 1

REFERENCES

U 1. FSAR, Section ~~[ ]~~ 15.3. 1 2

TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 5

--- Reviewers 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

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

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

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

6. San Onofre Nuclear Generating Station (SONGS) does not perform the Steady State DNB analysis as described in the ISTS 3.4.4 Bases. Instead SONGS uses two on-line computer systems COLSS and CPCS. The COLSS computer system assists the operators in maintaining initial conditions in the safety analysis. The CPCS continuously calculates departure from nucleate boiling (DNB) and low power density (LPD). Therefore, this information has been deleted.

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)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops — MODE 3

LCO 3.4.5

LCO 3.4.5 Two RCS loops shall be OPERABLE and one RCS loop shall be in operation.

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

All reactor coolant pumps may be ~~de-energized~~ removed from operation for ≤ 1 hour per 8 hour period, provided:

A03

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

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	A02
ACTION B	B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 4.	12 hours	

(continued)

ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME	
ACTION C	C. ~~No~~ Two RCS ~~loop OPERABLE~~ loops inoperable. OR ~~No~~ Required RCS loop not in operation.	C.1	Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.	Immediately	A02 A02
		AND			
		C.2	Initiate action to restore one RCS loop to OPERABLE status and operation.	Immediately	

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.4.5.1	SR 3.4.5.1	Verify ~~required~~ one RCS loop is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	A02 LA01
SR 3.4.5.2	SR 3.4.5.2	Verify secondary side water level in each steam generator ≥ 50% ~~(wide range)~~.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01 LA02
SR 3.4.5.3	SR 3.4.5.3	INSERT 1 Verify correct breaker alignment and indicated power available to ~~the~~ each required pump ~~that is not in operation~~.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	L01 LA01 L01

L01 **INSERT 1**

SR 3.4.5.3

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops — MODE 3

LCO 3.4.5

LCO 3.4.5 Two RCS loops shall be OPERABLE and one RCS loop shall be in operation.

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

All reactor coolant pumps may be ~~de-energized~~ removed from operation for ≤ 1 hour per 8 hour period, provided:

A03

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

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	A02
ACTION B	B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 4.	12 hours	

(continued)

ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME	
ACTION C	C. ~~No~~ Two RCS ~~loop OPERABLE~~ loops inoperable. OR ~~No~~ Required RCS loop not in operation.	C.1	Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.	Immediately	A02 A02
		AND			
		C.2	Initiate action to restore one RCS loop to OPERABLE status and operation.	Immediately	

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.4.5.1	SR 3.4.5.1	Verify ~~required~~ one RCS loop is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	A02 LA01
SR 3.4.5.2	SR 3.4.5.2	Verify secondary side water level in each steam generator ≥ 50% ~~(wide range)~~.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01 LA02
SR 3.4.5.3	SR 3.4.5.3	INSERT 1 Verify correct breaker alignment and indicated power available to ~~the~~ each required pump ~~that is not in operation~~.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	L01 LA01 L01

L01 **INSERT 1**

SR 3.4.5.3

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

DISCUSSION OF CHANGES
ITS 3.4.5, RCS LOOPS – MODE 3

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS 3.4.5 Condition A states one "required" RCS loop inoperable and CTS 3.4.5 Required Action A.1 states to restore "required" RCS loop to OPERABLE status. CTS 3.4.5 Condition C states "no RCS loop OPERABLE" or "no RCS loop in operation." CTS SR 3.4.5.1 requires verifying "required" RCS loop is in operation. ITS 3.4.5 Condition A and Required Action A.1 is similar to the CTS except the word "required" is not included. ITS 3.4.5 Condition C states "two RCS loops inoperable" or "Required RCS loop not in operation." ITS SR 3.4.5.1 requires verifying that "one" RCS loop is in operation. This changes the CTS by deleting "required" from Condition A and Required Action A.1, rewording Condition C, and replacing "required" with "one" in SR 3.4.5.1.

The purpose of CTS 3.4.5, RCS Loops – MODE 3, is to ensure two RCS loops are available and one is in operation for heat removal. The proposed change to CTS 3.4.5 Condition A and Required Action A.1 (deleting "required") is acceptable because SONGS Units 2 and 3 have only two RCS loops and both must be OPERABLE to comply with the LCO. The proposed change to CTS 3.4.5 Condition C clarifies the entry conditions. CTS 3.4.5 Condition A entry condition is written based on the inoperable equipment (as are entry conditions for almost all ACTIONS.) Therefore, the change to the first entry condition of Condition C provides a consistent identification of entry conditions based on inoperable equipment rather than what remains as OPERABLE equipment. The second entry condition for 3.4.5 Condition C is clarified since the RCS loops are allowed by the LCO Note to be removed from operation. Therefore, the LCO does not always require the RCS loop to be operating, and "required" is necessary to differentiate between compliance and noncompliance with the LCO when utilizing the Note allowance. The proposed change to CTS SR 3.4.5.1 (replacing "required" with "one") more accurately reflects the LCO requirement for one RCS loop to be in operation. These changes are designated as administrative because the CTS are being clarified without technically changing the intent.

A03 CTS LCO 3.4.5 Note states, in part, that all reactor coolant pumps may be "de-energized" for ≤ 1 hour per 8 hour period. ITS LCO 3.4.5 Note states in part, that all reactor coolant pumps may be "removed from operation" for ≤ 1 hour per 8 hour period. This changes the CTS by replacing the words "de-energized" with "removed from operation" in the LCO Note.

DISCUSSION OF CHANGES
ITS 3.4.5, RCS LOOPS – MODE 3

The purpose of the LCO Note is to allow the reactor coolant pumps to not meet, for a limited period of time, the requirement of LCO 3.4.5 to be in operation. The change better reflects the deviation to the LCO. This change is acceptable and designated as administrative 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 LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, rveillance Frequency Control Program)* CTS SR 3.4.5.1 requires verifying that the required RCS loop is in operation every 12 hours. CTS SR 3.4.5.2 requires verifying that secondary side water level in each steam generator ≥ 50% every 12 hours. CTS SR 3.4.5.3 requires verifying that correct breaker alignment and indicated power available to the required pump that is not in operation once per 7 days. ITS SRs 3.4.5.1, 3.4.5.2, and 3.4.5.3 require similar Surveillances and specify the periodic Frequencies as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequencies for the SRs and the Bases for the Frequencies to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

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DISCUSSION OF CHANGES
ITS 3.4.5, RCS LOOPS – MODE 3

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;

DISCUSSION OF CHANGES
ITS 3.4.5, RCS LOOPS – MODE 3

- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;

- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);

- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;

- Independence of barriers is not degraded;

- Defenses against human errors are preserved; and

- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

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DISCUSSION OF CHANGES
ITS 3.4.5, RCS LOOPS – MODE 3

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequencies are being removed from the Technical Specifications.

LA02 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS SR 3.4.5.2 requires verifying that secondary side water level in each steam generator ≥ 50% (wide range). ITS SR 3.4.5.2 requires verifying that secondary side water level in each steam generator ≥ 50%. This changes the CTS by deleting the parenthetical statement, "(wide range)," from the Surveillance Requirement to verify secondary side water level is ≥ 50%.

The removal of the parenthetical statement, "(wide range)," from CTS SR 3.4.5.2 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 Bases for SR 3.4.5.2 contains the information that the steam generator level indication is ≥ 50% wide range. 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 that require level indication to be wide range is being moved from the Technical Specifications to the ITS Bases.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 7 – Relaxation of Surveillance Frequency)* CTS SR 3.4.5.3 requires verification correct breaker alignment and indicated power available to the required pump that is not in operation. ITS SR 3.4.5.3 requires verifying that correct breaker alignment and indicated power available to each required pump and is modified by a Note which states the SR is not required to be performed until 24 hours after a required pump is not in operation. This changes the CTS by replacing "the" with "each" in the SR, deleting "that is not in operation" from SR 3.4.5.3, and adding a Note that allows SR 3.4.5.3 to be delayed until 24 hours after the pump is not in operation.

The purpose of SR 3.4.5.3 is to verify that the standby RCP is ready to operate. The added Note permits performance of the SR to verify correct breaker alignment and power availability to be delayed until 24 hours after a required

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DISCUSSION OF CHANGES
ITS 3.4.5, RCS LOOPS – MODE 3

pump is not in operation. This provision is required because when pumps are swapped under the current requirements, the Surveillance is immediately not met on the pump taken out of operation. The change is acceptable because adequate assurance exists that the pump is aligned to the correct breaker with power available because, prior to being removed from operation, the applicable pump had been in operation. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS SR than under the CTS SR.

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops - MODE 3

LCO 3.4.5

LCO 3.4.5 [Two] RCS loops shall be OPERABLE and one RCS loop shall be in operation. 2

---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 RCS loop inoperable.	A.1 Restore RCS loop to OPERABLE status.	72 hours
ACTION B	B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 4.	12 hours
ACTION C	C. Two RCS loops inoperable. OR Required RCS loop not in operation.	C.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

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION C		C.2 Initiate action to restore one RCS loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.4.5.1	SR 3.4.5.1	Verify one RCS loop is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A
SR 3.4.5.2	SR 3.4.5.2	Verify secondary side water level in each steam generator ≥ ~~[25]~~ 50 %.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A 2
SR 3.4.5.3	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 available to each required pump.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.5, RCS LOOPS – MODE 3

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

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

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

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.5 RCS Loops - MODE 3

BASES

BACKGROUND

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

In MODE 3, reactor coolant pumps (RCPs) are used to provide forced circulation heat removal during heatup and cooldown. The MODE 3 decay heat removal requirements are low enough that a single RCS loop with one RCP is sufficient to remove core decay heat. However, ~~[~~two~~]~~ RCS loops are required to be OPERABLE to provide redundant paths for decay heat removal. Only one RCP needs to be OPERABLE to declare the associated RCS loop OPERABLE. 2

Reactor coolant natural circulation is not normally used but is sufficient for core cooling. However, natural circulation does not provide turbulent flow conditions. Therefore, boron reduction in natural circulation is prohibited because mixing to obtain a homogeneous concentration in all portions of the RCS cannot be ensured.

APPLICABLE SAFETY ANALYSES

Analyses have shown that the rod withdrawal event from MODE 3 with one RCS loop in operation is bounded by the rod withdrawal initiated from MODE 2.

Failure to provide 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

The purpose of this LCO is to require both RCS loops to be available for heat removal, thus providing redundancy. The LCO requires both loops to be OPERABLE with the intent of requiring both SGs to be capable (~~> 25~~ ≥ 50% wide range water level) of transferring heat from the reactor coolant at a controlled rate. Forced reactor coolant flow is the required way to transport heat, although natural circulation flow provides adequate removal. A minimum of one running RCP meets the LCO requirement for one loop in operation. 1

BASES

LCO (continued)

The Note permits a limited period of operation without RCPs. All RCPs may be removed from operation for ≤ 1 hour per 8 hour period. This means that natural circulation has been established. When in natural circulation, a reduction in boron concentration with coolant at boron concentrations less than required to assure the SDM of LCO 3.1.1 is maintained is prohibited because an even concentration distribution throughout the RCS cannot be ensured. Core outlet temperature is to be maintained at least 10°F below the saturation temperature so that no vapor bubble may form and possibly cause a natural circulation flow obstruction.

In MODES 3, 4, and 5, it is sometimes necessary to stop all RCPs or shutdown cooling (SDC) pump forced circulation (e.g., to change operation from one SDC train to the other, to perform surveillance or startup testing, to perform the transition to and from SDC System cooling, or to avoid operation below the RCP minimum net positive suction head limit). The time period is acceptable because natural circulation is adequate for heat removal, or the reactor coolant temperature can be maintained subcooled and boron stratification affecting reactivity control is not expected.

An OPERABLE RCS loop consists of at least one OPERABLE RCP and an SG that is OPERABLE. A RCP is OPERABLE if it is capable of being powered and is able to provide forced flow if required.

APPLICABILITY

In MODE 3, the heat load is lower than at power; therefore, one RCS loop in operation is adequate for transport and heat removal. A second RCS loop is required to be OPERABLE but not in operation for redundant heat removal capability.

Operation in other MODES is covered by:

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 3.9.4,	"Shutdown Cooling (SDC) and Coolant Circulation - High Water Level" (MODE 6), ; and
LCO 3.9.5,	"Shutdown Cooling (SDC) and Coolant Circulation - Low Water Level" (MODE 6).	4

BASES

ACTIONS

A.1

If one RCS loop is inoperable, redundancy for forced flow heat removal is lost. The Required Action is restoration of the RCS loop to OPERABLE status within a Completion Time of 72 hours. 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.

B.1

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

C.1 and C.2

If two RCS loops are inoperable or a required RCS loop is not in operation, except as provided in 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. Action to restore one RCS loop to OPERABLE status and operation shall be initiated immediately and continued until one RCS loop is restored to OPERABLE status and 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 operation. The immediate Completion Times reflect the importance of maintaining operation for decay heat removal. 4

SURVEILLANCE REQUIREMENTS

SR 3.4.5.1

This SR requires verification ~~every 12 hours~~ that one RCS loop is in operation. Verification includes flow rate, temperature, or ~~and~~ pump status monitoring, which help ensure that forced flow is providing heat removal. TSTF-425-A 6

INSERT 1

~~The 12 hour interval has been shown by operating practice to be sufficient to regularly assess degradation and verify operation within safety analyses assumptions. In addition, control room indication and alarms will normally indicate loop status.~~ TSTF-425-A

TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 5

-- Reviewers 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 3.4.5.2

50 (wide range) This SR requires verification ~~every 12 hours~~ that the secondary side water level in each SG is ≥ ~~[25]~~%. An adequate SG water level is required in order to have a heat sink for removal of the core decay heat from the reactor coolant. ~~The 12 hour interval has been shown by operating practice to be sufficient to regularly assess degradation and verify operation within the safety analyses assumptions.~~ INSERT 1 TSTF-425-A 2 1 TSTF-425-A

SR 3.4.5.3

Verification that each required RCP is OPERABLE ensures that the single failure criterion is met and that an additional RCS loop 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.~~ INSERT 1 TSTF-425-A

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.

TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 5

-- Reviewers 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

.

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

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

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

6. ISTS SR 3.4.5.1 Bases requires verification of the flow rate, temperature, "and" pump status monitoring to prove that one RCS loop is in operation. Conversely, ISTS SR 3.4.6.1 and ISTS SR 3.4.7.1 Bases both state the verification includes flow rate, temperature, "or" pump status monitoring. Therefore, this change has been determined to be a typographical error in the ISTS SR 3.4.5.1 Bases and has been corrected to state the verification includes flow rate, temperature, "or" pump status monitoring, that is, any of the three options can be used to meet the SR requirements.

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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.

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ATTACHMENT 6

ITS 3.4.6, RCS LOOPS – MODE 4

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops — MODE 4

LCO 3.4.6

LCO 3.4.6 Two loops or trains consisting of any combination of RCS loops and shutdown cooling (SDC) trains shall be OPERABLE and at least one loop or train shall be in operation.

LCO 3.4.6 NOTES

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

1. All reactor coolant pumps (RCPs) and SDC pumps may be ~~de-energized~~ removed from operation for ≤ 1 hour per 8 hour period, provided: A04

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

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

2. No RCP shall be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR unless:

   a. Pressurizer water ~~volume~~ level is < ~~900 ft³~~ 60%, or A02

   b. Secondary side water temperature in each steam generator (SG) is < 100°F above each of the RCS cold leg temperatures.

Applicability

APPLICABILITY: MODE 4.

ITS

A01

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A A. One required ~~RCS~~ loop or train inoperable. ~~AND~~ ~~Two SDC trains inoperable.~~	A.1 Initiate action to restore a second loop or train to OPERABLE status. INSERT 1	Immediately L01
ACTION A ~~B.~~ ~~One required SDC train inoperable.~~ ~~AND~~ ~~Two required RCS loops inoperable.~~	~~B.1~~ ~~Be in MODE 5.~~	~~24 hours~~ L01
ACTION B C. Two Required ~~RCS~~ loop~~(s)~~ or ~~SDC~~ train~~(s)~~ inoperable. OR ~~No RCS~~ Required loop or ~~SDC~~ train not in operation.	C.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1. AND C.2 Initiate action to restore one loop or train to OPERABLE status and operation.	Immediately A03 A03 Immediately

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L01

INSERT 1

AND		
A.2	-------------NOTE------------- LCO 3.0.4.a is not applicable when entering MODE 4. -------------------------------------	
	Initiate action to make at least one steam generator available for decay heat removal via natural circulation.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.6.1	SR 3.4.6.1 Verify ~~at least one~~ required RCS loop or SDC train is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	A03 LA01
SR 3.4.6.2	SR 3.4.6.2 Verify secondary side water level in required SG(s) is ≥ 50% ~~(wide range)~~.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01 LA02
SR 3.4.6.3	SR 3.4.6.3 ~~Verify the second required RCS Loop or SDC train is OPERABLE.~~ INSERT 2	~~7 days~~	LA01 L02

L02

INSERT 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 available to each required pump.

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ITS

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops — MODE 4

LCO 3.4.6

LCO 3.4.6 Two loops or trains consisting of any combination of RCS loops and shutdown cooling (SDC) trains shall be OPERABLE and at least one loop or train shall be in operation.

LCO 3.4.6 NOTES

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

1. All reactor coolant pumps (RCPs) and SDC pumps may be ~~de-energized~~ removed from operation for ≤ 1 hour per 8 hour period, provided: A04

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

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

2. No RCP shall be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR unless:

   a. Pressurizer water ~~volume~~ level is < ~~900 ft^3~~ 60%, or A02

   b. Secondary side water temperature in each steam generator (SG) is < 100°F above each of the RCS cold leg temperatures.

Applicability

APPLICABILITY: MODE 4.

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION A	A. One required ~~RCS~~ loop or train inoperable. ~~AND~~ ~~Two SDC trains inoperable.~~	A.1 Initiate action to restore a second loop or train to OPERABLE status. INSERT 1	Immediately	L01
ACTION A	~~B.~~ ~~One required SDC train inoperable.~~ ~~AND~~ ~~Two required RCS loops inoperable.~~	~~B.1~~ ~~Be in MODE 5.~~	~~24 hours~~	L01
ACTION B	C. Two Required ~~RCS~~ loop~~(s)~~ or ~~SDC~~ train~~(s)~~ inoperable. OR ~~No RCS~~ Required loop or ~~SDC~~ train not in operation.	C.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1. AND C.2 Initiate action to restore one loop or train to OPERABLE status and operation.	Immediately Immediately	A03 A03

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L01

INSERT 1

AND		
A.2	-------------NOTE------------- LCO 3.0.4.a is not applicable when entering MODE 4. --------------------------------------	
	Initiate action to make at least one steam generator available for decay heat removal via natural circulation.	Immediately

ITS

A01

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.6.1	SR 3.4.6.1 Verify ~~at least one~~ required RCS loop or SDC train is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	A03 LA01
SR 3.4.6.2	SR 3.4.6.2 Verify secondary side water level in required SG(s) is ≥ 50% ~~(wide range)~~.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01 LA02
SR 3.4.6.3	SR 3.4.6.3 ~~Verify the second required RCS Loop or SDC train is OPERABLE.~~ INSERT 2	~~7 days~~	LA01 L02

L02 **INSERT 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 available to each required pump.

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DISCUSSION OF CHANGES
ITS 3.4.6, RCS LOOPS – MODE 4

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS 3.4.6 LCO Note 2.a, states, pressurizer water "volume is < 900 ft^3." ITS 3.4.6 LCO Note 2.a states pressurizer water "level is < 60%." This changes the CTS pressurizer water level measurement units from volume in ft^3 to level in %.

This change to CTS 3.4.6 LCO Note 2.a is acceptable because the unit of measure (from volume in ft^3 to level in %) is changed without changing the actual requirement. This change is designated as administrative because no change, technical or otherwise, was made to the CTS that affects the intent.

A03 CTS 3.4.6 ACTION C covers the Conditon of "Required RCS loop(s) or SDC train(s) inoperable" or "No RCS loop or SDC train in operation." CTS SR 3.4.6.1 requires verifying that "at least one" RCS loop or SDC train is in operation. ITS 3.4.6 ACTION B, which is the equivalent of CTS 3.4.6 ACTION C, covers the Condition of "Two required loops or trains inoperable" or "Required loop or train not in operation." ITS SR 3.4.6.1 requires verifying that the "required" RCS loop or SDC train is in operation. This changes the CTS by editorially rewording the Condition and the SR.

CTS 3.4.6 Condition C (ITS 3.4.6 Condition B) is revised to consistently identify the entry conditions. The entry Conditions now more closely match the LCO requirements. Therefore, the change to the first entry condition of Condition C provides a consistent identification of entry conditions based on inoperable equipment rather than what remains as OPERABLE equipment. The second entry condition for 3.4.6 Condition C is changed to more closely match the LCO, which requires the loops to be in operation (thus the Condition should state "not in operation"). Furthermore, the LCO does not always require a loop to be operating (as stated in the LCO Note), and "required" is necessary to differentiate between compliance and non compliance with the LCO when utilizing the Note allowance. "Required" is also added to SR 3.4.6.1 based on the application of the Note, i.e., a loop is not always required to be in operation. This change is designated as administrative because it clarifies the Condition and SR without technically changing the intent.

A04 CTS LCO 3.4.6 Note 1 states, in part, that all reactor coolant pumps may be "de-energized" for ≤ 1 hour per 8 hour period. ITS LCO 3.4.6 Note 1 states, in part, that all reactor coolant pumps may be "removed from operation" for ≤ 1 hour per 8 hour period. This changes the CTS by replacing the words "de-energized" with "removed from operation" in the LCO Note.

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DISCUSSION OF CHANGES
ITS 3.4.6, RCS LOOPS – MODE 4

The purpose of the LCO Note is to allow the reactor coolant pumps to not meet, for a limited period of time, the requirement of LCO 3.4.6 to be in operation. The change better reflects the deviation to the LCO. This change is acceptable and designated as administrative 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 LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.6.1 requires verifying that at least one RCS loop or SDC train is in operation every 12 hours. CTS SR 3.4.6.2 requires verifying that secondary side water level in each steam generator ≥ 50% every 12 hours. CTS SR 3.4.6.3 requires verifying that the second required RCS Loop or SDC train is OPERABLE every 7 days. ITS SRs 3.4.6.1, 3.4.6.2, and 3.4.6.3 require similar Surveillances (with SR 3.4.6.3 modified as described in DOC L02) and specify the periodic Frequencies as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequencies for the SRs and the Bases for the Frequencies to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

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DISCUSSION OF CHANGES
ITS 3.4.6, RCS LOOPS – MODE 4

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;

DISCUSSION OF CHANGES
ITS 3.4.6, RCS LOOPS – MODE 4

- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
- Independence of barriers is not degraded;
- Defenses against human errors are preserved; and
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

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DISCUSSION OF CHANGES
ITS 3.4.6, RCS LOOPS – MODE 4

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequencies are being removed from the Technical Specifications.

LA02 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS SR 3.4.6.2 requires verifying that secondary side water level in each steam generator ≥ 50% (wide range). ITS SR 3.4.6.2 requires verifying that secondary side water level in each steam generator ≥ 50%. This changes the CTS by deleting the parenthetical statement, "(wide range)," from the Surveillance Requirement to verify secondary side water level is ≥ 50%.

The removal of the parenthetical statement, "(wide range)," from CTS SR 3.4.6.2 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 Bases for SR 3.4.6.2 contains the information that the steam generator level indication is ≥ 50% wide range. 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 that require level indication to be wide range is being moved from the Technical Specifications to the ITS Bases.

LESS RESTRICTIVE CHANGES

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.4.6 ACTION A requires action to be initiated immediately to restore a second loop or train to OPERABLE status when one required RCS loop is inoperable and two SDC trains are inoperable. CTS 3.4.6 ACTION B requires the unit to be in MODE 5 within 24 hours when one required SDC train is inoperable and two required RCS loops are inoperable. ITS 3.4.6 ACTION A combines CTS 3.4.6 ACTIONS A and B and covers both Conditions specified in CTS 3.4.6 Conditions A and B. When one of the required loops or trains is inoperable, regardless of what loop or train remains OPERABLE, ITS 3.4.6 Required Action A.1 requires immediately initiating action to restore a second loop or train to OPERABLE status and ITS 3.4.6 Required Action A.2 requires immediately initiating action to make at least one steam generator available for decay heat removal via natural circulation. Furthermore, Required Action A.2 is modified by a Note which states,

DISCUSSION OF CHANGES
ITS 3.4.6, RCS LOOPS – MODE 4

LCO 3.0.4.a is not applicable when entering MODE 4. This changes the CTS by: a) combining the two CTS ACTIONS into a single ACTION; b) requiring action to be immediately initiated to make at least one steam generator available for decay heat removal via natural circulation if one RCS loop is inoperable and two SDC trains are inoperable (i.e., the remaining OPERABLE loop is an RCS loop); c) requiring action to be immediately initiated to restore a second loop or train to OPERABLE status (i.e., the remaining OPERABE train is an SDC train); and d) deleting the requirement to be in MODE 5 within 24 hours if one SDC train is inoperable and two RCS loops are inoperable and replacing it with a requirement to immediately initiate action to make at least one steam generator available for decay heat removal via natural circulation.

The purpose of CTS 3.4.6 ACTIONS A and B is to restore heat removal or to place the unit in a safe condition. The proposed change, which is consistent with TSTF-422, allows the plant to initiate action to make at least one steam generator available for decay heat removal via natural circulation and stay in MODE 4 in lieu of requiring the unit to be placed in MODE 5 within 24 hours. This change is based on a topical report, CE NPSD-01186 (approved by NRC on July 17, 2001), which justified a modified end state for some TS allowed outage time requirements of which the RCS Loops – MODE 4 is one. The topical report demonstrates through probabilistic and deterministic safety evaluations that the proposed end states represent a condition of equal or lower risk than the original end states. Preventing plant challenges during shutdown conditions has been, and continues to be, an important aspect of ensuring safe operation of the plant. Past events demonstrate that risk of core damage associated with entry into, and operation in, shutdown cooling is not negligible and should be considered when a plant is required to shutdown. Therefore, the Technical Specifications should encourage plant operation in the steam generator heat removal mode whenever practical, and require reliance on shutdown cooling only when it is a risk beneficial alternative to other actions.

The Note which modifies Required Action A.2 prohibits entry into MODE 4 during startup using the provisions of LCO 3.0.4.a. The purpose of this Note is to provide assurance that entry into MODE 4 during startup is not made without the appropriate risk assessment. Entry into MODE 4 during startup will still be allowed under the provisions of LCO 3.0.4.b. This is acceptable because LCO 3.0.4.b allows entry only after performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate. Details of the risk assessment are provided in the Bases for LCO 3.0.4.b.

SONGS will adopt the end states proposed in TSTF-422 and will perform a risk assessment in accordance with 10 CFR 50.65(a)(4) when using the end states regardless of whether maintenance is being performed. The risk assessment will follow Regulatory Guide 1.182, “Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants,” which endorses NUMARC 93-01, “Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” Section 11 guidance for implementation of 10 CFR 50.65(a)(4). SONGS will also follow the industry-developed implementation guidance, WCAP-16364-NP, Revision 0, "Implementation Guidance for Risk

DISCUSSION OF CHANGES
ITS 3.4.6, RCS LOOPS – MODE 4

Informed Modification to Selected Required Action End States at Combustion Engineering NSSS Plants (TSTF-422)," November 2004.

Furthermore, this change combines the two current ACTIONS into a single ACTION for clarity and ease of use. This combining of ACTIONS is acceptable because it does not, in and of itself, result in any technical changes. This change also adds new Required Actions for when one required RCS loop is inoperable and one RCS loop remains OPERABLE and for when one required SDC train is inoperable and one SDC train remains OPERABLE. These new Required Actions ensure that immediate action is taken to get a second method of decay heat removal OPERABLE. While this portion of the change is more restrictive, it is included in this change so that the entire ACTION change is presented in one discussion.

This change is designated as overall less restrictive because it relaxes the end state when one required SDC train is inoperable and one required SDC train remains OPERABLE from MODE 5 to remain in MODE 4 and requiring action to be initiated to make at least one steam generator available for heat removal via natural circulation.

L02 *(Category 7 – Relaxation of Surveillance Frequency)* CTS SR 3.4.6.3 requires verification the second required RCS Loop or SDC train is OPERABLE. ITS SR 3.4.6.3 requires verifying that correct breaker alignment and indicated power is available to each required pump. ITS SR 3.4.6.3 is modified by a Note which states the SR is not required to be performed until 24 hours after a required pump is not in operation. This changes the CTS specifying the method to verify loop or train OPERABILITY and adding a modifying Note to the SR.

The purpose of SR 3.4.6.3 is to verify that each required pump is OPERABLE to ensure that an additional RCS loop or SDC train can be placed in operation, if needed to maintain decay heat removal and reactor coolant circulation. The proposed change specifies the method to verify OPERABILITY and adds a modifying Note. The method specified to verify OPERABILITY (by verifying correct breaker alignment and indicated power available to each required pump) is the method already specified in the CTS Bases. As such, this portion of the change is considered administrative. However, the added Note permits performance of the SR to verify correct breaker alignment and power availability to be delayed until 24 hours after a required pump is not in operation. This provision is required because when pumps are swapped under the current requirements, the Surveillance is immediately not met on the pump taken out of operation. This results in an ACTION entry which requires immediate action to restore the pump to OPERABLE status every time the pumps are swapped until the procedure which implements the Surveillance can be performed. The change is acceptable because adequate assurance exists that the pump is aligned to the correct breaker with power available since, prior to being removed from operation, the applicable pump had been in operation. Allowing 24 hours before requiring performance of the breaker alignment verification is acceptable because the pump was in operation, which demonstrated its OPERABILITY. The SR is required only for a "required pump that is not in operation." If both required pumps are in operation, there is no applicable SR for the second loop/pump. This change makes the SR applicable to each required pump. The Bases are revised

DISCUSSION OF CHANGES
ITS 3.4.6, RCS LOOPS – MODE 4

to clarify that verifying a pump is in operation satisfies the SR to verify the correct breaker alignment and availability of the power supply. This change is designated as less restrictive because the requirements of the ITS SR have been relaxed from the requirements in the CTS SR.

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops - MODE 4

LCO 3.4.6

LCO 3.4.6 Two loops or trains consisting of any combination of RCS loops and shutdown cooling (SDC) trains shall be OPERABLE and one loop or train shall be in operation.

LCO 3.4.6 Notes

---NOTES---

1. All reactor coolant pumps (RCPs) and SDC 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 ; 3

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

2. No RCP shall be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR unless:

   a. Pressurizer water level is < [60]% or ; 2 3

   b. Secondary side water temperature in each steam generator (SG) is < [100]°F above each of the RCS cold leg temperatures. 2

Applicability

APPLICABILITY: MODE 4.

ACTIONS

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

ACTION A, ACTION B 4

ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME	
ACTION A, ACTION B	LCO 3.0.4.a is not applicable when entering MODE 4. Initiate action to make at least one steam generator available for decay heat removal via natural circulation.	A.2	---------------NOTE-------------- ~~Only required to be met if SDC train is OPERABLE.~~ ------------------------------------- ~~Be in MODE 5.~~	Immediately ~~24 hours~~	TSTF-422-A
ACTION C	B. Two required loops or trains inoperable. OR Required loop or train 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.	Immediately	
		AND			
		B.2	Initiate action to restore one loop or train to OPERABLE status and operation.	Immediately	

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.4.6.1	SR 3.4.6.1	Verify required RCS loop or SDC train is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A
SR 3.4.6.2	SR 3.4.6.2	Verify secondary side water level in required SG(s) is ≥ ~~[25]~~ 50%.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A 2
SR 3.4.6.3	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 available to each required pump.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.6, RCS LOOPS – MODE 4

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

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

4. ISTS 3.4.6 Condition A is being changed to add the words "or train," so the Condition proposed in the SONGS Units 2 and 3 ITS 3.4.6 will state, one required loop "or train" inoperable. This change to ISTS 3.4.6 Condition A makes the Condition consistent with the LCO and the Required Action which discusses loop(s) or train(s). SONGS Units 2 and 3 have RCS "loops" and SDC "trains."

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Improved Standard Technical Specifications (ISTS) Bases Markup and Bases 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 transfer of this heat to the steam generators (SGs) or shutdown cooling (SDC) heat exchangers. The secondary function of the reactor coolant is to act as a carrier for soluble neutron poison, boric acid. In MODE 4, either reactor coolant pumps (RCPs) or SDC trains can be used for coolant circulation. The intent of this LCO is to provide forced flow from at least one RCP or one SDC train for decay heat removal and transport. The flow provided by one RCP loop or SDC train is adequate for heat removal. The other intent of this LCO is to require that two paths be available to provide redundancy for 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 loops and SDC trains 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 or trains, RCS or SDC, be OPERABLE in MODE 4 and one of these loops or trains be in operation. The LCO allows the two loops that are required to be OPERABLE to consist of any combination of RCS and SDC System loops. Any one loop or train in operation provides enough flow to remove the decay heat from the core with forced circulation. An additional loop or train is required to be OPERABLE to provide redundancy for heat removal. Note 1 permits all RCPs and SDC pumps to be removed from operation ≤ 1 hour per 8 hour period. This means that natural circulation has been established using the SGs. The Note prohibits boron dilution with coolant at boron concentrations less than required to assure the SDM of LCO 3.1.1 is maintained when forced flow is stopped because an even concentration distribution cannot be ensured. Core outlet temperature is to be maintained at least 10°F below saturation temperature so that no vapor bubble may form and possibly cause a natural circulation flow obstruction. The response of the RCS without the RCPs or SDC pumps depends on the core decay heat load and the length of time that the

BASES

LCO (continued)

pumps are stopped. As decay heat diminishes, the effects on RCS temperature and pressure diminish. Without cooling by forced flow, higher heat loads will cause the reactor coolant temperature and pressure to increase at a rate proportional to the decay heat load. Because pressure can increase, the applicable system pressure limits (pressure and temperature (P/T) limits or low temperature overpressure protection (LTOP) limits) must be observed and forced SDC flow or heat removal via the SGs must be re-established prior to reaching the pressure limit. The circumstances for stopping both RCPs or SDC pumps are to be limited to situations where:

a. Pressure and temperature increases can be maintained well within the allowable pressure (P/T limits and LTOP) and 10°F subcooling limits ; or 4

b. An alternate heat removal path through the SGs is in operation.

Note 2 requires that either of the following two conditions be satisfied before an RCP may be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR:

a. Pressurizer water level is < ~~[~~60~~]~~% ; or 2 4

b. Secondary side water temperature in each SG is < ~~[~~100~~]~~°F above each of the RCS cold leg temperatures. 2

Satisfying either of the above conditions will preclude a large pressure surge in the RCS when the RCP is started.

An OPERABLE RCS loop consists of at least one OPERABLE RCP and an SG that is OPERABLE and has the minimum water level specified in SR 3.4.6.2.

Similarly, for the SDC System, an OPERABLE SDC train is composed of the OPERABLE SDC pump(s) capable of providing forced flow to the SDC heat exchanger(s). RCPs and SDC pumps are OPERABLE if they are capable of being powered and are able to provide flow if required.

BASES

APPLICABILITY

In MODE 4, this LCO applies because it is possible to remove core decay heat and to provide proper boron mixing with either the RCS loops and SGs or the SDC 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 3.4.7, "RCS Loops - MODE 5, Loops Filled;"
LCO 3.4.8, "RCS Loops - MODE 5, Loops Not Filled;"
LCO 3.9.4, "Shutdown Cooling and Coolant Circulation - High Water Level" (MODE 6); and
LCO 3.9.5, "Shutdown Cooling and Coolant Circulation - Low Water Level" (MODE 6).

4

ACTIONS

A.1

If only one required ~~RCS~~ loop or train is OPERABLE and in operation ~~and no SDC trains are OPERABLE~~, redundancy for heat removal is lost. Action must be initiated immediately to restore a required non-operating loop or train to OPERABLE status. The immediate Completion Time reflects the importance of maintaining the availability of two paths for decay heat removal.

5 6

A.2

INSERT 1

~~If restoration is not accomplished and a SDC train is OPERABLE, the plant must be placed in MODE 5 within the next 24 hours. Placing the plant in MODE 5 is a conservative action with regard to decay heat removal. With only one SDC train OPERABLE, redundancy for decay heat removal is lost and, in the event of a loss of the remaining SDC train, it would be safer to initiate that loss from MODE 5 rather than MODE 4. The Completion Time of 24 hours is reasonable, based on operating experience, to reach MODE 5 from MODE 4, with only one SDC train operating, 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 SDC train is OPERABLE. With no SDC train OPERABLE, the unit is in a condition with only limited cooldown capabilities. Therefore, the actions are to be concentrated on the restoration of a SDC train, rather than a cooldown of extended duration.~~

TSTF-422-A

TSTF-422-A

INSERT 1

If only one required SDC train is OPERABLE and in operation and no required RCS loops are OPERABLE, redundancy for heat removal is lost and the plant must be placed in a configuration that minimizes overall plant risk. This redundancy is obtained by making at least one SG available for decay heat removal via natural circulation because:

1. MODE 4 operation poses overall lower risk of core damage and large early radiation release than does MODE 5 (Ref. 1). This is particularly true with SDC impaired.

2. In MODE 4, RCS and steam generator conditions may be maintained such that failure of the operating SDC train may be mitigated by natural circulation heat removal through one or more steam generators.

Remaining within the Applicability of the LCO is acceptable because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 1). However, voluntary entry into MODE 5 may be made as it is also an acceptable low-risk state.

Required Action A.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.

BASES

ACTIONS (continued)

B.1 and B.2

If two required loops or trains are inoperable or a required loop or train 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 loop or SDC train 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 decay heat removal. The action to restore must continue until one loop or train is restored to operation. 4

SURVEILLANCE REQUIREMENTS

SR 3.4.6.1

This SR requires verification ~~every 12 hours~~ that the required loop or train is in operation. This ensures forced flow is providing heat removal. Verification includes flow rate, temperature, or pump status monitoring. TSTF-425-A

INSERT 2 ~~The 12 hour Frequency has been shown by operating practice to be sufficient to regularly assess RCS loop status. In addition, control room indication and alarms will normally indicate loop status.~~ TSTF-425-A

SR 3.4.6.2

This SR requires verification ~~every 12 hours~~ of secondary side water level in the required SG(s) ≥ 50 ~~[25]~~% (wide range). An adequate SG water level is required in order to have a heat sink for removal of the core decay heat from the reactor coolant. TSTF-425-A 2 1

INSERT 2 ~~The 12 hour interval has been shown by operating practice to be sufficient to regularly assess degradation and verify operation within safety analyses assumptions.~~ TSTF-425-A

TSTF-425-A

INSERT 2

The Frequency is controlled under the Surveillance Frequency Control Program. 7

-- Reviewers 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 3.4.6.3

Verification that each required pump is OPERABLE ensures that an additional RCS loop or SDC train 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.~~ INSERT 3 TSTF-425-A

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.~~ INSERT 4 TSTF-422-A

TSTF-425-A

INSERT 3

The Frequency is controlled under the Surveillance Frequency Control Program. 7

-- Reviewers 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

TSTF-422-A

INSERT 4

1. CE NPSD-1186-A, Technical Justification for the Risk Informed Modification to Selected Required Action End States for CEOG PWRs, October, 2001.

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 Specification (ISTS) Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. Changes are made to be consistent with changes made to the Specifications.

6. Changes are made to be consistent with the actual Specification.

7. The Bases words changed by TSTF-425 have been modified to state, "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

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)

ITS

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops — MODE 5, Loops Filled

shutdown cooling (SDC) train

LCO 3.4.7

LCO 3.4.7 ~~At least~~ One ~~of the following loop(s)/trains listed below~~ shall be OPERABLE and in operation: and either

~~a. Reactor Coolant Loop 1 and its associated steam generator and at least one associated Reactor Coolant Pump;~~

~~b. Reactor Coolant Loop 2 and its associated steam generator and at least one associated Reactor Coolant Pump;~~

~~c. Shutdown Cooling Train A; or~~

~~d. Shutdown Cooling Train B~~

M01

SDC

a. One additional ~~Reactor Coolant Loop/shutdown cooling~~ train shall be OPERABLE, or

b. The secondary side water level of each steam generator shall be greater than 50% ~~(wide range)~~.

LA01

LCO 3.4.7 Note 1

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

The SDC pump of the train in operation may be removed from operation

A02 M01

1. ~~All reactor coolant pumps (RCPs) and pumps providing shutdown cooling may be de-energized~~ for ≤ 1 hour per 8 hour period, provided:

   a. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.~~2~~ 1; and

   A01

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

LCO 3.4.7 Note 2

2. One ~~required~~ SDC train may be inoperable for up to 2 hours for surveillance testing provided that the other SDC train ~~or RCS loop~~ is OPERABLE and in operation.

~~3. One required RCS loop may be inoperable for up to 2 hours for surveillance testing provided that the other RCS loop or SDC train is OPERABLE and in operation.~~

M01

(continued)

ITS

A01

RCS Loops — MODE 5, Loops Filled
3.4.7

---------------------NOTES (continued)---------------------

LCO 3.4.7 Note 3

~~4~~ 3. No reactor coolant pump (RCP) shall be started with ~~one or more of the~~ any RCS cold leg temperatures ~~≤~~ less than or equal to the LTOP enable temperature in the PTLR unless:

A03

a. The pressurizer water ~~volume~~ level is < ~~900 ft³~~ 60% or

A04

b. The secondary side water temperature in each steam generator (SG) is < 100°F above each of the RCS cold leg temperatures.

~~5. A containment spray pump may be used in place of a low pressure safety injection pump in either or both shutdown cooling trains to provide shutdown cooling flow provided the reactor has been subcritical for a period > 24 hours and the RCS is fully depressurized and vented in accordance with LCO 3.4.12.1.~~

LA02

LCO 3.4.7 Note 4

~~6~~ 4. All SDC trains 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
Condition A ACTION A, ACTION B A. INSERT 1 ~~Less than the required~~ One SDC train~~s/RCS loops~~ OPERABLE. AND Condition B ~~Any SG~~ One or more required SGs with secondary side water level not within limit.	A.1 Initiate action to restore ~~the required~~ a second SDC train~~s/RCS loops~~ to OPERABLE status. OR A.2 Initiate action to restore ~~SG~~ required SGs secondary side water level~~s~~ to within limits.	Immediately Immediately

A05 M01

A05

(continued)

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A05

INSERT 1

Condition A

A. One required SDC train inoperable.

AND

ITS A01 RCS Loops — MODE 5, Loops Filled
3.4.7

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION C	B. INSERT 2 ~~No~~ SDC train ~~/RCS~~ not ~~loop~~ in operation.	B.1 Suspend operations that would cause of coolant introduction into the RCS~~, coolant~~ with boron concentration less than required to meet SDM of LCO 3.1.~~2~~ 1.	Immediately	A05
		AND		
		B.2 Initiate action to restore one ~~required~~ SDC train~~/RCS loop~~ to OPERABLE status and operation.	Immediately	A05

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.7.1	SR 3.4.7.1 Verify ~~at least one RCS loop or~~ required SDC train is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	M01 A05 LA03
SR 3.4.7.2	SR 3.4.7.2 Verify required SG secondary side water level is > 50% ~~(wide range)~~.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01 LA03
SR 3.4.7.3	SR 3.4.7.3 ~~Verify the second required RCS loop, SDC train or steam generator secondary is OPERABLE.~~ INSERT 3	~~7 days~~ In accordance with the Surveillance Frequency Control Program	M01 LA03 L01

A05

INSERT 2

ACTION C

No required SDC trains OPERABLE.

OR

Required

L01

INSERT 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 available to each required SDC pump.

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ITS A01 RCS Loops — MODE 5, Loops Filled
3.4.7

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops — MODE 5, Loops Filled

LCO 3.4.7 LCO 3.4.7 ~~At least~~ One ~~of the following~~ shutdown cooling (SDC) train ~~loop(s)/trains listed below~~ shall be OPERABLE and in operation and either:

~~a. Reactor Coolant Loop 1 and its associated steam generator and at least one associated Reactor Coolant Pump;~~

~~b. Reactor Coolant Loop 2 and its associated steam generator and at least one associated Reactor Coolant Pump;~~

~~c. Shutdown Cooling Train A; or~~

~~d. Shutdown Cooling Train B~~

M01

a. One additional ~~Reactor Coolant Loop/shutdown cooling~~ SDC train shall be OPERABLE, or

b. The secondary side water level of each steam generator shall be greater than 50% ~~(wide range)~~. LA01

LCO 3.4.7 Note 1

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

1. The SDC pump of the train in operation may be removed from operation ~~All reactor coolant pumps (RCPs) and pumps providing shutdown cooling may be de-energized~~ for ≤ 1 hour per 8 hour period, provided: A02 M01

a. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.~~2~~1; and A01

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

LCO 3.4.7 Note 2

2. One ~~required~~ SDC train may be inoperable for up to 2 hours for surveillance testing provided that the other SDC train ~~or RCS loop~~ is OPERABLE and in operation.

~~3. One required RCS loop may be inoperable for up to 2 hours for surveillance testing provided that the other RCS loop or SDC train is OPERABLE and in operation.~~

M01

(continued)

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ITS

A01

RCS Loops — MODE 5, Loops Filled
3.4.7

LCO 3.4.7 Note 3

---------------------NOTES (continued)---------------------

~~4~~ 3. No reactor coolant pump (RCP) shall be started with ~~one or more of the~~ any RCS cold leg temperature~~s~~ ~~≤~~ less than or equal to the LTOP enable temperature in the PTLR unless:

A03

a. The pressurizer water ~~volume~~ level is < ~~900 ft³~~ [60]% or

A04

b. The secondary side water temperature in each steam generator (SG) is < 100°F above each of the RCS cold leg temperatures.

~~5. A containment spray pump may be used in place of a low pressure safety injection pump in either or both shutdown cooling trains to provide shutdown cooling flow provided the reactor has been subcritical for a period > 24 hours and the RCS is fully depressurized and vented in accordance with LCO 3.4.12.1.~~

LA02

LCO 3.4.7 Note 4

~~6~~ 4. All SDC trains 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 A

ACTION A, ACTION B

Condition B

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. INSERT 1 ~~Less than the required~~ One SDC train~~s/RCS loops~~ OPERABLE. AND ~~Any SG~~ One or more required SGs with secondary side water level not within limit.	A.1 Initiate action to restore ~~the required~~ a second SDC train~~s/RCS loops~~ to OPERABLE status. OR A.2 Initiate action to restore ~~SG~~ required SGs secondary side water level~~s~~ to within limits.	Immediately Immediately

A05

M01

A05

(continued)

A05

INSERT 1

Condition A

A. One required SDC train inoperable.

AND

ITS

A01

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION C	B. INSERT 2 ~~No~~ SDC train ~~/RCS~~ not ~~loop~~ in operation.	B.1 Suspend operations that would cause of coolant introduction into the RCS ~~, coolant~~ with boron concentration less than required to meet SDM of LCO 3.1. ~~2~~ 1.	Immediately	A05
		AND		
		B.2 Initiate action to restore ~~required~~ one SDC train ~~/RCS loop~~ to OPERABLE status and operation.	Immediately	A05

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.7.1	SR 3.4.7.1 Verify ~~at least one RCS loop or~~ required SDC train is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	M01 A05 LA03
SR 3.4.7.2	SR 3.4.7.2 Verify required SG secondary side water level is > 50% ~~(wide range)~~.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01 LA03
SR 3.4.7.3	SR 3.4.7.3 ~~Verify the second required RCS loop, SDC train or steam generator secondary is OPERABLE.~~ INSERT 3	~~7 days~~ In accordance with the Surveillance Frequency Control Program	M01 LA03 L01

A05

INSERT 2

ACTION C

No required SDC trains OPERABLE.

OR

Required

L01

INSERT 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 available to each required SDC pump.

DISCUSSION OF CHANGES
ITS 3.4.7, RCS LOOPS – MODE 5, LOOPS FILLED

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS LCO 3.4.7 Note 1 states, in part, that all pumps providing SDC may be "de-energized" for ≤ 1 hour per 8 hour period. ITS LCO 3.4.7 Note 1 states, in part, that the SDC pump of the train in operation may be "removed from operation" for ≤ 1 hour per 8 hour period. This changes the CTS by replacing the words "de-energized" with "removed from operation" in the LCO Note.

The purpose of the LCO Note is to allow the SDC pumps to not meet, for a limited period of time, the requirement of LCO 3.4.7 to be in operation. The change better reflects the deviation to the LCO. This change is acceptable and designated as administrative because it does not result in technical changes to the CTS.

A03 CTS LCO 3.4.7 Note 4 states, in part, no RCP shall be started with one or more of the RCS cold leg temperatures ≤ the temperature in the PTLR. ITS 3.4.7 Note 3 states, in part, no RCP shall be started with any RCS cold leg temperature less than or equal to the "LTOP enable" temperature in the PTLR. This changes the CTS by identifying the temperature in the PTLR.

The purpose of CTS LCO 3.4.7 Note 4 is to list the conditions required to be satisfied prior to starting a RCP. The proposed change specifically identifies the temperature in the PTLR as the "LTOP enable" temperature. This change is acceptable because it adds clarifying words to the Note. This change is designated as administrative because a Note is being clarified without technically altering it.

A04 CTS 3.4.7 LCO Note 4.a, states, in part, pressurizer water "volume is < 900 ft^3." ITS 3.4.7 LCO Note 3.a states, in part, pressurizer water "level is < [60%]." This changes the CTS pressurizer water level measurement units from volume in ft^3 to level in %.

This change to CTS 3.4.7 LCO Note 4.a is acceptable because the unit of measure (from volume in ft^3 to level in %) is changed without changing the actual requirement. This change is designated as administrative because no change, technical or otherwise, was made to the CTS that affects the intent.

A05 CTS 3.4.7 ACTION A requires the initiation of action to restore the required SDC trains to OPERABLE status immediately or to initiate action to restore SG secondary side water level to within limits when one required SDC train is

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ITS 3.4.7, RCS LOOPS – MODE 5, LOOPS FILLED

inoperable and with any SG with secondary side water level not within limit. CTS 3.4.7 ACTION B requires the unit to immediately suspend operations that would cause introduction into the RCS coolant with boron concentration less than required to meet SDM of LCO 3.1.1 and immediately initiate action to restore the required SDC train to operation when no SDC train is in operation. ITS 3.4.7 ACTION A requires the immediate initiation of action to restore a second SDC train to OPERABLE status or the immediate initiation of action to restore required SGs secondary side water level to within limit when one required SDC train is inoperable and one SDC train OPERABLE. ITS 3.4.7 ACTION B requires the immediate initiation of action to restore a second SDC train to OPERABLE status or the immediate initiation of action to restore required SGs secondary side water level to within limit when one or more required SGs with secondary side water level not within limit and one SDC train OPERABLE. ITS 3.4.7 ACTION C requires immediately suspending 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 initiating action to restore one SDC train to OPERABLE status and operation when no SDC trains are OPERABLE or the required SDC train is not in operation. This changes the CTS by splitting CTS 3.4.7 ACTION A into two ACTIONS, and rewording the ACTIONS and SR 3.4.7.1.

The purpose of CTS 3.4.7 ACTION A is to provide the appropriate Required Actions based on the two different ways the LCO might not be met. Proposed ITS LCO 3.4.7 Conditions A and B are based only on the status of the equipment which is required to be OPERABLE by the LCO (not on the status of all available equipment). An entry condition based on the status of equipment which is not required by the LCO is inconsistent with the remainder of the NUREG and the Writer's Guide (TSTF-GG-05-01). Further, with insufficient steam generator capability, both SDC trains are required to be OPERABLE. One inoperable train would then require entry into both ITS 3.4.7 Conditions A and B since a required SDC train is inoperable. It is not the intent to require entry into ITS 3.4.7 Condition C if one SDC train is OPERABLE and operating. Therefore, the ITS 3.4.7 Condition C entry conditions are revised to "No required SDC trains OPERABLE or required SDC train not in operation." Also, the requirement to initiate action to restore a "second" SDC train to OPERABLE status at the same time as the action to restore one SDC train to OPERABLE status is inappropriate. "Required" is also added to CTS SR 3.4.7.1 based on the application of CTS LCO 3.4.7 Note 2, i.e., a train is not always required to be in operation. This change is designated as administrative because it reorganizes the ACTIONS without technically changing the intent of the ACTIONS.

<u>MORE RESTRICTIVE CHANGES</u>

M01 CTS 3.4.7 LCO requires a SDC train or RCS loop to be OPERABLE and in operation, and an additional RCS loop or SDC train to be OPERABLE or the secondary side water level of each steam generator to be > 50%. CTS 3.4.7 LCO Notes 1, 2, and 3 contain wording referring to RCPs or RCS loops. Note 1 allows the RCP to be de-energized for ≤ 1 hour per 8 hour period, Note 2 allows the required SDC train to be inoperable for up to 2 hours for Surveillance testing provided the other SDC train or RCS loop is OPERABLE and in operation.

DISCUSSION OF CHANGES
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Note 3 allows the RCS Loop to be inoperable for up to 2 hours for Surveillance testing provided the other SDC train or RCS loop is OPERABLE and in operation. Furthermore, RCS loops are mentioned in CTS 3.4.7 ACTIONS A and B and CTS SRs 3.4.7.1 and 3.4.7.3. ITS 3.4.7 LCO requires one SDC train to be OPERABLE and in operation, and an additional SDC train to be OPERABLE or the secondary side water level of each steam generator to be > 50%. ITS 3.4.7 LCO Notes 1 and 2 are similar to the CTS 3.4.7 LCO Notes 1 and 2 except reference to RCS loops are excluded and the term "required" is not used when referring to SDC trains. ITS LCO 3.4.7 does not contain a Note similar to CTS 3.4.7 Note 3. In addition, none of the ITS 3.4.7 ACTIONS or SRs mention the RCS loops. This changes the CTS by deleting allowance to use RCS loops to meet the LCO, deleting the reference to RCS Loops in the LCO and LCO Notes 1 and 2, deleting LCO Note 3, and deleting all references to RCS loops in the ACTIONS and SRs.

The purpose of CTS 3.4.7 LCO is to ensure sufficient forced circulation is available to perform the safety functions of the reactor coolant. The purpose of the LCO Notes 1, 2, and 3 is to allow the SDC pumps or RCS Loops to be taken out of service during swaps and Surveillance testing. The proposed change no longer allows an RCP loop as the primary method of heat removal and deletes reference to the RCS loops in the LCO Notes 1, 2, and 3 and the ACTIONS and SRs. This change is acceptable because the RCS pumps are only required during the transition between MODE 4 and MODE 5 and the SDC trains provide adequate forced flow for cooling. Furthermore, due to the deletion of the allowance to use RCPs, the term "required" in LCO Note 2, when referring to SDC trains, is not needed since all SDC pumps are now required by ITS LCO 3.4.7. This change is designated as more restrictive because it eliminates RCS loops as the primary method of forced circulation in the ITS that was allowed in the CTS.

<u>RELOCATED SPECIFICATIONS</u>

None

<u>REMOVED DETAIL CHANGES</u>

LA01 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS LCO 3.4.7 states, in part, the secondary side water level of each steam generator shall be greater than 50% "(wide range)." CTS SR 3.4.7.2 requires verifying that secondary side water level in each steam generator is > 50% "(wide range)." ITS LCO 3.4.7.b states the secondary side water level of each steam generator shall be > 50%. ITS SR 3.4.7.2 requires verifying that secondary side water level in each steam generator is > 50%. This changes the CTS by deleting the parenthetical statement, "(wide range)," from the LCO and the Surveillance Requirement and moving it to the ITS Bases.

The removal of the parenthetical statement, "(wide range)," from CTS LCO 3.4.7 and CTS SR 3.4.7.2 is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate

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protection of public health and safety. The ITS LCO and SR 3.4.7.2 Bases contain the information that the steam generator level indication is measured from the steam generator level wide range indication. 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 that require level indication to be wide range is being moved from the Technical Specifications to the ITS Bases.

LA02 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS LCO 3.4.7 Note 5 states a containment spray pump may be used in place of a low pressure safety injection (LPSI) pump in either or both shutdown cooling trains to provide shutdown cooling flow provided the reactor has been subcritical for a period > 24 hours and the RCS is fully depressurized and vented in accordance with LCO 3.4.12.1. ITS 3.4.7 will not contain this Note. This changes the CTS by removing an LCO Note which allows a containment spray pump to be used in place of a LPSI pump and moving it to the ITS Bases.

The removal of the CTS LCO 3.4.7 Note 5 which allows a containment spray pump to be used in place of a LPSI pump 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 LCO 3.4.7 requires the SDC trains to be OPERABLE. The ITS LCO Bases describes the components necessary for the SDC train to be considered OPERABLE. The ITS Bases contains the information that the containment spray pump can replace a LPSI pump if certain conditions are met. 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 information relating to system design and operation is being moved from the Technical Specifications to the ITS Bases.

LA03 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.7.1 requires verifying that at least one RCS loop or SDC train is in operation every 12 hours. CTS SR 3.4.7.2 requires verifying that secondary side water level in each steam generator is > 50% every 12 hours. CTS SR 3.4.7.3 requires verifying that the second required RCS Loop or SDC train is OPERABLE every 7 days. ITS SRs 3.4.7.1, 3.4.7.2, and 3.4.7.3 require similar Surveillances (with SR 3.4.7.3 modified as described in DOC L01) and specify the periodic Frequencies as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequencies for the SRs and the Bases for the Frequencies to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that

DISCUSSION OF CHANGES
ITS 3.4.7, RCS LOOPS – MODE 5, LOOPS FILLED

Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies

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are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
   - Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
   - System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
   - Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
   - Independence of barriers is not degraded;
   - Defenses against human errors are preserved; and
   - The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

   These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

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Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequencies are being removed from the Technical Specifications.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 7 – Relaxation of Surveillance Frequency)* CTS SR 3.4.7.3 requires verification the second required RCS Loop or SDC train is OPERABLE. ITS SR 3.4.7.3 requires verifying that correct breaker alignment and indicated power is available to each required pump. ITS SR 3.4.7.3 is modified by a Note which states the SR is not required to be performed until 24 hours after a required pump is not in operation. This changes the CTS specifying the method to verify train OPERABILITY and adding a modifying Note to the SR. Note that the deletion of the reference to RCS loops is discussed in DOC M01.

The purpose of SR 3.4.7.3 is to verify that each required pump is OPERABLE to ensure that an additional SDC train can be placed in operation, if needed to maintain decay heat removal and reactor coolant circulation. The proposed change specifies the method to verify OPERABILITY and adds a modifying Note. The method specified to verify OPERABILITY (by verifying correct breaker alignment and indicated power available to each required pump) is the method already specified in the CTS Bases. As such, this portion of the change is considered administrative. However, the added Note permits performance of the SR to verify correct breaker alignment and power availability to be delayed until

DISCUSSION OF CHANGES
ITS 3.4.7, RCS LOOPS – MODE 5, LOOPS FILLED

24 hours after a required pump is not in operation. This provision is required because when pumps are swapped under the current requirements, the Surveillance is immediately not met on the pump taken out of operation. This results in an ACTION entry which requires immediate action to restore the pump to OPERABLE status every time the pumps are swapped until the procedure which implements the Surveillance can be performed. The change is acceptable because adequate assurance exists that the pump is aligned to the correct breaker with power available since, prior to being removed from operation the applicable pump had been in operation. Allowing 24 hours before requiring performance of the breaker alignment verification is acceptable because the pump was in operation, which demonstrated its OPERABILITY. The applicable SRs are required only for a "required pump that is not in operation." If both required pumps are in operation, there is no applicable SR for the second loop/pump. This change makes the SR applicable to each required pump. The Bases are revised to clarify that verifying a pump is in operation satisfies the SR to verify the correct breaker alignment and availability of the power supply. This change is designated as less restrictive because the requirements of the ITS SR have been relaxed from the requirements in the CTS SR.

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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

LCO 3.4.7

LCO 3.4.7 One shutdown cooling (SDC) train shall be OPERABLE and in operation and either:

a. One additional SDC train shall be OPERABLE or

b. The secondary side water level of each steam generator (SG) shall be ~~≥ [25%]~~ > 50%. 1 2

---NOTES---

LCO 3.4.7 Note 1

1. The SDC pump of the train in operation 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 ≥ 10°F below saturation temperature.

LCO 3.4.7 Note 2

2. One SDC train may be inoperable for up to 2 hours for surveillance testing provided that the other SDC train is OPERABLE and in operation.

LCO 3.4.7 Note 4

3. No reactor coolant pump (RCP) shall be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR unless:

   a. The pressurizer water level is < ~~[~~60~~]~~% or 2

   b. The secondary side water temperature in each SG is < ~~[~~100~~]~~°F above each of the RCS cold leg temperatures. 2

LCO 3.4.7 Note 6

4. All SDC trains may not be in 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	A. One required SDC train inoperable. AND One SDC train OPERABLE.	A.1 Initiate action to restore a second SDC train to OPERABLE status. OR A.2 Initiate action to restore required SGs secondary side water level to within limit.	Immediately Immediately
ACTION A	B. One or more required SGs with secondary side water level not within limit. AND One SDC train OPERABLE.	B.1 Initiate action to restore a second SDC train to OPERABLE status. OR B.2 Initiate action to restore required SGs secondary side water level to within limit.	Immediately Immediately
ACTION A, ACTION B	C. No required SDC trains OPERABLE. OR Required SDC train not in operation.	C.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.2 Initiate action to restore one SDC train to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.4.7.1	SR 3.4.7.1	Verify required SDC train is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A
SR 3.4.7.2	SR 3.4.7.2	Verify required SG secondary side water level is ~~≥ [25]~~ > 50%.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	1 2 TSTF-425-A
SR 3.4.7.3	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 available to each required SDC pump.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A

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

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

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases 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 the 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 shutdown cooling (SDC) heat exchangers. While the principal means for decay heat removal is via the SDC 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 side 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.

In MODE 5 with RCS loops filled, the SDC trains are the principal means for decay heat removal. The number of trains in operation can vary to suit the operational needs. The intent of this LCO is to provide forced flow from at least one SDC train for decay heat removal and transport. The flow provided by one SDC train 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 decay heat removal.

The LCO provides for redundant paths of decay heat removal capability. The first path can be an SDC train that must be OPERABLE and in operation. The second path can be another OPERABLE SDC train, or through the SGs via natural circulation (Ref. 1), each having an adequate water level.

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 SDC trains 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 at least one of the SDC trains be OPERABLE and in operation with the other SDC train OPERABLE or secondary side water level of each SG shall be ~~≥ [25]~~ > 50% (wide range). One SDC train 2 1
provides sufficient forced circulation to perform the safety functions of the reactor coolant under these conditions. The second SDC train is normally maintained OPERABLE as a backup to the operating SDC train to provide redundant paths for decay heat removal. However, if the standby SDC train is not OPERABLE, a sufficient alternate method to provide redundant paths for decay heat removal is two SGs with their secondary side water levels ~~≥ [25~~ > 50 %~~]~~ (wide range). Should the operating SDC train fail, the SGs 2 1
could be used to remove the decay heat via natural circulation.

Note 1 permits all SDC pumps to be removed from operation ≤ 1 hour per 8 hour period. The circumstances for stopping both SDC trains are to be limited to situations where pressure and temperature increases can be maintained well within the allowable pressure (pressure and temperature and low temperature overpressure protection) and 10°F subcooling limits, or an alternate heat removal path through the SG(s) is in operation.

This LCO is modified by a Note that prohibits boron dilution with coolant at boron concentrations less than required to assure the SDM of LCO 3.1.1 is maintained when SDC forced flow is stopped because an even concentration distribution cannot be ensured. Core outlet temperature is to be maintained at least 10°F below saturation temperature, so that no vapor bubble would form and possibly cause a natural circulation flow obstruction. In this MODE, the SG(s) can be used as the backup for SDC heat removal. To ensure their availability, the RCS loop flow path is to be maintained with subcooled liquid.

In MODE 5, it is sometimes necessary to stop all RCP or SDC forced circulation. This is permitted to change operation from one SDC train to the other, perform surveillance or startup testing, perform the transition to and from the SDC, or to avoid operation below the RCP minimum net positive suction head limit. The time period is acceptable because natural circulation is acceptable for decay heat removal, the reactor coolant temperature can be maintained subcooled, and boron stratification affecting reactivity control is not expected.

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

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BASES

LCO (continued)

Note 3 requires that either of the following two conditions be satisfied before an RCP may be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR:

a. Pressurizer water level must be < [60]% or ; 2 4

b. Secondary side water temperature in each SG must be < [100]°F above each of the RCS cold leg temperatures. 2

Satisfying either of the above conditions will preclude a low temperature overpressure event due to a thermal transient when the RCP is started.

Note 4 provides for an orderly transition from MODE 5 to MODE 4 during a planned heatup by permitting SDC trains to not be in operation when at least one RCP is in operation. This Note provides for the transition to MODE 4 where an RCP is permitted to be in operation and replaces the RCS circulation function provided by the SDC trains.

An OPERABLE SDC train is composed of an OPERABLE SDC pump and an OPERABLE SDC heat exchanger.

SDC pumps are OPERABLE if they are capable of being powered and are able to provide flow if required. An SDC pump is normally a LPSI pump. However, an SDC pump can be a containment spray pump provided it is capable of providing the required flow. To be capable of providing the required flow, the RCS must be fully depressurized and vented and the unit must be shutdown for greater than 24 hours. A SG can perform as a heat sink via natural circulation when it has an adequate water level and is OPERABLE. 1

APPLICABILITY

In MODE 5 with RCS loops filled, this LCO requires forced circulation to remove decay heat from the core and to provide proper boron mixing. One SDC train provides sufficient circulation for these purposes.

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 3.9.4,	"Shutdown Cooling (SDC) and Coolant Circulation - High Water Level" (MODE 6),; and
LCO 3.9.5,	"Shutdown Cooling (SDC) and Coolant Circulation - Low Water Level" (MODE 6).

4

BASES

ACTIONS

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

(wide range)

≤ 50

If one SDC train is OPERABLE and any required SGs has secondary side water levels ~~< [25~~%~~]~~, or one required SDC train is inoperable, redundancy for heat removal is lost. Action must be initiated immediately to restore a second SDC train to OPERABLE status or to restore the water level in the required SGs. Either Required Action will restore redundant decay heat removal paths. The immediate Completion Times reflect the importance of maintaining the availability of two paths for decay heat removal. 2 1

C.1 and C.2

in the LCO section

If a required SDC train is not in operation, or no required SDC train is OPERABLE, except as permitted in 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. Action to restore one SDC train 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. 6 4

SURVEILLANCE REQUIREMENTS

SR 3.4.7.1

This SR requires verification ~~every 12 hours~~ that one SDC train is in operation. Verification includes flow rate, temperature, or pump status monitoring, which help ensure that forced flow is providing decay heat removal. ~~The 12 hour Frequency has been shown by operating practice to be sufficient to regularly assess degradation and verify operation is within safety analyses assumptions. In addition, control room indication and alarms will normally indicate loop status.~~ TSTF-425-A TSTF-425-A

INSERT 1

The SDC flow is established to ensure that core outlet temperature is maintained sufficiently below saturation to allow time for swapover to the standby SDC train should the operating train be lost.

TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 7

--- Reviewers 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 3.4.7.2

(wide range)
> 50

Verifying the SGs are OPERABLE by ensuring their secondary side water levels are ~~≥ [25~~%~~]~~ ensures that redundant heat removal paths are available if the second SDC train is inoperable. The Surveillance is required to be performed when the LCO requirement is being met by use of the SGs. If both SDC trains are OPERABLE, this SR is not needed. ~~The 12 hour Frequency has been shown by operating practice to be sufficient to regularly assess degradation and verify operation within safety analyses assumptions.~~ 2 1

INSERT 1

TSTF-425-A

SR 3.4.7.3

Verification that each required SDC train is OPERABLE ensures that redundant paths for decay heat removal are available. The requirement also ensures that the additional train 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 Surveillance is required to be performed when the LCO requirement is being met by one of two SDC trains, e.g., both SGs have ~~< [25]~~% water level. ~~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 1

wide range
≤ 50

INSERT 1

TSTF-425-A

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

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

TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 7

-- Reviewers 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

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 Specification (ISTS) Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. Changes are made to be consistent with changes made to the Specifications.

6. Changes are made to be consistent with the actual Specifications.

7. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

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.

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ATTACHMENT 8

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

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

ITS

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops — MODE 5, Loops Not Filled

LCO 3.4.8

LCO 3.4.8 Two shutdown cooling (SDC) trains shall be OPERABLE and at least one SDC train shall be in operation.

removed from operation

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

LCO 3.4.8 Note 1

A03

1. All SDC pumps may be ~~de-energized~~ for ≤ 15 minutes when switching from one train to another provided:

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

   b. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.~~2~~1; and

   A01

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

~~2. The pump providing shutdown cooling may be de-energized for ≤ 1 hour per 8 hour period provided:~~

M01

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

   ~~b. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.2.~~

LCO 3.4.8 Note 2

3. One SDC train may be inoperable for ≤ 2 hours for surveillance testing provided the other SDC train is OPERABLE and in operation.

~~4. A containment spray pump may be used in place of a low pressure safety injection pump in either or both shutdown cooling trains to provide shutdown cooling flow provided the reactor has been sub-critical for a period > 24 hours and the RCS is fully depressurized and vented in accordance with LCO 3.4.12.1.~~

LA01

Applicability

APPLICABILITY: MODE 5 with RCS loops not filled.

ITS

A01

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION A	A. One SDC train inoperable.	A.1 Initiate action to restore SDC train to OPERABLE status.	Immediately	
ACTION B	B. Both SDC trains inoperable. OR ~~No~~ Required SDC train not in operation.	B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.~~2~~ 1. AND B.2 Initiate action to restore one SDC train to OPERABLE status and operation.	Immediately Immediately	A02 A01

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.8.1	SR 3.4.8.1 Verify ~~at least one~~ required SDC train is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	A02 LA02
SR 3.4.8.2	SR 3.4.8.2 INSERT 1 Verify correct breaker alignment and indicated power available to ~~the~~ each required SDC pump ~~that is not in operation~~.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	L01 LA02

L01 **INSERT 1**

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

ITS

A01

RCS Loops — MODE 5, Loops Not Filled
3.4.8

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops — MODE 5, Loops Not Filled

LCO 3.4.8

LCO 3.4.8 Two shutdown cooling (SDC) trains shall be OPERABLE and at least one SDC train shall be in operation.

removed from operation

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

LCO 3.4.8 Note 1

1. All SDC pumps may be ~~de-energized~~ for ≤ 15 minutes when switching from one train to another provided: A03

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

   b. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.~~2~~; and A01

   1

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

~~2. The pump providing shutdown cooling may be de-energized for ≤ 1 hour per 8 hour period provided:~~

   ~~a. The core outlet temperature is maintained > 10°F below saturation temperature; and~~ M01

   ~~b. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.2.~~

LCO 3.4.8 Note 2

3. One SDC train may be inoperable for ≤ 2 hours for surveillance testing provided the other SDC train is OPERABLE and in operation.

~~4. A containment spray pump may be used in place of a low pressure safety injection pump in either or both shutdown cooling trains to provide shutdown cooling flow provided the reactor has been sub-critical for a period > 24 hours and the RCS is fully depressurized and vented in accordance with LCO 3.4.12.1.~~ LA01

Applicability

APPLICABILITY: MODE 5 with RCS loops not filled.

ITS

A01

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A	A. One SDC train inoperable.	A.1 Initiate action to restore SDC train to OPERABLE status.	Immediately
ACTION B	B. Both SDC trains inoperable. OR ~~No~~ Required SDC train not in operation.	B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.~~2~~1. AND B.2 Initiate action to restore one SDC train to OPERABLE status and operation.	Immediately A02 A01 Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.8.1	SR 3.4.8.1 Verify ~~at least one~~ required SDC train is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program (A02, LA02)
SR 3.4.8.2	SR 3.4.8.2 INSERT 1 Verify correct breaker alignment and indicated power available to ~~the~~ each required SDC pump ~~that is not in operation~~.	~~7 days~~ In accordance with the Surveillance Frequency Control Program (L01, LA02)

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L01 **INSERT 1**

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

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DISCUSSION OF CHANGES
ITS 3.4.8, RCS LOOPS – MODE 5, LOOPS NOT FILLED

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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 Condition B (second entry Condition) states "No" SDC train in operation. CTS SR 3.4.8.1 requires verifying that "at least one" SDC train is in operation. ITS 3.4.8 Condition B (second entry Condition) states "required" SDC train "not" in operation. ITS SR 3.4.8.1 requires verifying the "required" SDC train is in operation. This changes the CTS by editorial rewording the Condition and the SR.

The second entry condition for 3.4.8 Condition B is corrected since the SDC trains are allowed by the LCO Note 1 to be removed from operation. Therefore, the LCO does not always require a SDC train to be operating, and "required" is necessary to differentiate between compliance and non compliance with the LCO when utilizing the Note allowance. "Required" is also added to SR 3.4.8.1 based on the application of the Note, i.e., a train is not always required to be in operation. This change is designated as administrative because it rewords a condition and SR without technically changing the intent.

A03 CTS LCO 3.4.8 Note 1 states, in part, that all SDC pumps may be "de-energized" for ≤ 15 minutes when switching from one train to another. ITS LCO 3.4.8 Note 1 states that all SDC pumps may be "removed from operation" for ≤ 15 minutes when switching from one train to another. This changes the CTS by replacing the words "de-energized" with "removed from operation" in the LCO Note.

The purpose of the LCO 3.4.8 Note 1 is to allow the SDC pumps to not meet, for a limited period of time, the requirement of LCO 3.4.8 to be in operation. The change better reflects the deviation to the LCO. This change is acceptable and designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 3.4.8 LCO Note 2 allows the pump providing shutdown cooling to be de-energized for ≤ 1 hour per 8 hour period provided the core outlet temperature is maintained > 10°F below saturation temperature and no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.2. ITS 3.4.8 LCO does not contain this Note. This changes the CTS by deleting a Note which allows SDC pumps to be de-energized ≤ 1 hour per 8 hour period.

DISCUSSION OF CHANGES
ITS 3.4.8, RCS LOOPS – MODE 5, LOOPS NOT FILLED

The purpose of CTS 3.4.8 LCO Note 2 is to allow the SDC pumps to be de-energized ≤ 1 hour per 8 hour period for pump swaps and Surveillance testing. The proposed change will delete this allowance. This change is acceptable because the SDC pumps, via Note 1, are allowed to be removed from service to switch from one train to another and neither SR requires the SDC pumps to be removed from operation. This change is designated as more restrictive because it eliminates an allowance to remove SDC pumps from operation in the ITS that was allowed in the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS LCO 3.4.8 Note 4 states a containment spray pump may be used in place of a low pressure safety injection (LPSI) pump in either or both shutdown cooling trains to provide shutdown cooling flow provided the reactor has been subcritical for a period > 24 hours and the RCS is fully depressurized and vented in accordance with LCO 3.4.12.1. ITS LCO 3.4.8 does not contain this Note. This changes the CTS by removing an LCO Note which allows a containment spray pump to be used in place of a LPSI pump and moving it to the ITS Bases.

The removal of the CTS LCO 3.4.8 Note 4 which allows a containment spray pump to be used in place of a LPSI pump 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 LCO 3.4.8 requires the SDC trains to be OPERABLE. The ITS LCO Bases describes the components necessary for the SDC train to be considered OPERABLE. The ITS Bases contains the information that the containment spray pump can replace a LPSI pump if certain conditions are met. 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 information relating to system design and operation is being moved from the Technical Specifications to the ITS Bases.

LA02 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.8.1 requires verifying that at least one SDC train is in operation every 12 hours. CTS SR 3.4.8.2 requires verifying correct breaker alignment and indicated power available to the required SDC pump that is not in operation every 7 days. ITS SRs 3.4.8.1 and 3.4.8.2 require similar Surveillances and specify the periodic Frequencies as "In accordance with

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DISCUSSION OF CHANGES
ITS 3.4.8, RCS LOOPS – MODE 5, LOOPS NOT FILLED

the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequencies for the SRs and the Bases for the Frequencies to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

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DISCUSSION OF CHANGES
ITS 3.4.8, RCS LOOPS – MODE 5, LOOPS NOT FILLED

This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

- A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
- Independence of barriers is not degraded;
- Defenses against human errors are preserved; and
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common

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DISCUSSION OF CHANGES
ITS 3.4.8, RCS LOOPS – MODE 5, LOOPS NOT FILLED

cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequencies are being removed from the Technical Specifications.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 7 – Relaxation of Surveillance Frequency)* CTS SR 3.4.8.2 requires verification that correct breaker alignment and indicated power is available to the required pump that is not in operation every 7 days. ITS SR 3.4.8.2 requires a similar Surveillance, but is modified by an SR Note that allows the SR to not be required to be performed until 24 hours after a required pump is not in operation. This changes the CTS by adding a modifying Note to the SR.

The purpose of SR 3.4.8.2 is to verify that each required pump is OPERABLE to ensure that an additional SDC train can be placed in operation, if needed to maintain decay heat removal. The proposed change adds a modifying Note. The added Note permits performance of the SR to verify correct breaker alignment and power availability to be delayed until 24 hours after a required

DISCUSSION OF CHANGES
ITS 3.4.8, RCS LOOPS – MODE 5, LOOPS NOT FILLED

pump is not in operation. This provision is required because when pumps are swapped under the current requirements, the Surveillance is immediately not met on the pump taken out of operation. This results in an ACTION entry which requires immediate action to restore the pump to OPERABLE status every time the pumps are swapped until the procedure which implements the Surveillance can be performed. The change is acceptable because adequate assurance exists that the pump is aligned to the correct breaker with power available since, prior to being removed from operation the applicable pump had been in operation. Allowing 24 hours before requiring performance of the breaker alignment verification is acceptable because the pump was in operation, which demonstrated its OPERABILITY. The SR is required only for a "required pump that is not in operation." If both required pumps are in operation, there is no applicable SR for the second loop/pump. This change makes the SR applicable to each required pump. The Bases are revised to clarify that verifying a pump is in operation satisfies the SR to verify the correct breaker alignment and availability of the power supply. This change is designated as less restrictive because performance of the SR is allowed to be delayed in ITS SR.

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

LCO 3.4.8

LCO 3.4.8 Two shutdown cooling (SDC) trains shall be OPERABLE and one SDC train shall be in operation.

---NOTES---

LCO 3.4.8 Note 1

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

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

   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 ;

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

2 3 2 3

LCO 3.4.8 Note 3

2. One SDC train may be inoperable for ≤ 2 hours for surveillance testing provided the other SDC train is OPERABLE and in operation.

Applicability

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ~~required~~ SDC train inoperable.	A.1 Initiate action to restore SDC train to OPERABLE status.	Immediately

4

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION B	B. ~~No required~~ Both SDC train~~s~~ ~~OPERABLE~~ inoperable. OR Required SDC train 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 B.2 Initiate action to restore one SDC train to OPERABLE status and operation.	Immediately Immediately	4

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.4.8.1	SR 3.4.8.1	Verify required SDC train is in operation.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A
SR 3.4.8.2	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 available to each required SDC pump.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A

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 ISTS which 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 Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

4. The word "required" is being deleted from ISTS 3.4.8 Condition A and the words "no required" is being replaced with "Both" and "OPERABLE" is replaced with "inoperable" in the first entry Condition of Condition B. The term "required" is not needed for SONGS because there are a total of two SDC trains and both are required to be OPERABLE. Therefore, use of the word required is not needed in either Condition. The phrase inoperable is being used in lieu of OPERABLE to be consistent with Condition A wording as well as the CTS wording.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases 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 and transfer of this heat to the shutdown cooling (SDC) 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 the SDC System can be used for coolant circulation. The number of trains in operation can vary to suit the operational needs. The intent of this LCO is to provide forced flow from at least one SDC train for decay heat removal and transport and to require that two paths be available to provide redundancy for heat removal.

APPLICABLE SAFETY ANALYSES

In MODE 5, RCS circulation is considered in determining the time available for mitigation of the accidental boron dilution event. The SDC trains provide this circulation. The flow provided by one SDC train is adequate for decay heat removal and for boron mixing.

RCS loops - 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 a minimum of two SDC trains be OPERABLE and one of these trains be in operation. An OPERABLE train is one that is capable of transferring heat from the reactor coolant at a controlled rate. Heat cannot be removed via the SDC System unless forced flow is used. A minimum of one running SDC pump meets the LCO requirement for one train in operation. An additional SDC train is required to be OPERABLE to meet the single failure criterion.

Note 1 permits the SDC pumps to be removed from operation for ≤ 15 minutes when switching from one train to another. The circumstances for stopping both SDC pumps are to be limited to situations when the outage time is short ~~[~~and the 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 the SDM of LCO 3.1.1 is maintained or draining operations when SDC forced flow is stopped. 2

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

BASES

LCO (continued)

An OPERABLE SDC train is composed of an OPERABLE SDC pump capable of providing forced flow to an OPERABLE SDC heat exchanger, along with the appropriate flow and temperature instrumentation for control, protection, and indication. SDC pumps are OPERABLE if they are capable of being powered and are able to provide flow if required. An SDC pump is normally a LPSI pump. However, an SDC pump can be a containment spray pump provided it is capable of providing the required flow. To be capable of providing the required flow, the RCS must be fully depressurized and vented and the unit must be shutdown for greater than 24 hours. 1

APPLICABILITY

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

Operation in other MODES is covered by:

LCO 3.4.4, "RCS Loops - MODES 1 and 2~~,~~"; 4
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 3.9.4, "Shutdown Cooling (SDC) and Coolant Circulation - High Water Level" (MODE 6)~~,~~; and
LCO 3.9.5, "Shutdown Cooling (SDC) and Coolant Circulation - Low Water Level" (MODE 6).

ACTIONS

A.1

If one ~~required~~ SDC train is inoperable, redundancy for heat removal is lost. Action must be initiated immediately to restore a second train to OPERABLE status. The Completion Time reflects the importance of maintaining the availability of two paths for heat removal. 5

B.1 and B.2

If both SDC trains are inoperable ~~If no required SDC train is OPERABLE~~ or the required train is not in operation, except as provided in 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. Action to restore one SDC train to OPERABLE status and operation must be initiated immediately. 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 Time reflects the importance of maintaining operation for decay heat removal. 5 4

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.8.1

This SR requires verification ~~every 12 hours~~ that the required SDC train is in operation. Verification includes flow rate, temperature, or pump status monitoring, which help ensure that forced flow is providing decay heat removal. ~~The 12 hour Frequency has been shown by operating practice to be sufficient to regularly assess degradation and verify operation is within safety analyses assumptions.~~ INSERT 1

TSTF-425-A

TSTF-425-A

SR 3.4.8.2

Verification that each required train is OPERABLE ensures that redundant paths for heat removal are available and that an additional train 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 indicated 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.~~ INSERT 1

TSTF-425-A

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.

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TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 6

-- Reviewers 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

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

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

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. Changes are made to be consistent with changes made to the Specification.

6. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

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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)

ITS

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9

LCO 3.4.9 The pressurizer shall be OPERABLE with:

a. Pressurizer water level ≤ 57%; and

b. Two groups of pressurizer heaters OPERABLE with the capacity of each group ≥ 150 kW ~~.~~ and capable of being powered from an emergency power supply

A02

Applicability

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION A	A. Pressurizer water level not within limit.	A.1 Be in MODE 3 with reactor trip breakers open. AND A.2 Be in MODE 4.	6 hours 12 hours	
ACTION B	B. One ~~required~~ group of pressurizer heaters inoperable.	B.1 Restore ~~required~~ group of pressurizer heaters to OPERABLE status.	72 hours	A03
ACTION C	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	

ITS

A01

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.9.1	SR 3.4.9.1 Verify pressurizer water level ≤ 57%.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.9.2	SR 3.4.9.2 Verify capacity of each ~~required~~ group of pressurizer heaters ≥ 150 kW.	~~92 days~~ In accordance with the Surveillance Frequency Control Program	A03 LA01

ITS

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9

LCO 3.4.9 The pressurizer shall be OPERABLE with:

a. Pressurizer water level ≤ 57%; and

b. Two groups of pressurizer heaters OPERABLE with the capacity of each group ≥ 150 kW. and capable of being powered from an emergency power supply

A02

Applicability

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A	A. Pressurizer water level not within limit.	A.1 Be in MODE 3 with reactor trip breakers open. <u>AND</u> A.2 Be in MODE 4.	6 hours 12 hours
ACTION B	B. One ~~required~~ group of pressurizer heaters inoperable.	B.1 Restore ~~required~~ group of pressurizer heaters to OPERABLE status.	72 hours
ACTION C	C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	6 hours 12 hours

A03

ITS

A01

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.9.1	SR 3.4.9.1 Verify pressurizer water level ≤ 57%.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.9.2	SR 3.4.9.2 Verify capacity of each ~~required~~ group of pressurizer heaters ≥ 150 kW.	~~92 days~~ In accordance with the Surveillance Frequency Control Program	A03 LA01

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DISCUSSION OF CHANGES
ITS 3.4.9, PRESSURIZER

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS LCO 3.4.9.b requires two groups of pressurizer heaters OPERABLE with the capacity of each group ≥ 150 kW. ITS LCO 3.4.9.b requires two groups of pressurizer heaters OPERABLE with the capacity of each group ≥ 150 kW "and capable of being powered from an emergency power supply." This changes the CTS by requiring the heaters to be capable of being powered from an emergency power supply.

The purpose of the CTS LCO 3.4.9.b minimum number of pressurizer heater groups and capacity requirements is to ensure the RCS can be maintained near normal operating pressure when accounting for heat losses. The heaters are required to be powered from emergency power sources. This change is acceptable because the added statement, that the heaters are capable of being powered from an emergency power supply, adds information that already exist in the Bases. The CTS LCO 3.4.9 Bases states the heater groups are capable of being powered by the diesel generators. Thus, the change is adding clarity to the LCO statement, because not all heaters are powered by emergency sources. This change is designated as administrative because it does not technically affect the Specification.

A03 CTS 3.4.9 Condition B is for one "required" group of pressurizer heaters inoperable and CTS 3.4.9 Required Action B.1 requires restoration of the "required" group of pressurizer heaters to OPERABLE status. SR 3.4.9.2 requires verifying capacity of each "required" group of pressurizer heaters ≥ 150 kW. ITS 3.4.9 Condition B, Required Action B.1, and SR 3.4.9.2 are similar except the word "required" is being deleted. This changes the CTS by deleting the word "required" from Condition B, Required Action B.1, and SR 3.4.9.2.

This proposed change, deleting the term "required" from CTS 3.4.9 Condition B, Required Action B.1 and SR 3.4.9.2 is acceptable because it is not needed. SONGS Units 2 and 3 only have two pressurizer heater groups that are powered from the emergency buses. Since the LCO requires two pressurizer heater groups to be OPERABLE and these groups must be capable of being powered from an emergency power source, the use of the term "required" is not needed. This change is designated as administrative because it does technically affect the Specifications.

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DISCUSSION OF CHANGES
ITS 3.4.9, PRESSURIZER

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.9.1 requires verifying that pressurizer water level ≤ 57% every 12 hours. CTS SR 3.4.9.2 requires verifying that the capacity of each required group of pressurizer heaters ≥ 150 kW every 92 days. ITS SRs 3.4.9.1 and 3.4.9.2 require similar Surveillances and specify the periodic Frequencies as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequencies for the SRs and the Bases for the Frequencies to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk

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DISCUSSION OF CHANGES
ITS 3.4.9, PRESSURIZER

acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;

   - Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;

   - System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);

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DISCUSSION OF CHANGES
ITS 3.4.9, PRESSURIZER

- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;

- Independence of barriers is not degraded;

- Defenses against human errors are preserved; and

- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

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DISCUSSION OF CHANGES
ITS 3.4.9, PRESSURIZER

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequencies are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

None

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9

LCO 3.4.9 The pressurizer shall be OPERABLE with:

a. Pressurizer water level ~~< [60]~~ ≤ 57 % ; and 2 3

b. [Two groups of] pressurizer heaters OPERABLE with the capacity [of each group] ≥ [150] kW [and capable of being powered from an emergency power supply]. 2

Applicability

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION A	A. Pressurizer water level not within limit.	A.1 Be in MODE 3 with reactor trip breakers open.	6 hours	
		AND		
		A.2 Be in MODE 4.	[12] hours	2
ACTION B	B. One ~~[required]~~ group of pressurizer heaters inoperable.	B.1 Restore ~~[required]~~ group of pressurizer heaters to OPERABLE status.	72 hours	5
ACTION C	C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3.	6 hours	
		AND		
		C.2 Be in MODE 4.	[12] hours	2

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.9.1	SR 3.4.9.1 Verify pressurizer water level is ≤ 57 ~~< [60]~~%.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~	2 TSTF-425-A
	~~-----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
SR 3.4.9.2	SR 3.4.9.2 Verify capacity of each ~~required~~ group of pressurizer heaters ≥ ~~[~~150~~]~~ kW.	In accordance with the Surveillance Frequency Control Program ~~[18] months~~	5 2 TSTF-425-A
	~~SR 3.4.9.3 [Verify required pressurizer heaters are capable of being powered from an emergency power supply.~~	~~[18] months]~~	5

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.9, PRESSURIZER

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

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

4. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

5. ISTS 3.4.9 Condition B and Required Action B.1 include the bracketed term "required." This term is not being maintained in the ITS since SONGS only has two heater groups that can meet the LCO requirements. Since both are required, and the term "required" as used in the ISTS is for when the plant has more installed components than are required to meet the LCO, the term is not necessary and has been deleted. In addition, the same term has been deleted from ISTS SR 3.4.9.2. Furthermore, the bracketed ISTS SR 3.4.9.3 is not being included. The ISTS Bases for the SR states that the SR is not applicable if the heaters are permanently powered by 1E power supplies. The two backup heater groups used to meet the LCO are always powered from the 1E buses. No other heater groups can be used since the others are not powered from 1E sources, as required by the LCO statement.

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Improved Standard Technical Specifications (ISTS) Bases Markup and Bases 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 backup heater 1
controls, and emergency power supplies. Pressurizer safety valves and 5 1
pressurizer power operated relief valves (PORVs) are addressed by
LCO 3.4.10, "Pressurizer Safety Valves." and LCO 3.4.11, "Pressurizer 4 6
Power Operated Relief Valves (PORVs)," respectively.

The maximum water level limit has been established to ensure that a liquid to vapor interface exists to permit RCS pressure control, using the sprays and heaters during normal operation and proper pressure response for anticipated design basis transients. The water level limit serves two purposes:

a. Pressure control during normal operation maintains subcooled reactor coolant in the loops and thus in the preferred state for heat transport and ; 4

b. By restricting the level to a maximum, expected transient reactor coolant volume increases (pressurizer insurge) will not cause excessive level changes that could result in degraded ability for pressure control.

The maximum water level limit permits pressure control equipment to function as designed. The limit preserves the steam space during normal operation, thus, both sprays and heaters can operate to maintain the design operating pressure. The level limit also prevents filling the pressurizer (water solid) for anticipated design basis transients, thus
ensuring that pressure relief devices (PORVs or pressurizer safety 6
valves) can control pressure by steam relief rather than water relief. If the level limits were exceeded prior to a transient that creates a large pressurizer insurge volume leading to water relief, the maximum RCS
pressure might exceed the Safety Limit of 2750 psig. 1

psia

BASES

BACKGROUND (continued)

The requirement to have [two groups of] pressurizer heaters ensures that RCS pressure can be maintained. The pressurizer heaters maintain RCS pressure to keep the reactor coolant subcooled. Inability to control RCS pressure during natural circulation flow could result in loss of single phase flow and decreased capability to remove core decay heat. 2

APPLICABLE SAFETY ANALYSES

In MODES 1, 2, and 3, the LCO requirement for a steam bubble is reflected implicitly in the accident analyses. No safety analyses are performed in lower MODES. 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. The limiting safety analysis for maximum pressurizer level is the Chemical and Volume Control System Malfunction (Ref. 2).

Safety analyses presented in the U FSAR 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

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. 1), is the reason for their inclusion. The requirement for emergency power supplies is based on NUREG-0737 (Ref. 1). These two groups of backup heaters are powered from buses B04 and B06. The intent is to keep the reactor coolant in a subcooled condition with natural circulation at hot, high pressure conditions for an undefined, but extended, time period after a loss of offsite power. While loss of offsite power is a coincident occurrence assumed in the accident analyses, maintaining hot, high pressure conditions over an extended time period is not evaluated in the accident analyses. 1

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

LCO

~~-----REVIEWER'S NOTE-----~~
~~Plants licensed prior to the issuance of NUREG-0737 may not have a requirement on the number of pressurizer groups.~~
~~----------~~ 3

The LCO requirement for the pressurizer to be OPERABLE with water level ~~< [60]~~ ≤ 57% ensures that a steam bubble exists. Limiting the maximum operating water level preserves the steam space for pressure control. The LCO has been established to minimize the consequences of potential overpressure transients. Requiring the presence of a steam bubble is also consistent with analytical assumptions. 2

BASES

LCO (continued)

These two groups of backup heaters are powered from buses B04 and B06.

Each backup heater group requires 4 heaters rated at 50 kW (nominal) each to ensure at least 150 kW is available when powered from the diesel generators.

The LCO requires [two groups of] OPERABLE pressurizer heaters, [each] with a capacity ≥ [150] kW [and capable of being powered from an 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 subcooling margin to saturation can be obtained in the loops. ~~The exact design value of [150] kW is derived from the use of 12 heaters rated at 12.5 kW each.~~ The amount needed to maintain pressure is dependent on the ambient heat losses. 2 1 1

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. The LCO does not apply to MODE 5 (Loops Filled) because LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System," applies. The LCO does not apply to MODES 5 and 6 with partial loop operation.

In MODES 1, 2, and 3, there is the 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 gives 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 Shutdown Cooling System is in service and therefore the LCO is not applicable.

ACTIONS

A.1 and A.2

With pressurizer water level not within the limit, action must be taken to restore the plant to operation within the bounds of the safety analyses. To achieve this status, the unit must be brought to MODE 3, with the reactor trip breakers open, within 6 hours and to MODE 4 within [12] hours. This takes the plant out of the applicable MODES and restores the plant to operation within the bounds of the safety analyses. 2

BASES

ACTIONS (continued)

Six hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems. Further pressure and temperature reduction to MODE 4 brings the plant to a MODE where the LCO is not applicable. The 12 hour time to reach the nonapplicable MODE is reasonable based on operating experience for that evolution.

B.1

If one ~~[required]~~ group of pressurizer heaters is inoperable, restoration is required within 72 hours. The Completion Time of 72 hours is reasonable considering 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. 5

C.1 and C.2

If one ~~[required]~~ group of pressurizer heaters is inoperable and cannot be restored within 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 Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging safety systems. Similarly, the Completion Time of ~~[~~12~~]~~ hours is reasonable, based on operating experience, to reach MODE 4 from full power in an orderly manner and without challenging plant systems. 5 2 2

SURVEILLANCE REQUIREMENTS

SR 3.4.9.1

This Surveillance ensures that during steady state operation, pressurizer water 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 12 hour interval has been shown by operating practice to be sufficient to regularly assess the level for any deviation and verify that operation is within safety analyses assumptions. Alarms are also available for early detection of abnormal level indications.~~ TSTF-425-A

INSERT 1

TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 7

-- Reviewers 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 3.4.9.2

-----------------------------------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.
--- 3

The Surveillance 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. 1 TSTF-425-A

measuring circuit current and voltage to calculate the heater kW capacity

INSERT 2

[SR 3.4.9.3

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

This Surveillance demonstrates that the heaters can be manually transferred to and energized by emergency power supplies. The Frequency of [18] months is based on a typical fuel cycle and industry accepted practice. This is consistent with similar verifications of emergency power.] 5

REFERENCES

1. NUREG-0737, November 1980.

2. UFSAR Section 15.5. 1

TSTF-425-A

INSERT 2

The Frequency is controlled under the Surveillance Frequency Control Program. 7

-- Reviewers 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

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JUSTIFICATION FOR DEVIATIONS
ITS 3.4.9 BASES, PRESSURIZER

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

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. Changes are made to be consistent with changes made to the Specifications.

6. All reference to PORVs in the ISTS 3.4.9 Bases is being deleted. SONGS Units 2 and 3 do not have PORVs.

7. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

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)

ITS

A01 A02

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Pressurizer Safety Valves

LCO 3.4.10 LCO 3.4.10 Two pressurizer safety valves shall be OPERABLE with ~~as-found~~ lift settings ~~of 2500~~ ≥ 2450 psia and ≤ 2575 psia~~, +3% or -2%~~. LA01 A04

Applicability APPLICABILITY: MODES 1, 2, and 3.

-----------------------------NOTE-----------------------------
The lift settings are not required to be within LCO limits during MODE 3 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for 36 hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.

SR 3.4.10.3 ~~Each pressurizer safety valve has an as-found tolerance of +3% or -2%.~~ Following testing in accordance with TS 5.5.2.10, pressurizer safety valves shall be set within ±1% of the specified setpoint. LA01

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION A	A. One pressurizer safety valve inoperable in MODE 1, 2, or 3.	A.1 Restore valve to OPERABLE status.	15 minutes	A02
ACTION B	B. Required Action and associated Completion Time of Condition A not met. OR Two pressurizer safety valves inoperable in MODE 1, 2, or 3.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours	A02 A02

ITS

A01 A02

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.10.3 SR 3.4.10.1	Verify each pressurizer safety valve is OPERABLE in accordance with inservice testing program. Following testing, ~~as-found~~ lift settings shall be ~~within +3% or -2%. However, pressurizer safety valves shall be set to~~ within ±1% ~~of the specified setpoint~~.	In accordance with the Inservice Testing Program

LA01

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ITS

A01 A02

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12.2 Low Temperature Overpressure Protection (LTOP) System

RCS Temperature > PTLR Limit

LCO 3.4.10 Note

LCO 3.4.12.2 At least one of the following overpressure protection systems shall be OPERABLE:

a. The Shutdown Cooling System Relief Valve ~~(PSV9349)~~ with: LA02

1) A lift setting of 406 ± 10 psig,

2) Relief Valve isolation valves ~~2HV9337, 2HV9339, 2HV9377, and 2HV9378~~ open, LA02

or,

b. A minimum of one pressurizer code safety valve with a lift setting of 2500 psia ± 1%.

Applicability

APPLICABILITY: MODE 4 when the temperature of all RCS cold legs are greater than the enable temperatures specified in the PTLR.

~~-----NOTES-----~~

~~1. The lift setting pressure of the pressurizer code safety valve shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.~~

~~2. The SDCS Relief Valve lift setting assumes valve temperatures less than or equal to 130°F.~~

LA03

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A01 A02 A05

Required Action and associated Completion Time of Condition C not met.

OR

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION D D ~~A~~. Required ~~No~~ pressurizer code safety valve~~s~~ inoperable ~~OPERABLE~~ in MODE 4. OR ~~AND~~ Required ~~The~~ SDCS Relief Valve INOPERABLE in MODE 4 for reasons other than Condition C.	D ~~A~~.1 Be in MODE 4 with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR ~~5 and vent the RCS through a greater than or equal to 5.6 square inch vent~~.	8 hours A03 A06 A02 A05
ACTION C C ~~B~~. Required SDC System relief valve inoperable in MODE 4 due to ~~With~~ one or both SDCS Relief Valve isolation valves in a single SDCS Relief Valve isolation valve pair ~~(valve pair 2HV9337 and 2HV9339 or valve pair 2HV9377 and 2HV9378)~~ closed.	C ~~B~~.1 Open the closed valve(s). OR C ~~B~~.2 Power-Lock open the OPERABLE SDCS Relief Valve isolation valve pair.	24 hours 24 hours A05 A02 LA02

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.10.1 --------------------Note-------------------- Only required when the SDCS Relief Valve is being used for overpressure protection. --- SR 3.4.12.2.1 Verify that the SDCS Relief Valve isolation valves ~~2HV9337, 2HV9339, 2HV9377, and 2HV9378~~ are open.	~~72 hours~~ In accordance with the Surveillance Frequency Control Program LA04 LA02
SR 3.4.10.2, SR 3.4.10.3 Add proposed Note for SR 3.4.10.2 and the word "required" to SR 3.4.10.3. SR 3.4.12.2.2 Verify relief valve setpoint.	In accordance with the Inservice Testing Program A07

ITS

A01 A02

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Pressurizer Safety Valves

LCO 3.4.10 LCO 3.4.10 Two pressurizer safety valves shall be OPERABLE with ~~as-found~~ lift settings ~~of 2500~~ ≥ 2450 psia and ≤ 2575 psia~~, +3% or -2%~~. LA01 A04

Applicability APPLICABILITY: MODES 1, 2, and 3.

------------------------------NOTE------------------------------
The lift settings are not required to be within LCO limits during MODE 3 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for 36 hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.

SR 3.4.10.3 ~~Each pressurizer safety valve has an as-found tolerance of +3% or -2%.~~ Following testing in accordance with TS 5.5.2.10, pressurizer safety valves shall be set within ±1% of the specified setpoint. LA01

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION A	A. One pressurizer safety valve inoperable in MODE 1, 2, or 3.	A.1 Restore valve to OPERABLE status.	15 minutes	A02
ACTION B	B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Two pressurizer safety valves inoperable in MODE 1, 2, or 3.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	6 hours 12 hours	A02 A02

ITS

A01 A02

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.10.3	SR 3.4.10.1 Verify each pressurizer safety valve is OPERABLE in accordance with inservice testing program. Following testing, ~~as-found~~ lift settings shall be ~~within +3% or -2%. However, pressurizer safety valves shall be set to~~ within ±1% ~~of the specified setpoint~~.	In accordance with the Inservice Testing Program

LA01

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3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12.2 Low Temperature Overpressure Protection (LTOP) System

RCS Temperature > PTLR Limit

LCO 3.4.12.2 At least one of the following overpressure protection systems shall be OPERABLE:

a. The Shutdown Cooling System Relief Valve ~~(PSV9349)~~ with: LA02

1) A lift setting of 406 ± 10 psig,

LCO 3.4.10 Note

2) Relief Valve isolation valves ~~3HV9337, 3HV9339, 3HV9377, and 3HV9378~~ open, LA02

or,

b. A minimum of one pressurizer code safety valve with a lift setting of 2500 psia ± 1%.

Applicability

APPLICABILITY: MODE 4 when the temperature of all RCS cold legs are greater than the enable temperatures specified in the PTLR.

~~NOTES~~

~~1. The lift setting pressure of the pressurizer code safety valve shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.~~

LA03

~~2. The SDCS Relief Valve lift setting assumes valve temperatures less than or equal to 130°F.~~

A01 A02

LTOP System
3.4.12.2

A05

ACTIONS

Required Action and associated Completion Time of Condition C not met.

OR

A03 A06 A02 A05

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION D	D ~~A~~. Required ~~No~~ pressurizer code safety valve~~s~~ inoperable ~~OPERABLE~~ in MODE 4. OR ~~AND~~ Required ~~The~~ SDCS Relief Valve INOPERABLE for reasons other than Condition C in MODE 4.	D ~~A~~.1 Be in MODE 4 with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR ~~5 and vent the RCS through a greater than or equal to 5.6 square inch vent~~.	8 hours
ACTION C	C ~~B~~. Required SDC System relief valve inoperable in MODE 4 due to ~~With~~ one or both SDCS Relief Valve isolation valves in a single SDCS Relief Valve isolation valve pair ~~(valve pair 3HV9337 and 3HV9339 or valve pair 3HV9377 and 3HV9378)~~ closed.	C ~~B~~.1 Open the closed valve(s). OR C ~~B~~.2 Power-Lock open the OPERABLE SDCS Relief Valve isolation valve pair.	24 hours 24 hours

A05 A02 LA02

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.10.1	--------------------Note-------------------- Only required when the SDCS Relief Valve is being used for overpressure protection. -- SR 3.4.12.2.1 Verify that the SDCS Relief Valve isolation valves ~~3HV9337, 3HV9339, 3HV9377, and 3HV9378~~ are open.	~~72 hours~~ In accordance with the Surveillance Frequency Control Program
SR 3.4.10.2, SR 3.4.10.3	Add proposed Note for SR 3.4.10.2 and the word "required" to SR 3.4.10.3. SR 3.4.12.2.2 Verify relief valve setpoint.	In accordance with the Inservice Testing Program

LA04 LA02 A07

DISCUSSION OF CHANGES
ITS 3.4.10, PRESSURIZER SAFETY VALVES

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications-Combustion Engineering Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS 3.4.10 provides the pressurizer safety valve requirements in MODES 1, 2, and 3. CTS 3.4.12.2 provides the requirements in MODE 4 when the temperature of all RCS cold legs are greater than the enable temperature specified in the PTLR. ITS 3.4.10 provides the pressurizer safety valve requirements for MODES 1 through 4, when above the LTOP enable temperature. That is, the ITS combines these two CTS Specifications into a single Specification. Due to this combining, the ITS Conditions include Applicability information to clearly identify when the ACTIONS are required (i.e., either MODE 1, 2, or 3 or in MODE 4). This changes the CTS by combining two Specifications into a single Specification.

This change is acceptable because the requirements have not changed, unless justified by another DOC. This change only combines the two Specifications into a single Specification, and adds amplifying information into the Conditions to clearly state when they are applicable. This change is designated as administrative because it does not result in a technical change to the CTS.

A03 CTS 3.4.12.2 Condition A states "No pressurizer code safety valves OPERABLE AND The SDCS Relief valve INOPERABLE." ITS 3.4.10 Condition D, states, in part, "Required pressurizer safety valve inoperable... OR Required SDC System relief valve inoperable..." This changes the CTS by clearly specifying that the "required" safety valve is inoperable or the "required" SDC System relief valve is inoperable. Note that the change adding the words "for reasons other than Condition C" to the SDC System relief valve Condition is described in Discussion of Change A05.

This change is acceptable because the requirements have not changed. Both the CTS and the ITS require the same number of safety valves to be OPERABLE. The ITS change is necessary since CTS 3.4.12.2 is being combined with CTS 3.4.10 and clarifying information is required to ensure the proper Condition is entered. The CTS requires either one pressurizer safety valve or one SDC relief valve to be OPERABLE. The CTS Condition is written listing all installed components are inoperable, in lieu of the NUREG-1432 normal manner of writing a Condition, which is to specify that the "required" components are inoperable. Thus, stating either the "required" pressurizer safety valve is inoperable "or" that the "required" SDC System relief valve is inoperable, is the same thing as stating "no" safety valves are OPERABLE "and" "the" SDC

DISCUSSION OF CHANGES
ITS 3.4.10, PRESSURIZER SAFETY VALVES

System relief valve is inoperable. This change is designated as administrative because it does not result in a technical change to the CTS.

A04 CTS LCO 3.4.10 requires two pressurizer safety valves to be OPERABLE with as-found lift settings of 2500 psia, +3% or -2%. ITS LCO 3.4.10 requires two pressurizer safety valves to be OPERABLE with lift settings ≥ 2450 psia and ≤ 2575 psia. 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. The ITS now provides the actual lift settings in lieu of a tolerance band. The ITS lift settings of ≥ 2450 psia and ≤ 2575 psia are the CTS tolerance band of 2500 psia +3%/-2%. This change is designated as administrative because it does not result in a technical change to the CTS.

A05 CTS 3.4.12.2 ACTION B provides the actions when the SDC System relief valve is inoperable due to one or both valves in one of the isolation valve pairs being closed. If the SDC relief valve is inoperable due to a reason other than what is specified in CTS 3.4.12.2 Condition B, then CTS 3.4.12.2 ACTION A is required to be entered, since the second Condition in Condition A now applies (SDCS relief valve inoperable). In addition, CTS 3.4.12.2 ACTION B does not provide a default condition if the Required Actions are not met. The proper place to go at this time is to take the actions specified in CTS 3.4.12.2 ACTION A, which provides the actions when the SDCS relief valve is inoperable for other reasons (e.g., lift setting not within limit, isolation valves in both isolation valve pairs not open). ITS 3.4.10 ACTION C covers the same condition that CTS 3.4.12.2 ACTION B covers. Condition C states that the SDC System relief valve is inoperable due to one or both SDC relief valve isolation valves being open. In addition, ITS 3.4.10 includes a specific Condition when the Required Actions of ITS 3.4.10 Condition C are not met. Specifically, ITS 3.4.10 Condition D states "Required Action and associated Completion Time of Condition C not met." Furthermore, the ITS 3.4.10 Condition D that covers the SDC System relief valve clearly states that it is inoperable for reasons other than Condition C (which is the Condition that covers the isolation valves being open). This changes the CTS by clearly stating the appropriate Condition to enter for SDC System relief valve inoperabilities and when the Required Actions for an open SDC relief valve isolation valve is not met.

This change is acceptable since these are the correct actions to take. Specifically, CTS 3.4.12.2 Condition A is supposed to be entered when the SDC System relief valve is inoperable for reasons other than an isolation valve being open, and CTS 3.4.12.2 Condition B is supposed to be entered when one or more isolation valves in one pair is open. Thus, ITS 3.4.10 Conditions C and D are now written to clearly state and clarify this current requirement. Furthermore, the Required Actions of CTS 3.4.12.2 ACTION A (ITS 3.4.10 ACTION D) place the unit outside the Applicability of the LCO. While the CTS does not specifically state to enter this action, when the 24 hours allowed in the two Required Actions are not met, this is the appropriate ACTION to enter. This is also consistent with CTS 3.4.12.1, which provides the relief valve requirements in MODE 4 when below the LTOP enable temperature. This change is designated as administrative because it does not result in a technical change to the CTS.

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DISCUSSION OF CHANGES
ITS 3.4.10, PRESSURIZER SAFETY VALVES

A06 CTS 3.4.12.2 Required Action A.1 states that if the requirements of the LCO are not met, to "Be in MODE 5 and vent the RCS through a greater than or equal to 5.6 square inch vent." ITS 3.4.10 Required Action D.1, which provides the requirements to take under similar conditions, states to "Be in MODE 4 with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR." This changes the CTS by clearly stating that the unit only has to be taken out of the Applicability of the LCO, in lieu of taking it to a condition that is well outside the Applicability of the LCO.

This change is acceptable since it is clarifying that the unit only has to be taken to a condition where the LCO is not required. The Applicability of CTS 3.4.12.2 (and the last Applicability of LCO 3.4.10) is "MODE 4 when the temperature of all RCS cold legs are greater than the enable temperatures specified in the PTLR." CTS and ITS LCO 3.0.2 states that "If the LCO is met or is no longer Applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required, unless otherwise specified." The CTS and ITS Bases states that the "unless otherwise specified" statement will be evident by a Note stating that the ACTIONS have to be completed, even if the Applicability is exited or the component is restored to OPERABLE status. This type of Note is not present in CTS 3.4.12.2 ACTION A. Therefore, once the unit is outside of the Applicability of the LCO (i.e., below the LTOP enable temperature specified in the PTLR), continuation of the unit shutdown to MODE 5 is not required. Furthermore, there is an LCO that covers the Applicability of MODE 4 with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR. Thus, once temperature is reduced below the LTOP enable temperature, CTS 3.4.12.2 (ITS 3.4.10) is no longer applicable and the shutdown to MODE 5 with a vent greater than 5.6 inches is not required. The requirements of CTS 3.4.12.1 (ITS 3.4.12) would now be applicable and any ACTIONS required by that Specification would be taken. This change is designated as administrative because it does not result in a technical change to the CTS.

A07 CTS SR 3.4.12.2.2 requires verification of relief valve setpoint. It covers both pressurizer safety valve setpoint verification and a SDC System relief valve setpoint verification. Since CTS LCO 3.4.12.2 only requires one pressurizer safety valve or the SDC System relief valve to be OPERABLE, then this SR only has to be performed on the valve that is used to meet the LCO. The ITS includes two SRs, one for the SDC System relief valve (ITS SR 3.4.10.2) and one for the pressurizer safety valve (ITS SR 3.4.10.3). Furthermore, ITS SR 3.4.10.3 covers the pressurizer safety valves when in MODES 1, 2, and 3, and both pressurizer safety valves are required to be OPERABLE in these MODES. ITS SR 3.4.10.2 includes a Note that states the SR is only required when the SDC System relief valve is being used for overpressure protection. Furthermore, ITS SR 3.4.10.3 only requires the "required" pressurizer safety valves to have their setpoint verified. This changes the CTS by clearly stating that the SDC relief valve setpoint verification is only required when the valve is being used to meet the LCO requirements and that only the "required" pressurizer safety valves are required to have their setpoint verified.

DISCUSSION OF CHANGES
ITS 3.4.10, PRESSURIZER SAFETY VALVES

This change is acceptable since it is clarifying that the setpoint verifications only have to be performed on the "required" valves. Specifically, one pressurizer safety valve if that valve is being used to meet the LCO and the SDC System relief valve if that valve is being used to meet the LCO. This clarification does not change the intent of the SRs, since SRs only have to be performed on equipment required to be OPERABLE. In addition, NUREG-1432 normally uses the term "required" when more components are installed than are required by the LCO. Since there are two pressurizer safety valves, and at most only one is required in MODE 4, the use of the term "required" is consistent with its use in the NUREG. Furthermore, CTS 3.4.12.2.1 specifies a similar Note, since it only applies to the SDC System relief valve. This change is designated as administrative because it does not result in a technical change 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 LCO 3.4.10 requires the "as found" lift settings to be 2500 psi, +3%/-2%. CTS 3.4.10 Applicability contains a Note which states, in part, that "each pressurizer safety valve has an as-found tolerance of +3% or -2%." Additionally, CTS SR 3.4.10.1 contains a statement that states, in part, that following testing, as-found lift setting will be within +3% or -2%. However, presurizer safety valves shall be set to within ±1% of the specified setpoint. ITS 3.4.10 does not contain these clarifications concerning as-found requirements. This changes the CTS by moving these details concerning the lift setting in the LCO and the as-found setttings 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 to provide adequate protection of public health and safety. ITS LCO 3.4.10 clearly states the lift setting requirements of +3% (2575 psia) and -2% (2450 psia) for the Pressurizer Safety Valves. These are the lift setting requirements for OPERABILITY. Also, ITS SR 3.4.10.3 clearly states the reset lift setting following testing. This change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

DISCUSSION OF CHANGES
ITS 3.4.10, PRESSURIZER SAFETY VALVES

LA02 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS LCO 3.4.12.2.a, CTS LCO 3.4.12.2.a.2) and CTS SR 3.4.12.2.1 provide specific valve numbers for the SDC System relief valve and the SDC System relief valve isolation valves. CTS 3.4.12.2 ACTION B also provides the specific valve numbers for the SDC System relief valve isolation valves and identifies which valves are "pairs." ITS 3.4.10 does not include these details, but only includes the plant specific names for the valves. This changes the CTS by moving the valve numbers and which SDC System relief valve isolation valves are "pairs" 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 Specification to provide adequate protection of public health and safety. ITS 3.4.10 still retains a requirement for the SDC System relief valve to be OPERABLE and all the SDC System relief valve isolation valves to be open, and provides a Condition that references the term "pairs" when referring to the SDC System relief valve isolation valves. 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 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.

LA03 *(Type 2 – Removing Descriptions of System Operation)* CTS 3.4.12.2 Applicability contains two Notes which state that the lift setting of the pressurizer code safety valves shall correspond to ambient conditions of the valve at normal operating temperature and pressure and the SDCS Relief Valve lift setting assumes valve temperatures less than or equal to 130°F. ITS 3.4.10 Applicability does not contain this Note. This changes the CTS by moving these details 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 to provide adequate protection of public health and safety. ITS LCO 3.4.10 continues to specify the Pressurizer Safety Valve Lift settings and the LCO Note specifies the Shutdown Cooling System relief valve settings. Also, ITS SRs 3.4.10.1 and 3.4.10.2 continue to require verification of the lift settings. This change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as less restrictive removal of detail change because information relating to system operation is being removed from the Technical Specifications.

LA04 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.12.2.1 requires verifying the SDC System Relief valve isolation valves are open every 72 hours. ITS SR 3.4.10.1 requires a similar Surveillance and specifies the periodic Frequency is "In

DISCUSSION OF CHANGES
ITS 3.4.10, PRESSURIZER SAFETY VALVES

accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequency for the SR and the Bases for the Frequency to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

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DISCUSSION OF CHANGES
ITS 3.4.10, PRESSURIZER SAFETY VALVES

This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. The proposed change is consistent with the defense-in-depth philosophy.

As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

- A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
- Independence of barriers is not degraded;
- Defenses against human errors are preserved; and
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common

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DISCUSSION OF CHANGES
ITS 3.4.10, PRESSURIZER SAFETY VALVES

cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because a Surveillance Frequency is 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)

3.4.10 Pressurizer Safety Valves

LCO 3.4.10

LCO 3.4.10 [Two] pressurizer safety valves shall be OPERABLE with lift settings ≥ [2475] psia and ≤ [2525] psia. 2

2450 2575

INSERT 1 3

LCO 3.4.10 Applicability
LCO 3.4.12.2 Applicability

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with all RCS cold leg temperatures greater than the LTOP enable temperature specified in the PTLR.

Applicability Note

---NOTE---
The lift settings are not required to be within 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 [36] hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup. 2

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
3.4.10 ACTION A	A. One pressurizer safety valve inoperable. in MODE 1, 2 or 3	A.1 Restore valve to OPERABLE status.	15 minutes	4
3.4.10 ACTION B	B. Required Action and associated Completion Time not met. of Condition A OR Two [or more] pressurizer safety valves inoperable. in MODE 1, 2 or 3	B.1 Be in MODE 3. AND B.2 Be in MODE 4 ~~with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR~~.	6 hours 12 [24] hours	4 4 2 2 4

INSERT 2 3

3

INSERT 1

---NOTE---

LCO 3.4.12.2 Only one pressurizer safety valve, with a lift setting of ≥ 2475 psia and ≤ 2525 psia is required in MODE 4 with all RCS cold leg temperatures greater than the LTOP enable temperature. In addition, the Shutdown Cooling (SDC) System relief valve may be used in place of the pressurizer safety valve provided the lift setting is ≥ 396 psig and ≤ 416 psig and all SDC System relief valve isolation valves are open.

----

3 **INSERT 2**

3.4.12.2 ACTION B	C. Required SDC System relief valve inoperable in MODE 4 due to one or both SDC System relief valve isolation valves in a single SDC System relief valve isolation valve pair closed.	C.1	Open the closed valve(s).	24 hours
		OR		
		C.2	Power–lock open the OPERABLE SDC System relief valve isolation valve pair.	24 hours
3.4.12.2 ACTION A	D. Required Action and associated Completion Time of Condition C not met. OR Required pressurizer safety valve inoperable in MODE 4. OR Required SDC System relief valve inoperable in MODE 4 for reasons other than Condition C.	D.1	Be in MODE 4 with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR.	8 hours

SURVEILLANCE REQUIREMENTS

INSERT 3 required

SURVEILLANCE		FREQUENCY
SR 3.4.10.1, SR 3.4.12.2.2 SR 3.4.10.~~1~~ 3	Verify each required 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

3

3

INSERT 3

SR 3.4.12.2.1	SR 3.4.10.1	-----------------------------NOTE------------------------------ Only required when the SDC System relief valve is being used for overpressure protection. --- Verify that the SDC System relief valve isolation valves are open.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.2.2	SR 3.4.10.2	-----------------------------NOTE------------------------------ Only required when the SDC System relief valve is being used for overpressure protection. --- Verify SDC System relief valve setpoint.	In accordance with the Inservice Testing Program

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.10, PRESSURIZER SAFETY VALVES

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

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. A Note has been added to LCO 3.4.10 that states "only one pressurizer safety valve, with a lift setting of ≥ 2475 psia and ≤ 2525 psia, is required in MODE 4 with all RCS cold leg temperatures greater than the LTOP enable temperature. In addition, a Shutdown Cooling (SDC) System relief valve may be used in place of the pressurizer safety valve provided the lift setting is ≥ 396 psig and ≤ 416 psig and all SDC System relief valve isolation valves are open." Additionally, two new ACTIONS have been added commensurate with the addition of the Note and as required in CTS 3.4.12.2. Furthermore, two new SRs have been added to verify the SDC System relief valve added by the aforementioned Note is OPERABLE. These changes are consistent with the CTS 3.4.12.2 requirements and as clarified in Discussion of Changes A05, A06, and A07. Due to the new SRs, subsequent SRs have been renumbered. Furthermore, since only one pressurizer safety valve is required OPERABLE, ISTS SR 3.4.10.1 (ITS SR 3.4.10.3) has been modified by adding the word "required." Use of this word is consistent with its use throughout NUREG-1432.

4. A statement has been added to ITS 3.4.10 Condition A and Condition B which states that the Conditions are applicable in MODE 1, 2, or 3. Additionally, Required Action B.2 has been changed to require the unit to be in MODE 4 instead of being in MODE 4 with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR. These changes are consistent with the CTS 3.4.10 and CTS 3.4.12.2 requirements. SONGS Unit 2 and 3 have different requirements for the pressurizer safety valves in MODE 4 than in MODES 1, 2, and 3.

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

, 2, and 3

INSERT 1

The purpose of the two spring loaded pressurizer safety valves is to provide RCS overpressure protection. Operating in conjunction with the Reactor Protection System, two valves are used to ensure that the Safety Limit (SL) of 2750 psia is not exceeded for analyzed transients during operation in MODES ~~1 and 2~~. ~~Two safety valves are used for MODE 3 and portions of MODE 4.~~ For the remainder of MODE 4, MODE 5, and MODE 6 with the head on, overpressure protection is provided by operating procedures and ~~the~~ LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System." 1 4

+3 or-2

The self actuated pressurizer safety valves are designed in accordance with the requirements set forth in the ASME, Boiler and Pressure Vessel Code, Section III (Ref. 1). The required lift pressure is 2500 psia ~~± 1~~%. The safety valves discharge steam from the pressurizer to a quench tank located in the containment. The discharge flow is indicated by an increase in temperature downstream of the safety valves and by an increase in the quench tank temperature and level. 1

The as-found upper pressure tolerance limit of +3% is based on limiting the RCS pressure to 120% of design pressure for the feedwater system pipe break event, and 110% of design pressure for all other design basis events. The as-found lower pressure tolerance limit of -2% is based on ensuring a reactor trip occurs on high pressurizer pressure prior to safety valve actuation (Ref. 2).

~~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. 1

120% of design pressure for the feedwater system pipe break event and

for all other design basis events

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 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. 1

APPLICABLE SAFETY ANALYSES

U

All accident analyses in the FSAR that require safety valve actuation assume operation of both pressurizer safety valves to limit increasing reactor coolant pressure. The overpressure protection analysis is also based on operation of both safety valves and assumes that the valves open at the high range of the setting (2500-psia system design pressure plus ~~1~~%). These valves must accommodate pressurizer insurges that 1 1

3

1 **INSERT 1**

Overpressure mitigation through pressure relief is provided by either the Shutdown Cooling System Relief Valve or a minimum of one pressurizer safety valve while in MODE 4 with all RCS cold leg temperatures greater than the LTOP enable temperature specified in the PTLR.

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BASES

APPLICABLE SAFETY ANALYSES (continued)

The lower pressure tolerance limit of - 2% is based on ensuring a reactor trip occurs on high pressurization pressure prior to safety valve actuation (Ref. 2).

could occur during a startup, rod withdrawal, ejected rod, loss of main feedwater, or main feedwater line break accident. ~~The startup accident establishes the minimum safety valve capacity. The startup accident is assumed to occur at < 15% power.~~ Single failure of a safety valve is neither assumed in the accident analysis nor required to be addressed by the ASME Code. Compliance with this specification is required to ensure that the accident analysis and design basis calculations remain valid. 1

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

LCO

In MODES 1, 2, and 3,

~~The~~ [two] 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 RCS design pressure SL, to maintain accident analysis assumptions, and to comply with ASME Code requirements. The upper ~~and lower~~ pressure tolerance ~~limits are based on the ± 1% tolerance requirements (Ref. 1) for lifting pressures above 1000 psig.~~ 2 3 1

limit of +3% is based on limiting the RCS pressure to 120% of design pressure for the feedwater system pipe break event, and 110% of design pressure for all other design basis events. The lower pressure tolerance limit of -2% is based on ensuring a reactor trip occurs on high presurrizer pressure prior to safety valve actuation (Ref. 2).

The limit protected by this specification is the reactor coolant pressure boundary (RCPB) SL of 110% of design pressure. Inoperability of one or both 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 2

or 120%

INSERT 2

APPLICABILITY

In MODES 1, 2, and 3~~, and portions of MODE 4 above the LTOP temperature,~~ OPERABILITY of [two] 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 both safety valves for protection.~~ 2 3 1 2

120% of design pressure for the feedwater system pipe break event and

pressure for all other design basis events

INSERT 3

The LCO is not applicable in MODE 4 when any RCS cold leg temperature is less than or equal to the LTOP enable temperature specified in the PTLR and MODE 5 because LTOP protection is provided. Overpressure protection is not required in MODE 6 with the reactor vessel head detensioned.

The Note allows entry into MODES 3 and 4 with the lift settings outside 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 [36] hour exception is based on 18 hour outage time for each of the two valves. The 18 hour period is derived from operating experience that hot testing can be performed within this timeframe. 3

2 INSERT 2

In MODE 4 with all RCS cold leg temperatures greater than the LTOP enable temperature specified in the PTLR, a Note allows that there will be either a SDC System Relief Valve or a minimum of one pressurizer code safety valve OPERABLE for overpressure mitigation through pressure relief.

The SDC System relief valve (PSV9349) is OPERABLE for LTOP when its lift setpoint is set at 406 ± 10 psig or less and testing has proven its ability to open at that setpoint, and all relief valve isolation valves (HV9337, HV9339, HV9377, and HV9378) are open. A pressurizer code safety valve is OPERABLE when its lift setting is 2500 psia ± 1% and testing has proven its ability to open at that setpoint.

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

2 INSERT 3

In MODE 4 with all RCS cold leg temperatures greater than that LTOP enable temperature specified in the PTLR, overpressure mitigation through pressure relief is provided by either the SDC System relief valve or a minimum of one pressurizer safety valve

BASES

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 RCPB.

B.1 and B.2

If the Required Action 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 temperature less than or equal to the LTOP enable temperature specified in the PTLR~~ within 12 ~~[24]~~ hours. The 6 hours allowed is reasonable, based on operating experience, to reach MODE 3 from full power without challenging plant systems. Similarly, the 12 ~~[24]~~ hours allowed is reasonable, based on operating experience, to reach MODE 4 without challenging plant systems. With any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR, overpressure protection is provided by LTOP. The change from MODE 1, 2, or 3 to MODE 4 reduces the RCS energy (core power and pressure), lowers the potential for large pressurizer insurges, and thereby removes the need for overpressure protection by ~~[~~two~~]~~ pressurizer safety valves.

INSERT 4

SURVEILLANCE REQUIREMENTS

INSERT 5

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. 1), which provides the activities and the Frequency necessary to satisfy the SRs. No additional requirements are specified.

The pressurizer safety valve setpoint is ~~± [3]~~ +3% or -2 % for OPERABILITY in MODES 1, 2, and 3; however, the valves are reset to ± 1% during the Surveillance to allow for drift. In MODE 4, the lift settings is ± 1% for OPERABILITY.

REFERENCES

1. ASME Code for Operation and Maintenance of Nuclear Power Plants.
2. ABB Letter No. ST-96-623 dated December 19, 1996; subject: Transmittal and Completion of the SCE SONGS 2/3 PSV Tolerance Study.

2 **INSERT 4**

C.1 and C.2

When the required SDC System relief valve is inoperable in MODE 4 due to one or both SDC System relief valve isolation valves in a single SDC System relief valve pair (i.e., valve pair HV9337 and HV9339 or valve pair HV9377 and HV9378) being closed, the valve(s) must be open or the other isolation valves in the remaining pair must be power-locked open within 24 hours. The 24 hour Completion Time for a single channel of SDC System relief valve isolation valve(s) increases the availability of the LTOP System to mitigate low temperature overpressure transients during MODE 4.

The 24 hour Completion Time implements the guidance provided in Generic Letter 90-06.

D.1

With any Required Action and associated Completion Time of Condition C not met, or with either the required pressurizer safety valve inoperable or the required SDC System relief valve inoperable for reasons other than Condition C (e.g., the relief valve setting not being within limit, one or more isolation valves not open in both isolation valve pairs) when in MODE 4, overpressurization is possible.

The 8 hour Completion Time to be in MODE 4 with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR reflects the importance of maintaining overpressure protection of the RCS and places the unit outside the Applicability of this LCO. At that time, the requirements of LCO 3.4.12 must be followed.

2 **INSERT 5**

SR 3.4.10.1

When the SDC System relief valve is being used for overpressure protection, then all the SDC System relief valve isolation valves (HV9337, HV9339, HV9377, and HV9378) are verified open to preclude a single failure condition that might occur if only one pair of isolation valves are open. The Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.4.10.2

When the SDC System relief valve is being used for overpressure protection, the SDC System relief valve setpoint is verified periodically in accordance with the Inservice Testing Program.

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.10 BASES, PRESSURIZER SAFETY VALVES

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

2. Changes are made to the Bases to reflect changes made to the Specifications.

3. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

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Specific No Significant Hazards Considerations (NSHCs)

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

There are no specific NSHC discussions for this Specification.

ATTACHMENT 11

ITS 3.4.12, LOW TEMPERATURE OVERPRESSURE PROTECTION (LTOP) SYSTEM

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

ITS

A01

LTOP System
3.4.12.1

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12.1 Low Temperature Overpressure Protection (LTOP) System

~~RCS Temperature ≤ PTLR Limit~~

LCO 3.4.12

LCO 3.4.12.1 An LTOP System shall be OPERABLE with a maximum of ~~No more than~~ two high pressure safety injection pumps ~~shall be OPERABLE,~~ capable of injecting into the RCS and the safety injection tanks ~~shall be~~ isolated ~~or depressurized to less than the limit specified in the PTLR~~ and ~~at least one of the following overpressure protection systems shall be OPERABLE~~: A02

LCO 3.4.12.a

a. The Shutdown Cooling (SDC) System ~~R~~relief ~~V~~valve (PSV9349) OPERABLE with: A02

1) A lift setting of 406 ± 10 psig,

2) Relief ~~V~~valve isolation valves (~~2~~HV9337, ~~2~~HV9339, ~~2~~HV9377, and ~~2~~HV9378) open, A02

or,

LCO 3.4.12.b

b. The Reactor Coolant System depressurized with an RCS vent of greater than or equal to 5.6 square inches.

Applicability

APPLICABILITY: MODE 4 when the temperature of any one RCS cold leg is less than or equal to the LTOP enable temperatures specified in the PTLR, A02

MODE 5, and

MODE 6 when the head is on the reactor vessel ~~and the RCS is not vented~~. M01

LCO 3.4.12 Note

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

~~SIT isolation or depressurization to less than the limits in the PTLR is only required when SIT pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the PTLR.~~ A03

SIT may be unisolated when SIT 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.

A01

ITS

LTOP System
3.4.12.1

A04

-----NOTE-----
LCO 3.0.4.b is not applicable to the SDC relief valve when entering MODE 4.

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION A	A. ~~With more than two~~ Three HPSI pumps capable of injecting into the RCS.	A.1 Initiate action to verify a maximum of two HPSI pumps capable of injecting into the RCS.	Immediately	A05
ACTION B	B. A SIT not isolated when SIT pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	B.1 Isolate affected SIT.	1 hour	A05
ACTION C	C. Required Action and associated Completion Time of Condition B not met.	C.1 Depressurize affected SIT to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours	
ACTION D	D. With one or both SDCS Relief Valve isolation valves in a single SDCS relief valve isolation valve pair (valve pair ~~2~~HV9337 and ~~2~~HV9339 or valve pair ~~2~~HV9377 and ~~2~~HV9378) closed.	D.1 Open the closed valve(s). OR D.2 Power-lock open the OPERABLE SDCS relief valve isolation valve pair.	24 hours 24 hours	A02

(continued)

ITS

A01

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION E — E. SDCS Relief Valve inoperable. OR Required Action and associated Completion Time of Condition A, C, or D not met. OR LTOP System inoperable for any reason other than Condition A, B, C, or D.	E.1 ~~Reduce T_{avg} to less than 200°F,~~ Ddepressurize RCS and establish RCS vent of ≥ 5.6 square inches.	~~8~~ 12 hours

L01 L02

A05

ITS

A01

LTOP System
3.4.12.1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.12.1	SR 3.4.12.1.1 ~~-------NOTE-------~~ ~~A HPSI pump is secured by verifying that its motor circuit breaker is not racked-in, or its discharge valve is locked closed. The requirement to rack out the HPSI pump breaker is satisfied with the pump breaker racked out to its disconnected or test position.~~ ~~----------~~ Verify a maximum of two HPSI pumps are capable of injecting into the RCS.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01 LA02
SR 3.4.12.2	SR 3.4.12.1.2 ~~-------NOTE-------~~ ~~Required to be performed when complying with the LCO 3.4.12.1 Note.~~ ~~----------~~ Verify each SIT is isolated ~~or depressurized less than the limit specified in the PTLR~~.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	A06 A03 LA02
SR 3.4.12.3	SR 3.4.12.1.3 Verify required RCS vent ≥ 5.6 square inches is open ~~when in use for overpressure protection~~.	~~12 hours for unlocked open vent valve(s)~~ ~~AND~~ ~~31 days for locked, sealed, or otherwise secured open vent valve(s), or open flanged RCS penetrations~~ In accordance with the Surveillance Frequency Control Program	A07 LA02 LA02

(continued)

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ITS

A01

LTOP System
3.4.12.1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
	~~NOTES~~ ~~1. Only required to be performed when the SDCS Relief Valve isolation valve pair is inoperable.~~ ~~2 The power-lock open requirement is satisfied either with the AC breakers open for valve pair 2HV9337 and 2HV9339 or the inverter input and output breakers open for valve pair 2HV9377 and 2HV9378, whichever valve pair is OPERABLE.~~		A08 LA03
Required Action D.2.2 ~~SR 3.4.12.1.4~~	Verify the OPERABLE SDCS Relief Valve isolation valve pair (valve pair ~~2~~HV9337 and ~~2~~HV9339, or valve pair ~~2~~HV9377 and ~~2~~HV9378) is in the power-lock open condition.	12 hours	A08 A02
SR 3.4.12.4 SR 3.4.12.1.5	Verify that required SDCS Relief Valve isolation valves ~~2~~HV9337, ~~2~~HV9339, ~~2~~HV9377, and ~~2~~HV9378 are open ~~when the SDCS Relief Valve is used for overpressure protection~~.	~~72 hours~~ In accordance with the Surveillance Frequency Control Program	A07 LA02 A02 A07
SR 3.4.12.5 SR 3.4.12.1.6	Verify required SDCS System Relief Valve Setpoint is within limits.	In accordance with the Inservice Testing Program	A07 A02

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ITS

A01

LTOP System
3.4.12.1

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12.1 Low Temperature Overpressure Protection (LTOP) System

~~RCS Temperature ≤ PTLR Limit~~

An LTOP System shall be OPERABLE with a maximum of

LCO 3.4.12 — LCO 3.4.12.1 ~~No more than~~ two high pressure safety injection pumps ~~shall be OPERABLE,~~ capable of injecting into the RCS and the safety injection tanks ~~shall be~~ isolated ~~or depressurized to less than the limit specified in the PTLR~~ and ~~at least one of the following overpressure protection systems shall be OPERABLE~~: A02

LCO 3.4.12.a — a. The Shutdown Cooling (SDC) System relief valve (PSV9349) OPERABLE with: A02

1) A lift setting of 406 ± 10 psig,

2) Relief valve isolation valves (~~3~~HV9337, ~~3~~HV9339, ~~3~~HV9377, and ~~3~~HV9378) open, A02

or,

LCO 3.4.12.b — b. The Reactor Coolant System depressurized with an RCS vent of greater than or equal to 5.6 square inches.

Applicability — APPLICABILITY: MODE 4 when the temperature of any one RCS cold leg is less than or equal to the LTOP enable temperatures specified in the PTLR, A02

MODE 5, and

MODE 6 when the head is on the reactor vessel ~~and the RCS is not vented~~. M01

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

~~SIT isolation or depressurization to less than the limits in the PTLR is only required when SIT pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the PTLR.~~ A03

SIT may be unisolated when SIT 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.

A01

ITS

LTOP System
3.4.12.1

A04

-----NOTE-----
LCO 3.0.4.b is not applicable to the SDC relief valve when entering MODE 4.

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION A	A. ~~With more than two~~ Three HPSI pumps capable of injecting into the RCS.	A.1 Initiate action to verify a maximum of two HPSI pumps capable of injecting into the RCS.	Immediately	A05
ACTION B	B. A SIT not isolated when SIT pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	B.1 Isolate affected SIT.	1 hour	A05
ACTION C	C. Required Action and associated Completion Time of Condition B not met.	C.1 Depressurize affected SIT to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours	
ACTION D	D. With one or both SDCS Relief Valve isolation valves in a single SDCS Relief Valve isolation valve pair (valve pair ~~3~~HV9337 and ~~3~~HV9339 or valve pair ~~3~~HV9377 and ~~3~~HV9378) closed.	D.1 Open the closed valve(s). OR D.2 Power-lock open the OPERABLE SDCS Relief Valve isolation valve pair.	24 hours 24 hours	A02

(continued)

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ITS

A01

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. SDCS Relief Valve inoperable. OR Required Action and associated Completion Time of Condition A, B, C, or D not met. OR LTOP System inoperable for any reason other than Condition A, B, C, or D.	E.1 ~~Reduce T_{avg} to less than 200°F,~~ Depressurize RCS and establish RCS vent of ≥ 5.6 square inches.	~~8~~ 12 hours

ACTION E

L01 L02

A05

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ITS

LTOP System
3.4.12.1

A01

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.12.1	SR 3.4.12.1.1 ~~NOTE~~ ~~A HPSI pump is secured by verifying that its motor circuit breaker is not racked-in, or its discharge valve is locked closed. The requirement to rack out the HPSI pump breaker is satisfied with the pump breaker racked out to its disconnected or test position.~~ Verify a maximum of two HPSI pumps are capable of injecting into the RCS.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01 LA02
SR 3.4.12.2	SR 3.4.12.1.2 ~~NOTE~~ ~~Required to be performed when complying with the LCO 3.4.12.1 Note.~~ Verify each SIT is isolated ~~or depressurized less than the limit specified in the PTLR~~.	~~12 hours~~	A06 LA02 A03
SR 3.4.12.3	SR 3.4.12.1.3 Verify required RCS vent ≥ 5.6 square inches is open ~~when in use for overpressure protection~~.	~~12 hours for unlocked open vent valve(s)~~ In accordance with the Surveillance Frequency Control Program ~~AND~~ ~~31 days for locked, sealed, or otherwise secured open vent valve(s), or open flanged RCS penetrations~~	A07 LA02 LA02

(continued)

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A01

ITS

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
	~~NOTES~~ ~~1. Only required to be performed when the SDCS Relief Valve isolation valve pair is inoperable.~~ ~~2 The power-lock open requirement is satisfied either with the AC breakers open for valve pair 3HV9337 and 3HV9339 or the regulating transformer output breakers open for valve pair 3HV9377 and 3HV9378, whichever valve pair is OPERABLE.~~		A08 LA03
Required Action D.2.2 ~~SR 3.4.12.1.4~~	Verify the OPERABLE SDCS Relief Valve isolation valve pair (valve pair ~~3~~HV9337 and ~~3~~HV9339, or valve pair ~~3~~HV9377 and ~~3~~HV9378) is in the power-lock open condition.	12 hours	A08 A02
SR 3.4.12.4 SR 3.4.12.1.5	Verify required ~~that~~ SDCS Relief Valve isolation valves 3HV9337, 3HV9339, 3HV9377, and 3HV9378 are open ~~when the SDCS Relief Valve is used for overpressure protection~~.	~~72 hours~~ In accordance with the Surveillance Frequency Control Program	A07 LA02 A07
SR 3.4.12.5 SR 3.4.12.1.6	Verify required SDC~~S~~ System Relief Valve Setpoint is within limits.	In accordance with the Inservice Testing Program	A07 A02

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DISCUSSION OF CHANGES
ITS 3.4.12, LOW TEMPERATURE OVERPRESSURE PROTECTION (LTOP) SYSTEM

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS LCO 3.4.12.1 states "No more than" two high pressure safety injection pumps shall be "OPERABLE", the safety injection tanks "shall be" isolated "or depressurized to less than the limit specified in the PTLR and at least one of the following overpressure protection systems shall be OPERABLE:" CTS LCO 3.4.12.1.a states "the Shutdown Cooling System Relief Valve (PSV9349) with." CTS 3.4.12.1 Applicability is MODE 4 when the temperature of any one RCS cold leg is less than or equal to the enable temperatures specified in the PTLR. CTS SR 3.4.12.1.6 requires, in part, verification of the SDCS Relief Valve Setpoint. ITS LCO 3.4.12 states "An LTOP System shall be operable with a maximum of" two high pressure safety injection pumps "capable of injecting into the RCS and" the safety injection tanks (SITs) isolated, "and:". ITS LCO 3.4.12.a, in part, states the Shutdown Cooling System (SDC) relief valve (PSV9349) "OPERABLE" with. ITS 3.4.12 Applicability is MODE 4 when the temperature of any one RCS cold leg is less than or equal to the LTOP enable temperatures specified in the PTLR. ITS SR 3.4.12.5 requires, in part, verification that the required SDC System relief valve setpoint "is within limits." Additionally, CTS 3.4.12.1 lists the unit designator (2 and 3) for each Shutdown Cooling System relief valve. Furthermore, the CTS 3.4.12 description "Shutdown Cooling System (SDCS) Relief Valve" has been changed to "Shutdown Cooling (SDC) relief valve" in ITS 3.4.12. This unit designator is not retained in ITS 3.4.12. This changes the CTS by editorially rewording certain requirements in the Specification.

The purpose of the CTS LCO 3.4.12.1 is to ensure the LTOP System is OPERABLE to ensure low temperature overpressure mitigation is maintained. The proposed changes are acceptable because they clarify the requirement without changing the intent. The CTS LCO 3.4.12.1 is being reworded to clarify that the SDC System relief isolation valves are required to be OPERABLE. Additionally, the unit designators have been deleted because SONGS will have a common Technical Specification once this amendment is approved. The additional changes were made to make minor editorial corrections. This change is designated as administrative because the changes are nontechnical and intent is unchanged.

A03 CTS 3.4.12.1 Applicability Note states, "SIT isolation or depressurization to less than the limits in the PTLR is only required when SIT pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature

DISCUSSION OF CHANGES
ITS 3.4.12, LOW TEMPERATURE OVERPRESSURE PROTECTION (LTOP) SYSTEM

allowed by the PTLR." CTS SR 3.4.12.1.2 requires verifying each SIT is isolated or depressurized less than the limit specified in the PTLR. ITS LCO 3.4.12 Note states, "SIT may be unisolated when SIT 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." ITS SR 3.4.12.3 requires verifying each SIT is isolated. This changes the CTS by editorially rewording the Applicability Note and moving it to the LCO, and deleting the option in the SR to verify each SIT is depressurized.

The purpose of CTS 3.4.12.1 Applicability Note is ensure that SIT isolation is only required when the SIT pressure is greater than or equal to the RCS pressure for the existing temperature, as allowed by the P/T limit curves provided in the PTLR. This Note permits the SIT discharge valve surveillance performed only under these pressure and temperature conditions. The proposed rewording change is acceptable because it clarifies the Note. The proposed move from the Applicability to the LCO is acceptable because the Note allows an exception to the LCO, therefore it is has been located under the LCO. The proposed change to CTS SR 3.4.12.1.2 deletes the allowance to verify each SIT is depressurized less than the limit specified in the PTLR in lieu of verifying the SIT is isolated. This change is acceptable because the ITS LCO Note allows the SIT to be unisolated when the SIT pressure is less than the maximum RCS pressure. The change is designated as administrative because the changes do not technically alter the Specifications.

A04 The ITS 3.4.12 ACTIONS include a Note that states LCO 3.0.4.b is not applicable to the SDC relief valve when entering MODE 4. CTS 3.4.12.1 does not include this Note. This changes the CTS by including the ACTION Note excluding the use of LCO 3.0.4.b.

The purpose of the ITS 3.4.12 ACTIONS Note is to prohibit entry into the Applicability of LCO 3.4.12 with an inoperable SDC relief valve. Currently, CTS 3.4.12.1 and LCO 3.0.4 preclude entering MODE 4 when a SDC relief valve is inoperable. ITS LCO 3.0.4 has been modified as described in the Discussion for Changes for ITS Section 3.0. ITS LCO 3.0.4.b allows entry into a MODE or other specified condition in the Applicability of a Specification if a risk assessment is performed and determines it is acceptable to enter the Applicability, and appropriate risk management actions are established. This addition of this restriction (LCO 3.0.4.b is not applicable) is acceptable because there is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable SDC relief valve, and therefore the provisions of LCO 3.0.4.b should not be applied in this circumstance. The change is acceptable because CTS 3.4.12.1 does not currently allow this option (i.e., MODES changes are not allowed while in the ACTIONS of this Specification). This change is considered administrative because it does not result in technical changes to the CTS.

A05 CTS 3.4.12.1 Condition A states, in part, "With more than two" HPSI pumps. CTS 3.4.12.1 Condition B states, in part, "SIT pressure" is greater than or equal to the maximum RCS pressure. CTS 3.4.12.1 Condition E (third Condition) states LTOP System inoperable for reasons other than "Condition A, C, or D."

DISCUSSION OF CHANGES
ITS 3.4.12, LOW TEMPERATURE OVERPRESSURE PROTECTION (LTOP) SYSTEM

ITS 3.4.12 Condition A states, in part, "Three" HPSI pumps and ITS 3.4.12 Condition B states, in part, "A SIT not isolated when" SIT pressure is greater than or equal to the maximum RCS pressure. ITS 3.4.12 Condition E (third Condition) states LTOP System inoperable for reasons other than Condition A, "B", C, or D. This changes the CTS by editorially rewording Conditions A, B, and E.

The purpose of CTS 3.4.12.1 is to ensure the LTOP System is available to control RCS pressure at low temperatures of the integrity of the reactor coolant pressure boundary is not compromised. The changes to CTS 3.4.12.1 are acceptable because they are purely editorial to clarify the Conditions. It should be noted that Condition B does result in the LTOP System being inoperable per the LCO, thus adding Condition B to the third Condition of Condition E is administrative. These changes are designated as administrative because they do not technically affect the specification.

A06 CTS SR 3.4.12.1.2 is modified by a Note which requires the SR to be performed when complying with the LCO 3.4.12.1 Note. ITS SR 3.4.12.1 does not contain this Note. This changes the CTS by deleting the SR 3.4.12.1.2 Note.

CTS SR 3.4.12.1.2 requires the verification that each SIT is isolated. This SR is modified by a Note which states that this is only required to be performed when complying with LCO 3.4.12.1 Note. This change is acceptable, because the Note is not applicable to the SITs but to the RCS vents. Thus deleting this Note does not affect the SR. This change is designated as administrative because it does not technically affect the SR.

A07 CTS SR 3.4.12.1.3 requires verifying the RCS vent ≥ 5.6 square inches is open "when in use for overpressure protection." CTS SR 3.4.12.1.5 requires verifying that, in part, SDCS Relief Valve isolation valves are open "when the SDCS Relief Valve is used for overpressure protection." CTS SR 3.4.12.1.6 requires verifying the SDC System relief valve setpoint. ITS SR 3.4.12.3 requires verifying the "required" RCS vent ≥ 5.6 square inches is open. ITS SR 3.4.12.4 requires, in part, verifying that "required" SDC System Relief Valve isolation valves are open. ITS SR 3.4.12.5 requires verifying the "required" SDC System relief valve setpoint is within limits. This changes the CTS by deleting the specific requirements in the SRs that specifies the SR is only applicable when the associated system/valve is used for overpressure protection and adds the word "required" to the SRs. The addition of the words "is within limits" in ITS SR 3.4.12.5 is discussed in DOC A02.

The purpose of the words that specify the SR is not applicable for the specific system/valve used for overpressure protection is for clarification only. Therefore, deletion of these words along with the addition of "required" serves the same purpose. If the system/train is not required to comply with the LCO the SR does not need to be performed. The LCO specifies utilizing either the SDC relief valves or an RCS vent that is ≥ 5.6 square inches. Furthermore, as stated above, while CTS SR 3.4.12.1.6 does not include the words "when in use for overpressure protection," the SR is only required when the SDC relief valve is being used to meet the LCO requirements. This change is designated as administrative because it does not technically affect the SRs.

DISCUSSION OF CHANGES
ITS 3.4.12, LOW TEMPERATURE OVERPRESSURE PROTECTION (LTOP) SYSTEM

A08 CTS SR 3.4.12.1.4 requires, in part, verifying the OPERABLE SDCS Relief Valve isolation valve pair is in the power-lock open condition every 12 hours. The SR is modified by two Notes. Note 1 requires the SR to be performed when the SDCS relief valve isolation valve pair is inoperable and Note 2 discusses how to perform the verification. ITS 3.4.12 incorporates this SR into Required Action D.2.2. The Required Action requires the verification the SDC System relief valve pair is power locked open within 36 hours and every 12 hours thereafter. This changes the CTS by moving the SR requirements to the ACTIONS.

The purpose of CTS SR 3.4.12.1.4 is to periodically verify the OPERABLE SDCS relief valve isolation valve pair is power locked open when the other isolation valve pair is inoperable. The isolation valve pair is currently required to be power locked open when the other isolation valve pair is inoperable (i.e., one or both isolation valves in the other pair is closed) by CTS 3.4.12.1 Required Action D.2. This CTS SR then periodically ensures the Required Action is maintained. However, this type of SR is more appropriate as a Required Action, since it is a conditional SR that is only required when in an ACTION. Therefore, this change only moves the SR to the appropriate location, as a Required Action. The first Completion Time of 36 hours is 12 hours after the time allowed to power-lock open the valves in ITS 3.4.12 Required Action D.2.1. The second Completion Time is every 12 hours thereafter. Thus, the ITS 3.4.12 Required Action D.2.2 Completion Times are consistent with the CTS SR 3.4.12.1.4 Frequency. Moving the SR to an ACTION also eliminates the need for CTS SR 3.4.12.1.4 Note 1 which requires the SR to be performed when the SDCS relief valve isolation valve pair is inoperable. The deletion of CTS SR 3.4.12.1.4 Note 2 is discussed in DOC LA03. This change is designated as administrative because the SR requirements are only being moved and not technically affected.

<u>MORE RESTRICTIVE CHANGES</u>

M01 CTS 3.4.12.1 Applicability for MODE 6 states, "MODE 6 when the head is on the reactor vessel and the RCS is not vented." ITS 3.4.12 Applicability for MODE 6 states, "MODE 6 when the reactor vessel head is on." This changes the CTS by deleting allowance that the LTOP System is not required in MODE 6 when the head is on the reactor vessel if the RCS is vented.

The purpose of the CTS 3.4.12.1 Applicability for MODE 6 is to ensure adequate overpressure protection is provided when the reactor vessel head is on. The proposed change eliminates the allowance from the MODE 6 Applicability that the LTOP System is not required if the RCS is vented. This change is acceptable because it ensures that adequate protection is available at all times when in MODE 6 with the head on the reactor vessel. This change will ensure that the RCS is adequately protected from an overpressure event in MODE 6 anytime the head remains on the reactor vessel. This change is designated as more restrictive because the MODE 6 Applicability is expanded in the ITS than what it currently is in the CTS.

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ITS 3.4.12, LOW TEMPERATURE OVERPRESSURE PROTECTION (LTOP) SYSTEM

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS SR 3.4.12.1.1 Note describes the manner in which the HPSI pump is to be verified to be not capable of injecting into the RCS. ITS SR 3.4.12.1 does not contain this Note. This changes the CTS by moving the CTS SR 3.4.12.1.1 Note description to the ITS Bases.

The removal of the CTS SR 3.4.12.1.1 Note 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 SR 3.4.12.1 still requires verifying a maximum of two HPSI pumps are capable of injecting into the RCS. The ITS Bases contains the information on how to secure the HPSI pump(s). 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 that describe how to meet the SR are being moved from the Technical Specifications to the ITS Bases.

LA02 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.12.1.1 requires verifying that a maximum of two HPSI pumps are capable of injecting into the RCS every 12 hours. CTS SR 3.4.12.1.2 requires verifying, in part, each SIT is isolated every 12 hours. CTS SR 3.4.12.1.3 requires verifying, in part, that the RCS vent ≥ 5.6 square inches is open every 12 hours for the unlocked open vent valves and every 31 days for locked, sealed or otherwise secured open vent valves, or open flanged RCS penetrations. CTS SR 3.4.12.1.5 requires verifying, in part, that SDC System Relief Valve isolation valves are open every 72 hours. ITS SRs 3.4.12.1, 3.4.12.2, 3.4.12.3, and 3.4.12.4 require similar Surveillances and specify the periodic Frequencies as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequency for the SR and the Bases for the Frequency to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

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a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past

DISCUSSION OF CHANGES
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performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
   - Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
   - System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
   - Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
   - Independence of barriers is not degraded;
   - Defenses against human errors are preserved; and
   - The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

   These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

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Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequencies are being removed from the Technical Specifications.

LA03 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS SR 3.4.12.1.4 Note 2 describes the manner in which the SDC System relief valve isolation valve pairs are to be power-locked open. ITS 3.4.12 Required Action D.2.2 (which covers this CTS SR 3.4.12.1.4 requirement as described in DOC A08) does not contain this Note. This changes the CTS by moving the details of the CTS SR 3.4.12.1.4 Note from the Technical Specifications to the ITS Bases.

The removal of the CTS SR 3.4.12.1.4 Note 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 3.4.12 Required Action D.2.2 still requires periodic verification that the valves are power-locked open. The ITS Bases contains the information on how to satisfy the power lock open requirements. 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 that describe how to meet the Required Action are being moved from the Technical Specifications to the ITS Bases.

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LESS RESTRICTIVE CHANGES

L01 *(Category 4 – Relaxation of Required Action)* When the SDCS Relief Valve is inoperable, a Required Action and associated Completion Time of Condition A, C, or D not met, or the LTOP System is inoperable for reasons other than presented in previous Conditions, CTS 3.4.12.1 Required Action E.1 requires the reduction of T_{avg} to less than 200°F, depressurize RCS and establish RCS vent of ≥ 5.6 square inches. Under the same conditions, ITS 3.4.12 Required Action E.1 requires depressurizing the RCS and establishing an RCS vent of ≥ 5.6 inches. This changes the CTS by deleting the requirement to reduce temperature to less than 200°F.

The purpose of CTS 3.4.12.1 Required Action E.1 is to ensure the RCS pressure boundary is protected against a low temperature overpressure event when any of the Conditions of ACTION E are met. This change is acceptable because when the RCS is depressurized and a vent of at least 5.6 square inches is established, flow capacity is greater than that required for the worst case mass input transient. Thus adequate protection is provided by the depressurization in accordance with the PTLR and establishment of the RCS vent. The requirement to maintain the temperature less than 200°F is an additional requirement that is not necessary. Plant Operations staff will adequately control the RCS temperature necessary to maintain the unit depressurized. As long as the RCS is depressurized and properly vented, an overpressure event cannot occur. This change is designated as less restrictive because the Required Actions are more relaxed in the ITS than what is currently required in the CTS.

L02 *(Category 3 – Relaxation of Completion Time)* CTS 3.4.12.1 Required Action E.1, in part, requires depressurizing the RCS and establishing an RCS vent of ≥ 5.6 square inches within 6 hours. ITS 3.4.12 Required Action E.1 requires depressurizing the RCS and establishing an RCS vent of ≥ 5.6 square inches within 12 hours. This changes the CTS by increasing the Completion Time from 6 hours to 12 hours.

The purpose of CTS 3.4.12.1 Required Action E.1 is to ensure the RCS pressure boundary is protected against a low temperature overpressure event when any of the Conditions of ACTION E are met. The change is acceptable because of the relatively low probability of an overpressure event occurring due to the increased operator awareness of administrative control requirements during the additional time allowed while allowing more time for planning and executing the depressurization and establishing the required RCS vent. This change is designated as less restrictive because additional time is allowed to complete the Required Actions in the ITS than allowed in the CTS.

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

LCO 3.4.12

LCO 3.4.12 An LTOP System shall be OPERABLE with a maximum of ~~one~~ two high pressure safety injection (HPSI) pump s ~~and one charging pump~~ capable of injecting into the RCS and the safety injection tanks (SITs) isolated, and: 3

Applicability Note

---NOTE~~S~~---

~~1. [Two charging pumps] may be made capable of injecting for ≤ 1 hour for pump swap operations.~~ 3

~~2.~~ SIT may be unisolated when SIT 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.

LCO 3.4.12.a

a. INSERT 1 ~~Two OPERABLE power operated relief valves (PORVs) with lift settings within the limits specified in the PTLR~~ or 4

LCO 3.4.12.b

b. The RCS depressurized and an RCS vent of ≥ ~~[1.3]~~ 5.6 square inches. 2

Applicability

APPLICABILITY: MODE 4 when any RCS cold leg temperature is less than or equal to the LTOP enable temperature specified in the PTLR,
MODE 5,
MODE 6 when the reactor vessel head is on.

ACTIONS

---NOTE---
LCO 3.0.4.b is not applicable to ~~PORVs~~ the SDC relief valve when entering MODE 4. 4

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ~~Two or more~~ Three HPSI pumps capable of injecting into the RCS.	A.1 Initiate action to verify a maximum of ~~one~~ two HPSI ~~pump~~ pumps capable of injecting into the RCS.	Immediately

3

4 **INSERT 1**

LCO 3.4.12.a The Shutdown Cooling (SDC) System relief valve (PSV9349) OPERABLE with:

1) A lift setting of ≥ 396 psig and ≤ 416 psig; and

2) Relief valve isolation valves (HV9337, HV9339, HV9377, and HV9378) open;

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two or more charging pumps capable of injecting into the RCS.	B.1 Initiate action to verify a maximum of one charging pump capable of injecting into the RCS.	Immediately
ACTION B ~~C~~ B. A SIT not isolated when SIT pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	~~C~~ B.1 Isolate affected SIT.	1 hour
ACTION C ~~D~~ C. Required Action and associated Completion Time of Condition ~~C~~ B not met.	D.1 Increase RCS cold leg temperature to > [175]°F. OR ~~D.2~~ C.1 Depressurize affected SIT to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours 12 hours
E. One required PORV inoperable in MODE 4.	E.1 Restore required PORV to OPERABLE status.	7 days
INSERT 2 F. One required PORV inoperable in MODE 5 or 6.	F.1 Restore required PORV to OPERABLE status.	24 hours

3 3 3 1 3 4

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4 **INSERT 2**

ACTION D, SR 3.4.12.1.4	D. One or both SDC relief valve isolation valves in a single SDC System relief valve isolation pair (valve pair HV9337 and HV9339 or valve pair HV9377 and HV9378) closed.	D.1 Open the closed valve(s).	24 hours
		OR	
		D.2.1 Power-lock open the OPERABLE SDC System relief valve isolation valve pair.	24 hours
		AND	
		D.2.2 Verify SDC System relief valves isolation valve pair is power-locked open.	36 hours AND Once per 12 hours thereafter

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION E ~~G~~ E. ~~Two required PORVs inoperable.~~ SDC System relief valve inoperable. OR Required Action and associated Completion Time of Condition A, ~~[B], D, E, or F~~ C, or D not met. OR LTOP System inoperable for any reason other than Condition A, ~~[~~B~~]~~, C, ~~D, E,~~ or ~~F~~ D.	~~G~~ E.1 Depressurize RCS and establish RCS vent of ≥ ~~[1.3]~~ 5.6 square inches.	12 hours

3 4 2 3 2 1 4 3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1.1 SR 3.4.12.1	Verify a maximum of ~~one~~ two HPSI ~~pump is~~ pumps are capable of injecting into the RCS.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program
~~SR 3.4.12.2~~	~~Verify a maximum of one charging pump is capable of injecting into the RCS.~~	~~12 hours~~
SR 3.4.12.1.2 SR 3.4.12.~~3~~ 2	Verify each SIT is isolated.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program
SR 3.4.12.1.3 SR 3.4.12.~~4~~ 3	Verify required RCS vent ≥ ~~[1.3]~~ 5.6 square inches is open.	~~12 hours for unlocked open vent valve(s) AND 31 days for other vent path(s)~~ In accordance with the Surveillance Frequency Control Program

3 TSTF-425-A 3 3 TSTF-425-A 3 2 TSTF-425-A

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.5	Verify PORV block valve is open for each required PORV.	72 hours
SR 3.4.12.6	-------------------------------NOTE------------------------------ Not required to be performed until [12] hours after decreasing RCS cold leg temperature to less than or equal to the LTOP enable temperature specified in the PTLR. --- Perform CHANNEL FUNCTIONAL TEST on each required PORV, excluding actuation.	 31 days
SR 3.4.12.7	Perform CHANNEL CALIBRATION on each required PORV actuation channel.	[18] months

INSERT 3

4

4 **INSERT 3**

SR 3.4.12.1.5	SR 3.4.12.4	Verify required SDC System relief valve isolation valves (HV9337, HV9339, HV9377, and HV9378) are open.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.1.6	SR 3.4.12.5	Verify required SDC System relief valve setpoint is within limits.	In accordance with the Inservice Testing Program

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.12, LOW TEMPERATURE OVERPRESSURE PROTECTION (LTOP) SYSTEM

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

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. References to charging pumps are being deleted from the ISTS 3.4.12. Charging pumps are not required to be disabled in the SONGS Units 2 and 3 LTOP analysis. Due to this change, subsequent ACTIONS and SRs have been renumbered. In addition, the SONGS LTOP analysis assumes two HPSI pumps are capable of injecting into the RCS. Therefore, changes are made to be consistent with this analysis assumption. These changes (i.e., the charging pump and HPSI pump changes) are also consistent with the SONGS CTS.

4. Reference to PORVs is being deleted from the ISTS 3.4.12. SONGS utilizes a Shutdown Cooling System relief valve for overpressure protection. Therefore, the SONGS CTS requirements related to the Shutdown Cooling relief valve has been added.

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

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.12 Low Temperature Overpressure Protection (LTOP) System

BASES

BACKGROUND

The LTOP System 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. LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," provides the allowable combinations for operational pressure and temperature during cooldown, shutdown, and heatup to keep from violating the Reference 1 requirements during the LTOP MODES.

The reactor vessel material is less tough at low temperatures than at normal operating temperatures. 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 requires administrative control of RCS pressure and temperature during heatup and cooldown to prevent exceeding the P/T limits.

This LCO provides RCS overpressure protection by having a minimum coolant input capability and having adequate pressure relief capacity. INSERT 1 ~~Limiting coolant input capability requires all but one high pressure safety injection (HPSI) pump and one charging pump incapable of injection into the RCS and isolating the safety injection tanks (SITs).~~ The pressure relief capacity requires either an OPERABLE Shutdown Cooling (SDC) System relief valve with two redundant flow paths to the relief valve (i.e., two relief valve isolation valve pairs) ~~two OPERABLE redundant power operated relief valves (PORVs)~~ or the RCS depressurized and an RCS vent of sufficient size. One SDC System relief valve ~~PORV~~ or the RCS vent is the overpressure protection device that acts to terminate an increasing pressure event. 1

1 **INSERT 1**

The design basis of the LTOP assumes unrestricted flow from two HPSI pumps and three charging pumps (full charging capacity) without letdown. Because there are three HPSI pumps and three charging pumps, the limitation on the number of HPSI pumps to be maintained OPERABLE during the specified MODES, along with isolating the Safety Injection Tanks, ensures that a mass addition to the RCS that exceeds the design basis assumptions of the LTOP will not occur. This limitation on the number of HPSI pumps that can provide makeup and injection to the RCS implements the guidance provided in Generic Letter 90-06.

BASES

BACKGROUND (continued)

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 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 SDC System relief valve with two redundant flow paths (i.e., trains) to the relief valve

The SDC System relief valve

Two separate relief valve isolation valve trains are required for redundancy.

The LTOP System for pressure relief consists of ~~two PORVs with reduced lift settings~~ or an RCS vent of sufficient size. ~~Two relief valves are required for redundancy. One PORV~~ has adequate relieving capability to prevent overpressurization for the required coolant input capability.

1

~~PORV Requirements~~

~~As designed for the LTOP System, each PORV is signaled to open if the RCS pressure approaches a limit determined by the LTOP actuation logic. The actuation logic monitors RCS pressure and determines when the LTOP overpressure setting is approached. If the indicated pressure meets or exceeds the calculated value, a PORV is signaled to open.~~

1

INSERT 2

~~The LCO presents the PORV setpoints for LTOP. The setpoints are normally staggered so only one valve opens during a low temperature overpressure transient. Having the setpoints of both valves within the limits of the LCO ensures the P/T limits will not be exceeded in any analyzed event.~~

~~When a PORV is opened in an increasing pressure transient, the release of coolant causes the pressure increase to slow and reverse. As the PORV releases coolant, the system 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.~~

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 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 **INSERT 2**

SDC System Relief Valve Requirements

The SDC System relief valve 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 100°F above the RCS cold leg temperatures or (2) inadvertent safety injection actuation with two HPSI pumps injecting into a water-solid RCS with full charging capacity and letdown isolated.

BASES

BACKGROUND (continued)

For an RCS vent to meet the specified flow capacity, 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~~ opening greater than or equal to 5.6 square inches. The vent path(s) must be above the level of reactor coolant, so as not to drain the RCS when open. 1 1

APPLICABLE SAFETY ANALYSES

Safety analyses (Ref. 3) demonstrate that the reactor vessel is adequately protected against exceeding the Reference 1 P/T limits during shutdown. In MODES 1, 2, and 3, and in MODE 4 with any RCS cold leg temperature greater than the LTOP enable temperature specified in the PTLR, the pressurizer safety valves prevent RCS pressure from exceeding the Reference 1 limits. At the LTOP enable temperature specified in the PTLR and below, ~~overpressure prevention falls to the OPERABLE PORVs [or to a depressurized RCS and a sufficient sized RCS vent]. Each of these means has a limited overpressure relief capability.~~ INSERT 3 2 1

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 P/T limit curves are revised, the LTOP System will be re-evaluated to ensure its functional requirements can still be satisfied using the ~~PORV~~ SDC System relief valve method or the depressurized and vented RCS condition. 1

Reference 3 contains the acceptance limits that satisfy the LTOP requirements. Any change to the RCS must be evaluated against these analyses to determine the impact of the change on the LTOP acceptance limits.

Transients that are capable of overpressurizing the RCS are categorized as either mass or heat input transients, examples of which follow:

<u>Mass Input Type Transients</u>

a. Inadvertent safety injection; ~~or~~ 4

b. Charging/letdown flow mismatch.

<u>Heat Input Type Transients</u>

a. Inadvertent actuation of pressurizer heaters; 4

b. Loss of shutdown cooling (SDC); or 4

1 **INSERT 3**

the operating SDC relief valve, connected to the RCS, provides overpressure relief capability and will prevent RCS overpressurization. When the RCS is depressurized, an RCS vent to atmosphere sized 5.6 inches or greater may be used as an alternative to the SDC System relief valve.

APPLICABLE SAFETY ANALYSES (continued)

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 HPSI pump, and all but one charging pump incapable of injection~~ No more than two HPSI pumps capable of injection; and 1

b. Deactivating the SIT discharge isolation valves in their closed positions when SIT pressure equals or exceeds the maximum RCS pressure for existing RCS cold leg temperature allowed by the Pressure /Temperature Limits. 1

The Reference 3 analyses demonstrate that either ~~one PORV~~ the SDC System relief valve or the RCS vent can maintain RCS pressure below limits when only ~~one~~ two HPSI ~~pump~~ pumps and ~~one~~ three charging ~~pump~~ pumps are actuated. Thus, the LCO allows only ~~one HPSI pump and one charging pump OPERABLE~~ two HPSI pumps to be capable of injecting into the RCS during the LTOP MODES. The charging pumps are not specified since there are only three charging pumps, and all are assumed to inject in the safety analysis. Since neither the ~~PORV~~ SDC System relief valve nor the RCS vent can handle the pressure transient produced from accumulator injection, when RCS temperature is low, the LCO also requires the SITs isolation when accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed in the PTLR. 1

The isolated SITs must have their discharge valves closed and the valve power supply breakers fixed in their open positions. ~~The analyses show the effect of SIT discharge is over a narrower RCS temperature range ([175]°F and below) than that of the LCO (less than or equal to the LTOP enable temperature specified in the PTLR and below).~~ 1

Fracture mechanics analyses established the temperature of LTOP Applicability at less than or equal to the LTOP enable temperature specified in the PTLR. Above this temperature, the pressurizer safety valves provide the reactor vessel pressure protection. The vessel materials were assumed to have a neutron irradiation accumulation equal to ~~21~~ 32 effective full power years of operation. 1

The consequences of a small break loss of coolant accident (LOCA) in LTOP MODE 4 conform to 10 CFR 50.46 and 10 CFR 50, Appendix K (Refs. 4 and 5), requirements by having ~~a maximum of~~ one HPSI pump ~~and one charging pump~~ OPERABLE and SI actuation enabled for ~~these pumps~~ this pump. 1

BASES

APPLICABLE SAFETY ANALYSES (continued)

PORV Performance

The fracture mechanics analyses show that the vessel is protected when the PORVs are set to open at or below the limits specified in the PTLR. The setpoint is derived by modeling the performance of the LTOP System, assuming the limiting allowed LTOP transient of one HPSI pump and one charging pump injecting into the RCS. These analyses consider pressure overshoot and undershoot beyond the PORV opening and closing setpoints, resulting from signal processing and valve stroke times. The PORV setpoints at or below the derived limit ensure the Reference 1 limits will be met. 1

INSERT 4

The PORV setpoints will be re-evaluated for compliance when the revised P/T limits conflict with the LTOP analysis limits. The P/T limits are periodically modified as the reactor vessel material toughness decreases due to embrittlement caused by neutron irradiation. Revised P/T limits are determined using neutron fluence projections and the results of 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 represents the worst case, single active failure.

RCS Vent Performance

5.6

With the RCS depressurized, analyses show a vent size of ~~[1.3]~~ square inches is capable of mitigating the limiting allowed LTOP overpressure transient. In that event, this size vent maintains RCS pressure less than the maximum RCS pressure on the P/T limit curve. 2

The RCS vent size will also be re-evaluated for compliance each time the P/T limit curves are revised based on the results of the vessel material surveillance.

The RCS vent is passive and is not subject to active failure.

LTOP System satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

1 **INSERT 4**

SDC System Relief Valve Performance

The required capacity of the SDC System Relief Valve at its maximum relieving pressure is governed by the inadvertent safety injection transient involving two HPSI and three charging pumps. The actual relieving capacity is based on three HPSI and three Charging pumps providing more than adequate margin.

The SDC System Relief Valve setpoint is based on the maximum allowable SDC System pressure at the LPSI discharge assuming that the LPSI pump is running at shutoff head. The SDC System Relief Valve setpoint is reflected in the RCS P/T Limit curves as a "control pressure" that takes into account the valve setpoint, valve accumulation and elevation difference.

The SDC System Relief Valve is designed to protect the system given a single failure in addition to the failure that initiates the pressure transient.

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BASES

LCO

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

two
pumps
SIT

To limit the coolant input capability, the LCO requires that a maximum of ~~one~~ HPSI ~~pump and one charging pump~~ be capable of injecting into the RCS, and the SITs isolated (when ~~accumulator~~ pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed in the PTLR). 5 8

a

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 SIT isolation is only required that when the SIT pressure is greater than or equal to the RCS pressure for the existing temperature, as allowed by the P/T limit curves provided in the PTLR. This Note permits the SIT discharge valve surveillance performed only under these pressure and temperature conditions. 5 5

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

The SDC System relief valve;

a. ~~Two OPERABLE PORVs~~ or 5

b. The depressurized RCS and an RCS vent.

SDC System relief valve

both trains of isolation valves are

A ~~PORV~~ is OPERABLE for LTOP when ~~its block valve is~~ open, its lift setpoint is set within the limits specified in the PTLR and testing has proven its ability to open at that setpoint~~, and motive power is available to the two valves and their control circuits~~. 5 5

5.6

An RCS vent is OPERABLE when open with an area ≥ ~~[1.3]~~ square inches. 2

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

BASES

APPLICABILITY

This LCO is applicable in MODE 4 when the temperature of any RCS cold leg is less than or equal to the LTOP enable 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 the LTOP enable temperature and below. When the reactor vessel head is off, overpressurization cannot occur.

LCO 3.4.3 provides the operational P/T limits for all MODES. LCO 3.4.10, "Pressurizer Safety Valves," requires the OPERABILITY of the pressurizer safety valves that provide overpressure protection during MODES 1, 2, and 3, and MODE 4 above the LTOP enable temperature specified in the PTLR.

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 ~~PORVs~~ SDC System relief valve used for LTOP. There is an increased risk associated with entering MODE 4 from MODE 5 with ~~PORVs~~ the SDC System relief valve used for LTOP 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. 5 5

A.1 ~~and B.1~~ 5

With ~~two or more~~ three HPSI pumps capable of injecting into the RCS, overpressurization is possible. 5

The immediate Completion Time to initiate actions to restore restricted coolant input capability to the RCS reflects the importance of maintaining overpressure protection of the RCS.

~~C~~ B.1~~, D.1,~~ and ~~D.2~~ C.1 5

An unisolated SIT requires isolation within 1 hour. This is only required when the SIT pressure is greater than or equal to the maximum RCS pressure for the existing cold leg temperature allowed in the PTLR.

BASES

ACTIONS (continued)

C.1 requires depressurizing the SIT

If isolation is needed and cannot be accomplished within 1 hour, ~~Required Action D.1 and~~ Required Action ~~D.2 provide two options, either of which must be performed~~ within 12 hours. ~~By increasing the RCS temperature to > [175]°F, a SIT pressure of [600] psig cannot exceed the LTOP limits if the tanks are fully injected.~~ Depressurizing the SIT below the LTOP limit stated in the PTLR ~~also~~ protects ~~against such an event~~ the RCS against a SIT injection event. 5 1

The Completion ~~Times are~~ Time is based on operating experience that ~~these~~ this actvity ~~activities~~ this can be accomplished in ~~these~~ this time ~~periods~~ period and on engineering evaluations indicating that an event requiring LTOP is not likely in the allowed ~~times~~ time. 5

~~E.1~~

~~In MODE 4 when any RCS cold leg temperature is ≤ [285]°F, with one PORV inoperable, two PORVs must be restored to OPERABLE status within a Completion Time of 7 days. Two valves are required to meet the LCO requirement and to provide low temperature overpressure mitigation while withstanding a single failure of an active component.~~

~~The Completion Time is based on the facts that only one PORV 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.~~ 5

~~F~~ D.1 and D.2 5

The consequences of operational events that will overpressure the RCS are more severe at lower temperature (Ref. 6). Thus, with a single channel SDC System relief valve isolation valve ~~one required PORV~~ inoperable in MODE 5 or in MODE 6 with the head on, the Completion Time to ~~restore two valves to OPERABLE status~~ open the closed valve(s) is 24 hours. 5 5

The 24 hour Completion Time ~~to restore two PORVs OPERABLE in MODE 5 or in MODE 6 when the vessel head is on is a reasonable amount of time to investigate and repair several types of PORV failures without exposure to a lengthy period with only one PORV OPERABLE to protect against overpressure events.~~ INSERT 5 5

5 **INSERT 5**

for a single channel SDC System relief valve isolation valve(s) increases the availability of the LTOP system to mitigate low temperature overpressure transients especially during MODES 5 and 6 when the potential for these transients are highest (RCS temperatures between 80°F and 190°F and the RCS is water-solid).

The power-lock open requirement is satisfied either with the AC breakers open for valve pair HV9337 and HV9339 or the regulating transformer output breakers open for valve pair HV9337 and HV9378, for whichever valve pair is OPERABLE. This power-lock open condition of the OPERABLE SDC System relief valve isolation valve pair is consistent with the guidance provided in Branch Technical Position ICSB 18 (PSB), "Application of the Single Failure Criterion to Manually-Controlled Electrically-Operated Valves."

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BASES

ACTIONS (continued)

E

~~G~~.1

the SDC System relief valve is

If ~~two required PORVs are~~ inoperable, or if a Required Action and the associated Completion Time of Condition A, ~~B, D, E, or F~~ are not met, or if the LTOP System is inoperable for any reason other than Condition A ~~through Condition F~~, the RCS must be depressurized and a vent established within 12 hours. The vent must be sized at least ~~[1.3]~~ square inches to ensure the flow capacity is greater than that required for the worst case mass input transient reasonable during the applicable MODES. This action protects the RCPB from a low temperature overpressure event and a possible brittle failure of the reactor vessel.

C, D, B, C, or D, 5.6, 5, 2

The Completion Time of 12 hours to depressurize and vent the RCS is based on 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~~ 2 5

To minimize the potential for a low temperature overpressure event by limiting the mass input capability, ~~only one~~ HPSI ~~pump and all but [one]~~ ~~charging pump~~ are verified OPERABLE with the other pump~~s~~ locked out with power removed and the SIT discharge incapable of injecting into the RCS. 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 breaker~~s~~ 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 at least one valve in the discharge flow path being closed.

not more than two, pumps, HPSI, HPSI, is, pump, 5, 5, 2, 5, 5, 2, 1

INSERT 6

INSERT 7 ~~The 12 hour interval considers operating practice to regularly assess potential degradation and to verify operation within the safety analysis.~~ TSTF-425-A

SR 3.4.12.~~4~~ 3 5

3

SR 3.4.12.~~4~~ requires verifying that the required RCS vent is open ≥ ~~[1.3]~~ square inches is proven OPERABLE by verifying its open condition ~~either:~~ .

5.6, and, INSERT 7, 5, 4, 2, TSTF-425-A

1 **INSERT 6**

or the valve is locked closed and power is removed. Additionally, the SIT discharge isolation valves are verified closed and deactivated

TSTF-425-A **INSERT 7**

. The Frequency is controlled under the Surveillance Frequency Control Program. 4 6

~~-- Reviewers 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)

a. Once every 12 hours for a valve that is unlocked open (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).

TSTF-425-A

The passive vent path arrangement must only be open to be OPERABLE. This Surveillance need only be performed if the vent is being used to satisfy the requirements of this LCO. The Frequencies consider operating experience with mispositioning of unlocked and locked vent valves, respectively.

7

SR 3.4.12.5

The PORV block valve must be verified open every 72 hours to provide the flow path for each required PORV to perform its function when actuated. The valve can be remotely verified open in the main control room.

The block valve is a remotely controlled, motor operated valve. The power to the valve motor operator is not required to be removed, and the manual actuator 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 event.

5

INSERT 8

The 72 hour Frequency considers operating experience with accidental movement of valves having remote control and position indication capabilities available where easily monitored. These considerations include the administrative controls over main control room access and equipment control.

SR 3.4.12.6

Performance of a CHANNEL FUNCTIONAL TEST is required every 31 days to verify and, as necessary, adjust the PORV open setpoints. The CHANNEL FUNCTIONAL TEST will verify on a monthly basis that the PORV lift setpoints are within the LCO limit. A successful test of the required contact(s) of a channel relay may be performed by the

5 **INSERT 8**

SR 3.4.12.4

This SR verifies the valves are open to confirm the flow paths.

The Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.4.12.5

The SDC System relief valve setpoint is verified periodically to be within limits in accordance with the Inservice Testing Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. PORV actuation could depressurize the RCS and is not required. The 31 day Frequency considers experience with equipment reliability.

A Note has been added indicating this SR is required to be performed [12] hours after decreasing RCS cold leg temperature to less than or equal to the LTOP enable temperature specified in the PTLR. The test cannot be performed until the RCS is in the LTOP MODES when the PORV lift setpoint can be reduced to the LTOP setting. The test must be performed within 12 hours after entering the LTOP MODES. 5

SR 3.4.12.7

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 LTOP range and with accuracy to known input.

The [18] month Frequency considers operating experience with equipment reliability and matches the typical refueling outage schedule.

REFERENCES

1. 10 CFR 50, Appendix G.
2. Generic Letter 88-11.
3. U FSAR, ~~Section~~ Chapter [15]. 1 2
4. 10 CFR 50.46.
5. 10 CFR 50, Appendix K.
6. Generic Letter 90-06.

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.12 BASES, LOW TEMPERATURE OVERPRESSURE PROTECTION (LTOP) SYSTEM

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

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. Changes are made to be consistent with changes made to the Specifications.

6. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

7. ISTS SR 3.4.12.4 Bases describes Surveillance Frequency requirements to verify that the required RCS vent is open on a 12 hour Frequency and a 31 day Frequency. Additionally, it contains a statement that the Frequencies consider operating experience with mispositioning of locked and unlocked vent valves. The Frequencies for ISTS SR 3.4.12.4 (ITS SR 3.4.12.3) will be contained in the Surveillance Frequency Control Program, as allowed by TSTF-425. Since the specific Frequencies are no longer listed in the Bases, it is not necessary to maintain the sentence concerning the Frequencies bases. This sentence should have been deleted as part of TSTF-425, but was overlooked.

8. Changes were made to be consistent with the actual Specification.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.12, LOW TEMPERATURE OVERPRESSURE
PROTECTION (LTOP) SYSTEM

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

ATTACHMENT 12

ITS 3.4.13, RCS OPERATIONAL LEAKAGE

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 RCS Operational LEAKAGE

LCO 3.4.13

LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

a. No pressure boundary LEAKAGE;

b. 1 gpm unidentified LEAKAGE;

c. 10 gpm identified LEAKAGE; and

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. RCS Operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	A.1 Reduce LEAKAGE to within limits.	4 hours
ACTION B	B. Required Action and associated Completion Time of Condition A not met. OR Pressure boundary LEAKAGE exists. OR Primary to secondary LEAKAGE not within limit.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

ITS

A01

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.13.1 — SR 3.4.13.1 ---NOTES--- 1. Not required to be performed ~~in MODE 3 or 4~~ until 12 hours after establishment of steady state operation. 2. Not applicable to primary to secondary LEAKAGE. ------ ~~Perform~~ Verify operational LEAKAGE is within limits by performance of RCS water inventory balance.	~~-----NOTE------ Only required to be performed during steady state operation. If a transient evolution is occurring 72 hours from the last water inventory balance, then a water inventory balance shall be performed within 120 hours of the last water inventory balance~~ ~~----------------~~ A02 L01 A03 ~~72 hours~~ In accordance with the Surveillance Frequency Control Program LA01
SR 3.4.13.2 — ---NOTE--- Not required to be performed until 12 hours after establishment of steady state operation. ------ SR 3.4.13.2 Verify primary to secondary LEAKAGE is ≤ 150 gallons per day through any one SG.	~~72 hours~~ In accordance with the Surveillance Frequency Control Program LA01

ITS

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 RCS Operational LEAKAGE

LCO 3.4.13

LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

a. No pressure boundary LEAKAGE;

b. 1 gpm unidentified LEAKAGE;

c. 10 gpm identified LEAKAGE; and

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. RCS Operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	A.1 Reduce LEAKAGE to within limits.	4 hours
ACTION B	B. Required Action and associated Completion Time of Condition A not met. OR Pressure boundary LEAKAGE exists. OR Primary to secondary LEAKAGE not within limit.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

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ITS

A01

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.13.1 — SR 3.4.13.1 ------------------NOTES------------------ 1. Not required to be performed ~~in MODE 3 or 4~~ until 12 hours after establishment of steady state operation. 2. Not applicable to primary to secondary LEAKAGE. -- ~~Perform~~ Verify operational LEAKAGE is within limits by performance of RCS water inventory balance.	~~-----NOTE------ Only required to be performed during steady state operation. If a transient evolution is occurring 72 hours from the last water inventory balance, then a water inventory balance shall be performed within 120 hours of the last water inventory balance --------------~~ A02 L01 A03 ~~72 hours~~ In accordance with the Surveillance Frequency Control Program LA01
SR 3.4.13.2 — ------------------NOTE------------------ Not required to be performed until 12 hours after establishment of steady state operation. -- SR 3.4.13.2 Verify primary to secondary LEAKAGE is ≤ 150 gallons per day through any one SG.	~~72 hours~~ In accordance with the Surveillance Frequency Control Program LA01

DISCUSSION OF CHANGES
ITS 3.4.13, RCS OPERATIONAL LEAKAGE

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS SR 3.4.13.1 Note 1 modifies the SR by not requiring the SR to be performed "in MODE 3 or 4" until 12 hours of steady state operation and the first part of the Frequency Note states the SR is only required to be performed during steady state operation. ITS SR 3.4.13.1 Note 1 modifies the SR by not requiring the SR to be performed until 12 hours "after establishment" of steady state operation and does not contain a Frequency Note. This changes the CTS by combining the Surveillance Note and the first sentence of the Frequency Note by deleting the reference to MODE 3 and 4 in the Surveillance Note and deleting the first sentence of the Frequency Note.

The purpose of the Surveillance Note and the first sentence of the Frequency Note is to address the same concern; the RCS water inventory balance cannot be meaningfully performed unless the unit is operating at near full pressure steady state conditions. The Note to the Surveillance provides an exception for operation at less than rated conditions (i.e., in MODES 3 and 4), while the Note to the Frequency provides a similar allowance for all other operating conditions. This change combines these exceptions into a single Surveillance Note, which simplifies and increases clarity. This change is designated as administrative because it does not technically affect the performance of the Surveillance Requirement.

A03 CTS SR 3.4.13.1 requires performing an RCS water inventory balance. ITS SR 3.4.13.1 requires verifying RCS operational LEAKAGE is within limits by performance of a water inventory balance. This changes the CTS by adding clarifying wording to CTS SR 3.4.13.1.

The purpose of CTS SR 3.4.13.1, to perform an RCS water inventory balance, is to ensure the RCS operational leakage of LCO 3.4.13 is within limits. This change clarifies the intent and purpose of the RCS water inventory balance requirement, and more closely matches up with the actual LCO requirements. Therefore, this change is acceptable. This change is designated as administrative because it does not technically affect the Surveillance Requirement.

MORE RESTRICTIVE CHANGES

None

DISCUSSION OF CHANGES
ITS 3.4.13, RCS OPERATIONAL LEAKAGE

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.13.1 requires the performance of an RCS water inventory balance once per 72 hours. CTS SR 3.4.13.2 requires verifying that primary to secondary LEAKAGE is ≤ 150 gallons per day through any one SG every 72 hours. ITS SRs 3.4.13.1 and 3.4.13.2 require similar Surveillances and specify the periodic Frequencies as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequency for the SR and the Bases for the Frequency to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

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DISCUSSION OF CHANGES
ITS 3.4.13, RCS OPERATIONAL LEAKAGE

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
   - Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
   - System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
   - Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
   - Independence of barriers is not degraded;
   - Defenses against human errors are preserved; and

DISCUSSION OF CHANGES
ITS 3.4.13, RCS OPERATIONAL LEAKAGE

- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequencies are being removed from the Technical Specifications.

DISCUSSION OF CHANGES
ITS 3.4.13, RCS OPERATIONAL LEAKAGE

LESS RESTRICTIVE CHANGES

L01 *(Category 7 – Relaxation of Surveillance Frequency)* CTS SR 3.4.13.1 Frequency Note (second part) states if a transient evolution is occurring 72 hours from the last water inventory balance, then a water inventory balance shall be performed within 120 hours of the last water inventory balance. ITS SR 3.4.13.1 will not contain this Frequency Note. This changes the CTS by deleting the second part of the Frequency Note.

The purpose of CTS SR 3.4.13.1 Frequency Note is to allow an additional 48 hours to perform a water inventory balance if steady state operation is not achieved 72 hours from the previous performance. The proposed change deletes this requirement from ITS. It normally does not take 48 hours to reach steady state conditions during normal operations and plant procedures can adequately control the time it takes to get to steady state. Also, other mechanisms exist, i.e., RCS leakage detection instrumentation, to detect RCS leakage during the time the plant is not at steady state conditions. This change is designated as less restrictive because it eliminates a requirement from CTS that limits the Frequency between Surveillances when a transient evolution is in progress.

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 RCS Operational LEAKAGE

LCO 3.4.13

LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

a. No pressure boundary LEAKAGE, ;

b. 1 gpm unidentified LEAKAGE, ;

c. 10 gpm identified LEAKAGE, and ;

d. 150 gallons per day primary to secondary LEAKAGE through any one steam generator (SG).

2

Applicability

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

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A	A. RCS operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	A.1 Reduce LEAKAGE to within limits.	4 hours
ACTION B	B. Required Action and associated Completion Time of Condition A not met. OR Pressure boundary LEAKAGE exists. OR Primary to secondary LEAKAGE not within limit.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.4.13.1	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~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A
SR 3.4.13.2	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~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.13, RCS OPERATIONAL LEAKAGE

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

2. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases 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 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 analysis 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~~ each steam generators (SGs) is ~~[1~~ 0.5 gallon per minute~~]~~ or increases to ~~[1~~ 0.5 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. 1 2

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 reaching each SG is ~~only briefly~~ released via the safety valves, and ~~the majority is steamed to the condenser~~ by the atmospheric dump valve used to perform the plant cooldown to shutdown cooling entry. The ~~[1~~ 0.5 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~~ 0.5 gpm~~]~~ primary to secondary LEAKAGE ~~is through the affected~~ to each steam generator as an initial condition. The dose consequences resulting from the SLB accident are well within the limits defined in 10 CFR ~~50 or the staff approved licensing basis (i.e., a small fraction of these limits)~~ 50.67. 2 1

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

No pressure boundary LEAKAGE is allowed, being indicative of material deterioration. LEAKAGE of this type is unacceptable as the leak itself could cause further deterioration, resulting in higher LEAKAGE. Violation of this LCO could result in continued degradation of the RCPB. LEAKAGE past seals and gaskets is not pressure boundary LEAKAGE.

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. Violation of this LCO could result in continued degradation of the RCPB, if the LEAKAGE is from the pressure boundary.

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 pressure boundary LEAKAGE or controlled reactor coolant pump (RCP) seal leakoff (a normal function not considered LEAKAGE). Violation of this LCO could result in continued degradation of a component or system.

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 leaktight. If both valves leak and result in a loss of mass from the RCS, the loss must be included in the allowable identified 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.

BASES

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.

ACTIONS

A.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.

B.1 and B.2

If any pressure boundary LEAKAGE exists or primary to secondary LEAKAGE is not within limit, or if unidentified or identified LEAKAGE cannot be reduced to within limits within 4 hours, 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 to MODE 5 within 36 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 conditions from full power conditions in an orderly manner and without challenging plant systems. In MODE 5, the pressure stresses acting on the RCPB are much lower, and further deterioration is much less likely.

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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

pressure,

The RCS water inventory balance must be performed 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. 1 5

controlled bleed-off

Steady state operation is required to perform a proper water 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. 5

controlled bleed-off

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.

INSERT 1

~~The 72 hour Frequency is a reasonable interval to trend LEAKAGE and recognizes the importance of early leakage detection in the prevention of accidents.~~ TSTF-425-A

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 3.4.1~~8~~ 7, "Steam Generator Tube Integrity," should be evaluated. The 150 gallons per day limit is measured at room temperature as described in Reference 5. The operational LEAKAGE rate limit applies to LEAKAGE through any one 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. 6

TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 4

-- Reviewers 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)

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 controlled bleed-off ~~seal injection and return~~ flows. 5

INSERT 2

~~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. The primary to secondary LEAKAGE is determined using continuous process radiation monitors or radiochemical grab sampling in accordance with the EPRI guidelines (Ref. 5).~~ TSTF-425-A

REFERENCES

1. 10 CFR 50, Appendix A, GDC 30.
2. Regulatory Guide 1.45, May 1973.
3. U FSAR, Chapter ~~Section~~ [15]. 1 2
4. NEI 97-06, "Steam Generator Program Guidelines."
5. EPRI, "Pressurized Water Reactor Primary-to-Secondary Leak Guidelines."

TSTF-425-A

INSERT 2

The Frequency is controlled under the Surveillance Frequency Control Program. 4

~~-- Reviewers 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
~~--~~

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 Specification (ISTS) Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

5. SONGS does not have RCP seal injection and return flow; SONGS has RCP controlled bleed-off flow from each RCP. Therefore the term is being changed to be consistent with the SONGS design.

6. Reference to "LCO 3.4.18" has been changed to "LCO 3.4.17" in the ISTS SR 3.4.13.2 Bases Section to be consistent with changes made to the referenced Specification.

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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 13

ITS 3.4.14, RCS PIV LEAKAGE

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

ITS

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.14

LCO 3.4.14 Leakage from each RCS PIV shall be within limits.

INSERT 1

M01

Applicability

APPLICABILITY: MODES 1, 2, and 3,
MODE 4, except valves in the shutdown cooling (SDC) flow path are not required to meet the requirements of this LCO when in the SDC mode of operation.

, or during the transition to or from,

L01

ACTIONS

ACTIONS Notes

1.

-----NOTE-----
Separate Condition entry is allowed for each flow path.

2. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable PIV.

M02

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Leakage from one or more RCS PIVs not within limit. One or more flow paths with	-----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 on the RCS pressure boundary ----------------- 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

A02

A02

(continued)

M01 **INSERT 1**

AND

The Shutdown Cooling (SDC) System interlock function shall be OPERABLE.

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ITS

A01

ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME
ACTION A	A. (continued)	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.	72 hours
ACTION B	B. Required Action and associated Completion Time for Condition A not met. INSERT 2	B.1	Be in MODE 3.	6 hours
		AND		
		B.2	Be in MODE 5.	36 hours

M01

M01

INSERT 2

C. Shutdown Cooling (SDC) System interlock function inoperable.	C.1	Isolate the affected line by use of one closed manual or deactivated automatic valve.	4 hours

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ITS

A01

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	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 SDC 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 ~~specified in Table 3.4.14-1~~ is equivalent to ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure ≥ 2215 psia and ≤ 2255 psia.	In accordance with the Inservice Testing Program ~~or 24 months~~ and 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 (continued)

LA02

LA01

ITS

A01

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.4.14.1 — SR 3.4.14.1 (continued)	Within 48 hours following valve actuation due to automatic or manual action or flow through the valve ~~(~~for Section B valves ~~in Section B of Table 3.4.14-1)~~
SR 3.4.14.2 — INSERT 3	

LA02

M01

M01

INSERT 3

SR 3.4.14.2	Verify SDC System interlock function prevents the valves from being opened with a simulated or actual RCS pressure signal ≥ 380 psia.	In accordance with the Surveillance Frequency Control Program

~~Table 3.4.14-1~~
~~REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES~~

~~SECTION A~~

~~VALVE NUMBER~~	~~VALVE DESCRIPTION~~
~~S21204MU018~~	~~HPSI Check to Loop #1A~~
~~S21204MU019~~	~~HPSI Check to Loop #1B~~
~~S21204MU020~~	~~HPSI Check to Loop #2A~~
~~S21204MU021~~	~~HPSI Check to Loop #2B~~
~~S21204MU152~~	~~Hot leg injection to loop #1~~
~~S21204MU156~~	~~Hot leg injection to loop #2~~
~~S21204MU157~~	~~Hot leg injection check~~
~~S21204MU158~~	~~Hot leg injection check~~
~~2HV-9337~~	~~SDC Suction Isolation~~
~~2HV-9339~~	~~SDC Suction Isolation~~
~~2HV-9377~~	~~SDC Suction Isolation~~
~~2HV-9378~~	~~SDC Suction Isolation~~

LA02

~~SECTION B~~

~~VALVE NUMBER~~	~~VALVE DESCRIPTION~~
~~S21204MU072~~	~~LPSI Check to Loop #1A~~
~~S21204MU073~~	~~LPSI Check to Loop #1B~~
~~S21204MU074~~	~~LPSI Check to Loop #2A~~
~~S21204MU075~~	~~LPSI Check to Loop #2B~~
~~S21204MU027*~~	~~Cold leg injection to loop #1A~~
~~S21204MU029*~~	~~Cold leg injection to loop #1B~~
~~S21204MU031*~~	~~Cold leg injection to loop #2A~~
~~S21204MU033*~~	~~Cold leg injection to loop #2B~~
~~S21204MU040~~	~~SIT T008 Check~~
~~S21204MU041~~	~~SIT T007 Check~~
~~S21204MU042~~	~~SIT T009 Check~~
~~S21204MU043~~	~~SIT T010 Check~~

LA02

~~*Redundant to LPSI and SIT checks~~

ITS

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.14 — LCO 3.4.14 Leakage from each RCS PIV shall be within limits. — M01

INSERT 1

Applicability — APPLICABILITY: MODES 1, 2, and 3,
MODE 4, except valves in the shutdown cooling (SDC) flow path are not required to meet the requirements of this LCO when in the SDC mode of operation.

, or during the transition to or from, — L01

ACTIONS

1.

ACTIONS Note

-------------------------------------NOTE-------------------------------------
Separate Condition entry is allowed for each flow path.
----

2. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable PIV. — M01

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A: A. Leakage from one or more RCS PIVs not within limit. [One or more flow paths with] — A02	------------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 on the RCS pressure boundary] — A02 -----------------------------	
	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.	4 hours
	AND	
		(continued)

M01

INSERT 1

AND

The Shutdown Cooling (SDC) System interlock function shall be OPERABLE.

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ITS

A01

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A	A. (continued)	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.	72 hours
ACTION B	B. Required Action and associated Completion Time for Condition A not met. INSERT 2	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

M01

M01

INSERT 2

C. Shutdown Cooling (SDC) System interlock function inoperable.	C.1 Isolate the affected line by use of one closed manual or deactivated automatic valve.	4 hours

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ITS

A01

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	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 SDC 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 ~~specified in Table 3.4.14-1~~ is equivalent to ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure ≥ 2215 psia and ≤ 2255 psia. and In accordance with the Surveillance Frequency Control Program	In accordance with the Inservice Testing Program ~~or 24 months~~ 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 (continued)

LA02

LA01

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A01

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.14.1 — SR 3.4.14.1 (continued) Section B	Within 48 hours following valve actuation due to automatic or manual action or flow through the valve ~~(~~for valves ~~in Section B of Table 3.4.14-1)~~
SR 3.4.14.2 — INSERT 3	

LA02

M01

M01 **INSERT 3**

SR 3.4.14.2	Verify SDC System interlock function prevents the valves from being opened with a simulated or actual RCS pressure signal ≥ 380 psia.	In accordance with the Surveillance Frequency Control Program

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ITS

A01

~~Table 3.4.14-1~~
~~REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES~~

~~SECTION A~~

~~VALVE NUMBER~~	~~VALVE DESCRIPTION~~
~~S31204MU018~~	~~HPSI Check to Loop #1A~~
~~S31204MU019~~	~~HPSI Check to Loop #1B~~
~~S31204MU020~~	~~HPSI Check to Loop #2A~~
~~S31204MU021~~	~~HPSI Check to Loop #2B~~
~~S31204MU152~~	~~Hot leg injection to loop #1~~
~~S31204MU156~~	~~Hot leg injection to loop #2~~
~~S31204MU157~~	~~Hot leg injection check~~
~~S31204MU158~~	~~Hot leg injection check~~
~~3HV-9337~~	~~SDC Suction Isolation~~
~~3HV-9339~~	~~SDC Suction Isolation~~
~~3HV-9377~~	~~SDC Suction Isolation~~
~~3HV-9378~~	~~SDC Suction Isolation~~

LA02

~~SECTION B~~

~~VALVE NUMBER~~	~~VALVE DESCRIPTION~~
~~S31204MU072~~	~~LPSI Check to Loop #1A~~
~~S31204MU073~~	~~LPSI Check to Loop #1B~~
~~S31204MU074~~	~~LPSI Check to Loop #2A~~
~~S31204MU075~~	~~LPSI Check to Loop #2B~~
~~S31204MU027*~~	~~Cold leg injection to loop #1A~~
~~S31204MU029*~~	~~Cold leg injection to loop #1B~~
~~S31204MU031*~~	~~Cold leg injection to loop #2A~~
~~S31204MU033*~~	~~Cold leg injection to loop #2B~~
~~S31204MU040~~	~~SIT T008 Check~~
~~S31204MU041~~	~~SIT T007 Check~~
~~S31204MU042~~	~~SIT T009 Check~~
~~S31204MU043~~	~~SIT T010 Check~~

LA02

~~*Redundant to LPSI and SIT checks~~

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DISCUSSION OF CHANGES
ITS 3.4.14, RCS PIV LEAKAGE

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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

A02 CTS 3.4.14 Condition A states, leakage from one or more RCS PIVs not within limits. CTS 3.4.14 Note that modifies Required Actions A.1 and A.2 states, 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. ITS 3.4.14 Condition A states, "one or more flow paths with" leakage from one or more RCS PIVs not within limits. ITS 3.4.14 Required Actions A.1 and A.2 Note states, 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 on the RCS pressure boundary." This changes the CTS by clarifying Condition A and the Note that modifies Required Actions A.1 and A.2.

The addition of "one or more flow paths with" to CTS 3.4.14 Condition A was added to further clarify that separate condition entry is allowed for each flow path, as is allowed by CTS 3.4.14 ACTIONS Note 1. The Note that modifies Required Action A.1 and A.2 states that the valves used for isolation must meet the same leakage requirements as the PIVs and must be in the RCPB. This statement is already contained in the CTS 3.4.14 Bases for Required Actions A.1 and A.2. These changes are acceptable because it further clarifies the Condition and Required Actions of ACTION A. This change is designated as administrative because it does not technically affect the Specifications.

MORE RESTRICTIVE CHANGES

M01 CTS 3.4.14 does not specifically address the Shutdown Cooling (SDC) System interlock function. ITS 3.4.14 contains requirements in the LCO (second part of LCO), ACTIONS (ACTION C), and Surveillance Requirement (ITS SR 3.4.14.2) for the (SDC) System Interlock function. This changes the CTS by adding requirements for the SDC System interlock function.

The purpose of the SDC System Interlock function that prevents the SDC System isolation valves from being opened is to help ensure that RCS pressure will not pressurize the SDC System beyond its design pressure. The interlock prevents the valves from being opened if the actual RCS pressure is above the interlock setpoint to open the valves. The addition of these requirements are acceptable because the dominant accident sequence in the intersystem LOCA category is the failure of the low pressure portion of the SDC System outside of containment. In addition, the opening setpoint value included in ITS SR 3.4.14.2 is currently controlled in the SONGS Licensee Controlled Specifications. This change is

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DISCUSSION OF CHANGES
ITS 3.4.14, RCS PIV LEAKAGE

designated as more restrictive because additional requirements are being added in the ITS that were not in the CTS.

M02 ITS 3.4.14 ACTIONS contain a Note (Note 2) which requires entry into applicable Conditions and Required Actions for systems made inoperable by an inoperable PIV. CTS 3.4.14 ACTIONS do not contain this Note. This changes the CTS by adding the ACTIONS Note.

The addition of the ITS 3.4.14 Note requires an evaluation to be performed on affected systems if a PIV is inoperable. Currently, if an inoperable PIV results in the associated system's LCO not being met, it could be interpreted that LCO 3.0.6 would allow the associated system's Conditions and Required Actions to not be entered. This is not the intent of LCO 3.0.6, since the PIV requirement itself is not a support system to the system associated with the inoperable PIV. To ensure this does not occur, this specific Note has been added. This change is acceptable because 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. This change is designated as more restrictive because an additional requirement is added to the Specifications in the ITS that was not in the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.14.1 requires, in part, verifying 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 psia and ≤ 2255 psia every 24 months. ITS SR 3.4.14.1 requires a similar Surveillance and specifies the periodic Frequency as "In accordance with the Surveillance Frequency Control Program" in lieu of the current 24 month Frequency. This changes the CTS by moving the specified Frequency for the SR and the Bases for the Frequency to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

DISCUSSION OF CHANGES
ITS 3.4.14, RCS PIV LEAKAGE

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

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DISCUSSION OF CHANGES
ITS 3.4.14, RCS PIV LEAKAGE

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
   - Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
   - System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
   - Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
   - Independence of barriers is not degraded;
   - Defenses against human errors are preserved; and
   - The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

   These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the

DISCUSSION OF CHANGES
ITS 3.4.14, RCS PIV LEAKAGE

licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequency is being removed from the Technical Specifications.

LA02 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.4.14-1 lists the Section A and Section B Reactor Coolant System Pressure Isolation Valves. CTS SR 3.4.14.1 references Table 3.4.14-1. ITS 3.4.14 does not contain nor make reference to a RCS PIV Table. This changes the CTS by moving the RCS PIV Table to the UFSAR and removing the references to the Table. The ITS 3.4.14 Bases identifies the location of the RCS PIVs Table.

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. ITS 3.4.14 still requires the RCS PIVs to be OPERABLE, and ITS SR 3.4.14.1 requires periodic Surveillances to determine RCS PIV leakage. It is not necessary for the list of RCS PIVs to be in the Technical Specifications in order to ensure the RCS PIVs are OPERABLE. Other lists of components, such as containment isolation valves and equipment response time, have been relocated from the Technical Specifications to licensee-controlled documents while retaining the requirements on these components in Technical Specifications. Also, this change is acceptable because this detail will be adequately controlled in the UFSAR. Changes to the UFSAR are controlled by the 10 CFR 50.59 Program. This program provides for the evaluation of changes to ensure the UFSAR is properly controlled. This change is designated as a less restrictive removal of detail change because the list of RCS PIVs is being moved from the Technical Specifications to the UFSAR.

DISCUSSION OF CHANGES
ITS 3.4.14, RCS PIV LEAKAGE

LESS RESTRICTIVE CHANGES

L01 *(Category 2 – Relaxation of Applicability)* CTS 3.4.14 Applicability for MODE 4 contains an exception for valves in the SDC flow path that are not required to meet the requirements of this LCO when in the SDC mode of operation. ITS 3.4.14 Applicability for MODE 4 contains the same exception, except it also applies during the transition to or from the SDC mode of operation. This changes the CTS by expanding the exception to the MODE 4 Applicability for the valves in the SDC flow path to during the transition to and from the SDC mode of operation.

The purpose of CTS 3.4.14 is to ensure leakage through the PIVs is within limits. In MODE 4 the LCO is Applicable because the PIV leakage potential is greatest when the RCS is pressurized. The valves in the SDC flow path are not required to meet the requirements of this LCO in MODE 4 when in or during the transition to and from the SDC mode of operation. The CTS already allows the valves to not meet the limits when in the SDC mode of operation. Thus, this change is only allowing the valves to not meet the limits for a slightly greater time period; specifically when the unit is transitioning to or from the SDC mode. This change is acceptable because it allows the plant to transition to and from SDC as the primary method for cooling the RCS. This change is designated as less restrictive because it relaxes the MODE 4 Applicability in the ITS from what is currently 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

LCO 3.4.14

LCO 3.4.14 Leakage from each RCS PIV shall be within limits.

INSERT 1

3

Applicability

APPLICABILITY: MODES 1, 2, and 3,
MODE 4, except valves in the shutdown cooling (SDC) flow path when in, or during the transition to or from, the SDC mode of operation. 3

ACTIONS

--NOTES--

ACTION Note

1. Separate Condition entry is allowed for each flow path.

2. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable PIV.

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
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 on the RCS pressure boundary [or the high pressure portion of the system]. --- 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

5

U2/U3 CTS

3

INSERT 1

AND

DOC M01

The Shutdown Cooling (SDC) System interlock function shall be OPERABLE.

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]	2 2
ACTION B	B. Required Action and associated Completion Time for Condition A not met.	B.1 <u>AND</u> B.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours	
DOC M01	C. [Shutdown Cooling (SDC) System ~~autoclosure~~ interlock function inoperable.	C.1	Isolate the affected ~~penetration~~ line by use of one closed manual or deactivated automatic valve.	4 hours]	2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1 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 SDC 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] psia and ≤ [2255] psia.	In accordance with the Inservice Testing Program, and ~~[18] months~~ In accordance with the Surveillance Frequency Control Program 2 TSTF-425-A AND Prior to entering MODE 2 whenever ~~determine~~ the unit has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous 9 months 8 AND Within 48 ~~24~~ hours following valve actuation due to automatic or manual action or flow through the valve for Section B valves 4 4

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.14.2	------------------------------NOTE------------------------------ [Not required to be met when the SDC System autoclosure interlock is disabled in accordance with SR 3.4.12.7. --- Verify SDC System autoclosure function interlock prevents the valves from being opened with a simulated or actual RCS pressure signal ≥ [425] psig. 380 psia	[18] months] In accordance with the Surveillance Frequency Control Program
SR 3.4.14.3	------------------------------NOTE------------------------------ [Not required to be met when the SDC System autoclosure interlock is disabled in accordance with SR 3.4.12.7. --- Verify SDC System autoclosure interlock causes the valves to close automatically with a simulated or actual RCS pressure signal ≥ [600] psig.	[18] months]

DOC M01

6

7 TSTF-425-A

2

7

1

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JUSTIFICATION FOR DEVIATIONS
ITS 3.4.14, RCS PIV LEAKAGE

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

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. The second part of the LCO has been added to ISTS LCO 3.4.14 to ensure consistency between the LCO, ACTIONS, and Surveillance Requirements. The ISTS LCO, ACTIONS, and Surveillances do not match up since there is no explicit statement in the LCO requiring the SDC System interlock function to be OPERABLE. LCO 3.0.1 requires LCOs to be met during the MODES or other specified conditions in the Applicability. LCO 3.0.2 states that upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met. Currently, if the SDC System interlock function is inoperable, the LCO is still met. Thus, ACTION C is not required to be entered since the LCO is still met. Therefore, the inclusion of the second portion of the LCO ensures consistency between the LCO, ACTIONS, and Surveillance Requirements.

4. ISTS SR 3.4.14.1 third Frequency states, in part, within "24" hours following valve actuation…" The 24 hour Frequency is being changed to 48 hours in the SONGS ITS. This change is consistent with the SONGS Units 2 and 3 CTS and is acceptable because 48 hours is a reasonable and practical time limit for performing this test after opening or reseating a valve. Furthermore, the CTS only requires this Frequency for the Section B PIVs.

5. The bracketed portion of the Note in ISTS 3.4.14 Required Action A.1 and A.2, "[or the high pressure portion of the system]," is not being adopted in the SONGS Units 2 and 3 ITS because the CTS does not contain this allowance.

6. ISTS SR 3.4.14.2 does not require disabling this interlock. Furthermore, the SONGS ITS does not require disabling the interlock to meet LCO 3.4.12 requirements. Therefore, this bracketed Note has been deleted.

7. "Autoclosure" is being deleted and "function" is being added to ISTS SR 3.4.14.2; and ISTS SR 3.4.14.3 is being deleted. SONGS design does not include an autoclosure feature. The interlock only prevents the valves from being opened.

8. Typographical error has been corrected. The word "determine" has been changed to "whenever", consistent with both the SONGS CTS and the other two PWR NUREGs (NUREGs-1430 and -1431).

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

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.14 RCS Pressure Isolation Valve (PIV) Leakage

BASES

BACKGROUND

10 CFR 50.2, 10 CFR 50.55a(c), and GDC 55 of 10 CFR 50, Appendix A (Refs. 1, 2, and 3), define RCS PIVs as any two normally closed valves in series within the RCS pressure boundary that 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 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 PIVs in series 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 valves in series 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 leakage 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 condition that could degrade the ability for low pressure injection.

The basis for this LCO is the 1975 NRC "Reactor Safety Study" (Ref. 4) that identified potential intersystem LOCAs as a significant contributor to the risk of core melt. A subsequent study (Ref. 5) evaluated various PIV configurations to determine the probability of intersystem LOCAs.

PIVs are provided to isolate the RCS from the following typically connected systems:

BASES

BACKGROUND (continued)

a. Shutdown Cooling (SDC) System, ;

b. Safety Injection System, and ;

c. Chemical and Volume Control System.

The PIVs are listed in U FSAR section 5.4 (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.

4
4
1

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 SDC System outside of containment. The accident is the result of a postulated failure of the PIVs, which are part of the reactor coolant pressure boundary (RCPB), and the subsequent pressurization of the SDC System downstream of the PIVs from the RCS. Because the low pressure portion of the SDC System is typically designed for ~~[600]~~ 615 psig, overpressurization failure of the SDC low pressure line would result in a LOCA outside containment and subsequent risk of core melt. 2

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.

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.

BASES

LCO (continued)

Ensuring the SDC System interlock function that prevents the valves from being opened is OPERABLE ensures that RCS pressure will not pressurize the SDC System beyond its design pressure.

~~Reference 7 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.~~ 5

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 SDC flow path are not required to meet the requirements of this LCO when in, or during the transition to or from, the SDC 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 is added to provide clarification that each flow path allows separate entry into a Condition. This is allowed based on 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. 4

A.1 and A.2

The flow path must be isolated by two valves. Required Actions A.1 and A.2 are modified by a Note stating that the valves used for isolation must meet the same leakage requirements as the PIVs and must be in the RCPB [or the high pressure portion of the system]. 5

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 if leakage cannot be reduced. The 4 hours 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.]~~ 5

~~-----------------------------------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

If leakage cannot be reduced, ~~[~~ the system isolated, ~~]~~ or other Required Actions accomplished, 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 5 within 36 hours. This Action reduces the leakage and also reduces the potential for a LOCA outside the containment. 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. 4 2

C.1

The inoperability of the SDC ~~autoclosure~~ System interlock renders the SDC 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 SDC ~~systems~~ System's design pressure. If the SDC ~~autoclosure~~ System interlock is inoperable, operation may continue as long as the affected SDC 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~~ interlock function. 1

BASES

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 or 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.

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.

Testing is to be performed every 9 months, but may be extended ~~up to a maximum of [18] months, a typical refueling cycle,~~ 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. 8), as contained in the Inservice Testing Program, is within frequency allowed by the American Society of Mechanical Engineers (ASME) Code (Ref. 7), and is based on the need to perform the Surveillance under conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.~~ INSERT 1 TSTF-425-A

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~~ 48 hours after the valve has been reseated. Within ~~24~~ 48 hours is a reasonable and practical time limit for performing this test after opening or reseating a valve. 5

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 complimentary 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

TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 6

--- Reviewers 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)

in the previous 9 months. In addition, this Surveillance is not required to be performed on the SDC System when the SDC System is aligned to the RCS in the shutdown cooling mode of operation. PIVs contained in the SDC shutdown cooling flow path must be leakage rate tested after SDC is secured and stable unit conditions and the necessary differential pressures are established.

that prevents the SDC isolation valves from being opened is

SR 3.4.14.2 ~~and SR 3.4.14.3~~ 5

System helps

Verifying that the SDC ~~autoclosure~~ interlock~~s are~~ OPERABLE ensure~~s~~ 5 1
that RCS pressure will not pressurize the SDC system beyond ~~125% of~~ 1
435
its design pressure of ~~[600]~~ psig. The interlock setpoint that prevents the 2
380 psia
valves from being opened is set so the actual RCS pressure must be
< ~~[425] psig~~ to open the valves. This setpoint ensures the SDC design 2
pressure will not be exceeded and the SDC relief valve~~s~~ will not lift. ~~The 18 month Frequency is based on the need to perform these Surveillances 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.~~ 1

INSERT 1 TSTF-425-A

~~The SRs are modified by Notes allowing the SDC autoclosure function to be disabled when using the SDC System suction relief valves for cold overpressure protection in accordance with SR 3.4.12.7.~~ 5

REFERENCES

1. 10 CFR 50.2.

2. 10 CFR 50.55a(c).

3. 10 CFR 50, Appendix A, Section V, GDC 55.

4. WASH-1400 (NUREG-75/014), Appendix V, October 1975.

5. NUREG-0677, May 1980.

UFSAR, Section 5.4

6. ~~[Document containing list of PIVs.]~~ 2

7. ASME Code for Operation and Maintenance of Nuclear Power Plants.

~~8. 10 CFR 50.55a(g).~~ 1

TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 6

--- Reviewers 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

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.14 BASES, RCS PIV Leakage

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

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. Changes are made to be consistent with changes made to the Specifications.

6. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.14, RCS PIV LEAKAGE

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

ATTACHMENT 14

ITS 3.4.15 RCS LEAKAGE DETECTION INSTRUMENTATION

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

ITS

A01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

a. One containment sump ~~inlet flow monitoring system~~ monitor; and

LA02

b. One containment atmosphere gaseous radioactivity monitoring system; or one containment atmosphere particulate radioactivity monitoring system.

Applicability

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

ACTIONS

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required containment sump ~~inlet flow~~ monitor inoperable.	~~-------------NOTE------------- LCO 3.0.4 is not applicable. ------------------------------~~ INSERT 1 A.1 Perform SR 3.4.13.1. AND INSERT 1A A.~~2~~ 3 Restore containment sump ~~inlet flow monitoring system~~ monitor to OPERABLE status.	 Once per 24 hours 30 days INSERT 1B

LA02 M01

L01

M02

LA02

(continued)

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L01 **INSERT 1**

---------------NOTE--------------
Not required until 12 hours after establishment of steady state operation.

M02 **INSERT 1A**

A.2	Analyze grab samples of containment atmosphere.	Once within 12 hours from discovery of inoperable containment sump monitor concurrent with containment gaseous radioactivity monitor being the only OPERABLE monitor. AND Once per 12 hours thereafter

AND

M02 **INSERT 1B**

7 days from discovery of inoperable containment sump monitor concurrent with containment atmosphere gaseous monitor being the only OPERABLE monitor

AND

ITS

A01

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION B	B. Required containment atmosphere radioactivity monitoring system inoperable.	~~-----NOTE----- LCO 3.0.4 is not applicable. -----~~ B.1.1 Analyze grab samples of the containment atmosphere. OR INSERT 2 B.1.2 Perform SR 3.4.13.1. AND B.2 Restore required containment atmosphere radioactivity monitoring system to OPERABLE status.	Once per 24 hours Once per 24 hours 30 days	M01 L01
ACTION D	C. All required monitoring systems inoperable.	C.1 ~~Perform SR 3.4.13.1.~~ Enter LCO 3.0.3. ~~AND~~ ~~C.2 Restore at least one Leak Detection Instrument to OPERABLE status.~~	~~Once per 12 hours~~ Immediately ~~24 hours~~	M03
ACTION C	D. Required Action and associated Completion Time ~~of Condition A, B, or C~~ not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours	M03

L01

INSERT 2

---------------NOTE--------------
Not required until 12 hours after establishment of steady state operation.

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.4.15.1	SR 3.4.15.1 Perform CHANNEL CHECK of the required containment atmosphere gaseous radioactivity monitor.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.15.1	SR 3.4.15.2 Perform CHANNEL CHECK of the required containment atmosphere particulate radioactivity monitor.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.15.2	SR 3.4.15.3 Perform CHANNEL FUNCTIONAL TEST of the required containment atmosphere gaseous radioactivity monitor.	~~92 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.15.2	SR 3.4.15.4 Perform CHANNEL FUNCTIONAL TEST of the required containment atmosphere particulate radioactivity monitor.	~~92 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.15.3	SR 3.4.15.5 Perform CHANNEL CALIBRATION of the required containment sump monitor.	~~24 months~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.15.4	SR 3.4.15.6 Perform CHANNEL CALIBRATION of the required containment atmosphere gaseous radioactivity monitor.	~~24 months~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.15.4	SR 3.4.15.7 Perform CHANNEL CALIBRATION of the required containment atmosphere particulate radioactivity monitor.	~~24 months~~ In accordance with the Surveillance Frequency Control Program	LA01

ITS

A01 RCS Leakage Detection Instrumentation
3.4.15

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

a. One containment sump ~~inlet flow monitoring system~~ monitor; and LA02

b. One containment atmosphere gaseous radioactivity monitoring system; or one containment atmosphere particulate radioactivity monitoring system.

Applicability

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

ACTION A

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required containment sump ~~inlet flow~~ monitor inoperable.	~~-----NOTE-----~~ ~~LCO 3.0.4 is not applicable.~~ ~~----------~~ INSERT 1 A.1 Perform SR 3.4.13.1.	Once per 24 hours
	AND	
INSERT 1A	A.~~2~~ 3 Restore containment sump ~~inlet flow monitoring system~~ monitor to OPERABLE status.	30 days INSERT 1B

LA02 M01 L01 M02 LA02

(continued)

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L01 **INSERT 1**

---------------NOTE--------------
Not required until 12 hours
after establishment of
steady state operation.

M02 **INSERT 1A**

A.2	Analyze grab samples of containment atmosphere.	Once within 12 hours from discovery of inoperable containment sump monitor concurrent with containment gaseous radioactivity monitor being the only OPERABLE monitor. AND Once per 12 hours thereafter

AND

M02 **INSERT 1B**

7 days from discovery of inoperable containment sump monitor concurrent with containment atmosphere gaseous monitor being the only OPERABLE monitor

AND

ITS

A01

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION B	B. Required containment atmosphere radioactivity monitoring system inoperable.	~~-------------NOTE-------------~~ ~~LCO 3.0.4 is not applicable.~~ ~~------------------------------~~		M01
		B.1.1 Analyze grab samples of the containment atmosphere.	Once per 24 hours	
		OR INSERT 2 B.1.2 Perform SR 3.4.13.1.	Once per 24 hours	L01
		AND B.2 Restore required containment atmosphere radioactivity monitoring system to OPERABLE status.	30 days	
ACTION D	C. All required monitoring systems inoperable.	C.1 ~~Perform SR 3.4.13.1.~~ Enter LCO 3.0.3. ~~AND~~ ~~C.2 Restore at least one Leak Detection Instrument to OPERABLE status.~~	~~Once per 12 hours~~ Immediately ~~24 hours~~	M03
ACTION C	D. Required Action and associated Completion Time ~~of Condition A, B, or C~~ not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours	M03

L01

INSERT 2

---------------NOTE--------------
Not required until 12 hours after establishment of steady state operation.

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.4.15.1	SR 3.4.15.1	Perform CHANNEL CHECK of the required containment atmosphere gaseous radioactivity monitor.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.15.1	SR 3.4.15.2	Perform CHANNEL CHECK of the required containment atmosphere particulate radioactivity monitor.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.15.2	SR 3.4.15.3	Perform CHANNEL FUNCTIONAL TEST of the required containment atmosphere gaseous radioactivity monitor.	~~92 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.15.2	SR 3.4.15.4	Perform CHANNEL FUNCTIONAL TEST of the required containment atmosphere particulate radioactivity monitor.	~~92 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.15.3	SR 3.4.15.5	Perform CHANNEL CALIBRATION of the required containment sump monitor.	~~24 months~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.15.4	SR 3.4.15.6	Perform CHANNEL CALIBRATION of the required containment atmosphere gaseous radioactivity monitor.	~~24 months~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.4.15.4	SR 3.4.15.7	Perform CHANNEL CALIBRATION of the required containment atmosphere particulate radioactivity monitor.	~~24 months~~ In accordance with the Surveillance Frequency Control Program	LA01

DISCUSSION OF CHANGES
ITS 3.4.15, RCS LEAKAGE DETECTION INSTRUMENTATION

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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 3.4.15 ACTIONS A and B Required Actions are modified by a Note which states LCO 3.0.4 is not applicable. ITS 3.4.15 ACTIONS A and B Required Actions do not include this Note. This changes the CTS by deleting the exception to LCO 3.0.4 from ACTIONS A and B Required Actions.

The purpose of the Note to CTS 3.4.15 ACTIONS A and B Required Actions is to allow the unit to continue MODE changes during a startup with required containment sump monitor inoperable or required containment atmosphere radioactivity monitoring system inoperable. The proposed change to CTS ACTIONS A and B Required Actions delete the Note. Thus, if the required leakage detection instrumentation is inoperable, ITS 3.4.15 will only allow MODE changes during a startup using the allowances of ITS LCO 3.0.4.b, which requires performance of a risk assessment prior to changing MODES. This change adds the requirement to perform a risk assessment in order to enter the MODES of Applicability while the LCO is not met. Therefore, this change is considered acceptable. This change is designated as more restrictive because additional requirements are being added to the ITS than are required by the CTS.

M02 CTS 3.4.15 ACTION A provides the requirements when only the containment sump monitor is inoperable, and requires performance of SR 3.4.13.1 once per 24 hours and restoration of the inoperable containment sump monitor within 30 days. Under this same condition, if the containment atmosphere particulate radioactivity monitor is being used to meet the LCO 3.4.15.b requirements, then ITS 3.4.15 ACTION A will provide the same requirements. However, if the containment atmosphere gaseous radioactivity monitor is the only remaining OPERABLE monitor (i.e., the containment sump monitor is inoperable concurrent with the containment atmosphere particulate radioactivity monitor being inoperable), then two new requirements will apply. ITS 3.4.15 Required Action A.2 will require an analysis of the containment atmosphere once per 12 hours. Furthermore, the restoration time of the containment sump monitor will be reduced from 30 days to 7 days, as shown in the first Completion Time of ITS 3.4.15 Required Action A.3. Note that both these new requirements will only apply after the containment sump monitor is discovered to be inoperable concurrent with the containment atmosphere gaseous radioactivity monitor being the only remaining OPERABLE monitor. This changes the CTS by adding a new

DISCUSSION OF CHANGES
ITS 3.4.15, RCS LEAKAGE DETECTION INSTRUMENTATION

requirement and reducing the restoration time for the containment sump monitor, when the containment sump monitor is inoperable concurrent with the containment atmosphere gaseous radioactivity monitor being the only OPERABLE monitor.

The purpose of CTS 3.4.15 ACTION A is to provide the necessary compensatory measures when the containment sump monitor is inoperable. The proposed change requires analyzing grab samples from the containment atmosphere and restoration of the sump monitor within 7 days (Note that if the containment atmosphere particulate monitor is restored, this would also allow exiting these new Required Actions). The RCS mass balance is sensitive enough to detect a one gpm leak rate in one hour and is the primary method used to verify compliance with the RCS leakage limits. However, an RCS mass balance calculation requires a relatively lengthy period of steady state operation to provide accurate results. The ability to perform grab sampling during periods of power change is desirable and provides an additional compensatory method to the currently required RCS mass balance. A containment grab sample is comparable to the containment particulate radiation monitor with respect to the ability to detect RCS leakage. Due to the time to take and analyze the grab sample, this is not a continuous monitoring method. However, by reducing the time between grab samples there will be no significant loss of monitoring capability during the limited time period allowed by the proposed change. The 12 hour performance of containment grab samples is reasonable given the availability of the containment atmosphere gaseous radiation monitor. The 7 day Completion Time to restore another monitor is reasonable given the diverse methods available to detect an RCS leak and the low probability of a large RCS leak during this period. Therefore, this change is acceptable. This change is designated as more restrictive since, under certain conditions when the containment sump monitor is inoperable, an additional requirement is being added and the restoration time is being reduced.

M03 CTS 3.4.15 ACTION C allows 24 hours to restore one inoperable leak detection instrument to OPERABLE status when both are inoperable, provided SR 3.4.13.1 is performed once per 12 hours. Under the same conditions (i.e., both leak detection instruments inoperable), ITS 3.4.15 ACTION D will require an immediate entry into LCO 3.0.3; no time to restore any of the instruments prior to the LCO 3.0.3 shutdown is provided. In addition, due to this change, the Condition reference words in CTS 3.4.15 Condition D (of Condition A, B, or C) are not required and have also been deleted. This changes the CTS by requiring an immediate LCO 3.0.3 entry when all required monitoring systems are inoperable in lieu of providing some time to restore an instrument before requiring a unit shutdown.

The proposed change to the CTS 3.4.15 ACTION C, when all required monitoring systems are inoperable, requires an LCO 3.0.3 entry, instead of performing an RCS inventory balance once per 12 hours and restoring one leakage detection instrument to OPERABLE status within 24 hours. This change is acceptable because if all required monitors are inoperable, no automatic means of monitoring leakage are available. This change is designated as more restrictive because more stringent Required Actions are required in the ITS than are allowed in the CTS.

DISCUSSION OF CHANGES
ITS 3.4.15, RCS LEAKAGE DETECTION INSTRUMENTATION

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.15.1 requires performance of a CHANNEL CHECK of the required containment atmosphere gaseous radioactivity monitor once per 12 hours. CTS SR 3.4.15.2 requires performance of a CHANNEL CHECK of the required containment atmosphere particulate radioactivity monitor once per 12 hours. CTS SR 3.4.15.3 requires performance of a CHANNEL FUNCTIONAL TEST of the required containment atmosphere gaseous radioactivity monitor every 92 days. CTS SR 3.4.15.4 requires performance of a CHANNEL FUNCTIONAL TEST of the required containment atmosphere particulate radioactivity monitor every 92 days. CTS SR 3.4.15.5 requires performance of a CHANNEL CALIBRATION of the required containment sump monitor every 24 months. CTS SR 3.4.15.6 requires performance of a CHANNEL CALIBRATION of the required containment atmosphere gaseous radioactivity monitor every 24 months. CTS 3.4.15.7 requires performance of a CHANNEL CALIBRATION of the required containment atmosphere particulate radioactivity monitor every 24 months. ITS SRs 3.4.15.1, 3.4.15.2, 3.4.15.3, and 3.4.15.4 require similar Surveillances and specify the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequency for the SR and the Bases for the Frequency to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

DISCUSSION OF CHANGES
ITS 3.4.15, RCS LEAKAGE DETECTION INSTRUMENTATION

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;

   - Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;

DISCUSSION OF CHANGES
ITS 3.4.15, RCS LEAKAGE DETECTION INSTRUMENTATION

- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
- Independence of barriers is not degraded;
- Defenses against human errors are preserved; and
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

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DISCUSSION OF CHANGES
ITS 3.4.15, RCS LEAKAGE DETECTION INSTRUMENTATION

NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequencies are being removed from the Technical Specifications.

LA02 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS LCO 3.4.15.a and CTS 3.4.15 Required Action A.2 refer to the containment sump "inlet flow monitoring system" and CTS 3.4.15 Condition A refers to the containment sump "inlet flow monitor." ITS LCO 3.4.15.a, ITS 3.4.15 Condition A, and ITS 3.4.15 Required Action A.3 refers to the containment sump "monitor." This changes the CTS by removing reference to the specific type of containment sump monitor from the CTS and placing it in the ITS Bases.

The removal of this detail, which is 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. ITS LCO 3.4.15.a continues to require the containment sump monitor to be OPERABLE. This change is acceptable because the information being removed from Technical Specification is purely descriptive. 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 information relating to system design and operation is being moved from the Technical Specifications to the ITS Bases.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.4.15 Required Actions A.1 and B.1.2 require performance of SR 3.4.13.1 (RCS Water Inventory Balance Surveillance). ITS 3.4.15 Required Actions A.1 and B.1.2 require performance of SR 3.4.13.1, but they are also modified by a Note which states, not required until 12 hours after establishment of steady state operation. This changes the CTS by adding a modifying Note to the Required Actions.

The purpose of the performing SR 3.4.13.1 more frequently when there is inoperable RCS leakage detection instrumentation is to provide information that is adequate to detect leakage. The proposed change adds a Note to the performance of SR 3.4.13.1 allowing that the SR is not required to be performed until 12 hours after establishing steady state operation. This is acceptable because steady state operation (stable temperature, power level, pressurizer and makeup tank levels, and makeup and letdown) is required to obtain an accurate

DISCUSSION OF CHANGES
ITS 3.4.15, RCS LEAKAGE DETECTION INSTRUMENTATION

RCS water inventory balance. The 12 hours allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established. This change is designated as less restrictive because it relaxes the Required Actions for performance of the RCS water inventory balance in the ITS than what is currently in the CTS.

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15

LCO 3.4.15 ~~[Two of]~~ the following RCS leakage detection instrumentation shall be OPERABLE: 2

a. One containment sump monitor ; and 3

b. One containment atmosphere radioactivity monitor (gaseous or particulate)~~, and~~ . 3

~~[c. One containment air cooler condensate flow rate monitor.]~~ 2

Applicability

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

ACTIONS

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
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	
INSERT 1	A.~~2~~ 3 Restore containment sump monitor to OPERABLE status.	30 days INSERT 2 TSTF -513 4

TSTF-513 **INSERT 1**

A.2	Analyze grab samples of containment atmosphere.	Once within 12 hours from discovery of inoperable containment sump monitor concurrent with containment gaseous radioactivity monitor being the only OPERABLE monitor <u>AND</u> Once per 12 hours thereafter

<u>AND</u>

TSTF-513 **INSERT 2**

7 days from discovery of inoperable containment sump monitor concurrent with containment atmosphere gaseous monitor being the only OPERABLE monitor

<u>AND</u>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION B B. Required containment atmosphere radioactivity monitor inoperable.	B.1.1 Analyze grab samples of the containment atmosphere.	Once per 24 hours
	OR	
	B.1.2 ---------------NOTE-------------- Not required until 12 hours after establishment of steady state operation. ------------------------------------- Perform SR 3.4.13.1.	Once per 24 hours
	AND	
	B.2.~~1~~ Restore required containment atmosphere radioactivity monitor to OPERABLE status.	30 days
	~~OR~~	
	~~B.2.2 [Verify containment air cooler condensate flow rate monitor is OPERABLE.~~	~~30 days]~~ 2
~~C. [Required containment air cooler condensate flow rate monitor inoperable.~~	~~C.1 ---------------NOTE-------------- Not required until 12 hours after establishment of steady state operation. ------------------------------------- Perform SR 3.4.15.1.~~	~~Once per 8 hours~~ 2
	~~OR~~	
	~~C.2 Perform SR 3.4.13.1.~~	~~Once per 24 hours]~~

ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME	
	D. [Required containment atmosphere radioactivity monitor inoperable. AND Required containment air cooler condensate flow rate monitor inoperable.	D.1 OR D.2	Restore required containment atmosphere radioactivity monitor to OPERABLE status. Restore required containment air cooler condensate flow rate monitor to OPERABLE status.	30 days 30 days]	2
ACTION D	~~E~~ C. Required Action and associated Completion Time not met.	~~E~~ C.1 AND ~~E~~ C.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours	2 2
ACTION C	~~F~~ D. All required monitors inoperable.	~~F~~ D.1	Enter LCO 3.0.3.	Immediately	2

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.4.15.1, SR 3.4.15.2	SR 3.4.15.1	Perform CHANNEL CHECK of the required containment atmosphere radioactivity monitor.	~~[12] hours~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A
SR 3.4.15.3, SR 3.4.15.4	SR 3.4.15.2	Perform CHANNEL FUNCTIONAL TEST of the required containment atmosphere radioactivity monitor.	~~92 days~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A
SR 3.4.15.5	SR 3.4.15.3	Perform CHANNEL CALIBRATION of the required containment sump monitor.	~~[18] months~~	TSTF-425-A

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
SR 3.4.15.6, SR 3.4.15.7	SR 3.4.15.4 Perform CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitor.	~~[18] months~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A
	~~SR 3.4.15.5 [Perform CHANNEL CALIBRATION of the required containment air cooler condensate flow rate monitor.~~	~~[18] months]~~	2

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.15, RCS LEAKAGE DETECTION INSTRUMENTATION

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

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis. Note that SONGS Units 2 and 3 do not have a containment air cooler condensate flow rate monitor. Thus, all references to this type of monitor have been deleted. Furthermore, due to these deletions, subsequent ACTIONS have been renumbered.

3. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

4. TSTF-513 modified the ACTIONS for this Specification such that if only the containment atmosphere gaseous monitor remains OPERABLE, then the containment sump monitor restoration time is reduced from 30 days to 7 days. The TSTF also required an analysis of the containment atmosphere every 12 hours under this condition. The TSTF provided a markup based on a plant having a containment air cooler condensate flow rate monitor required to be OPERABLE by the LCO. Thus, the 7 day Completion Time is provided in new ISTS 3.4.15 ACTION D. However, SONGS does not require a containment air cooler condensate flow rate monitor to be OPERABLE. Thus, in the SONGS CTS, there is no Condition covering the case of the containment sump monitor and the containment air cooler condensate flow rate monitor being simultaneously inoperable. Therefore, in the SONGS ITS, a second Completion Time for the containment sump monitor has been added to ISTS 3.4.15 Required Action A.2 (ITS 3.4.15 Required Action A.3). ISTS 3.4.15 ACTION A covers the condition of the containment sump monitor being inoperable, and Required Action A.2 requires the containment sump monitor to be restored to OPERABLE status within 30 days. ITS 3.4.15 ACTION A covers the same inoperability, but includes a second Completion Time to ITS 3.4.15 Required Action A.3. The new Completion state states "7 days from discovery of inoperable containment sump monitor concurrent with containment atmosphere gaseous monitor being the only OPERABLE monitor." This new Completion Time will ensure that if the containment atmosphere particulate monitor is also or subsequently becomes inoperable, then a 7 day Completion Time, from discovery of the two inoperabilities, is applied. Furthermore, a new Required Action A.2 has been added to perform the containment atmosphere analysis once per 12 hours when the containment sump is inoperable and the containment atmosphere gaseous radioactivity monitor is the only remaining monitor OPERABLE. These changes are consistent with the TSTF requirements, in that the 7 day Completion Time of ISTS 3.4.15 ACTION D and the new containment atmosphere analysis requirement (as modified by TSTF-513) only start when the gaseous monitor is the only remaining OPERABLE monitor. This presentation also has the advantage of only requiring a single Condition to be entered when the containment sump monitor is inoperable. The presentation of this type of Completion Time was taken from NUREG-1433 and NUREG-1434, Required Actions F.2 and G.2. In addition, the remainder of the TSTF-513 changes are not adopted and not shown, as they are not applicable to the SONGS requirements.

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

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.15 RCS Leakage Detection Instrumentation

BASES

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. TSTF -513

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. TSTF -513

~~Industry practice has shown that water flow changes of 0.5 gpm to 1.0 gpm can readily be detected in contained volumes by monitoring changes in water level, in flow rate, or in the operating frequency of a pump.~~ TSTF -513 The containment sump used to collect unidentified LEAKAGE ~~[~~is~~]~~ ~~and the containment air cooler condensate flow rate monitor [are]~~ 2 1 2 instrumented to alarm for increases ~~of 0.5 gpm to 1.0 gpm~~ in the normal flow rates. ~~This sensitivity is acceptable for detecting increases in unidentified LEAKAGE.~~ TSTF -513

The reactor coolant contains radioactivity that, when released to the containment, ~~can~~ may be detected by radiation monitoring instrumentation. ~~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. Instrument sensitivities of 10^{-9} μCi/cc radioactivity for particulate monitoring and of 10^{-6} μCi/cc radioactivity for gaseous monitoring are practical for these leakage detection systems.~~ TSTF -513 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. ~~A 1°F increase in dew point is well within the sensitivity range of available instruments.~~ TSTF -513

BASES

BACKGROUND (continued)

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. 2

The above mentioned LEAKAGE detection methods or systems differ in sensitivity and response time. Some of these systems could serve as early alarm systems signaling the operators that closer examination of other detection systems is necessary to determine the extent of any corrective action that may be required.

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 ~~are~~ 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. TSTF -513

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 system response times and sensitivities are described in the FSAR (Ref. 3). Multiple instrument locations are utilized, if needed, to ensure the transport delay time of the LEAKAGE from its source to an instrument location yields an acceptable overall response time.~~ TSTF -513

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 are necessary. Quickly separating the identified LEAKAGE from the unidentified LEAKAGE provides quantitative information to the operators, allowing them to take corrective action should leakage occur detrimental to the safety of the facility and the public.

RCS leakage detection instrumentation satisfies Criterion 1 of 10 CFR 50.36(c)(2)(ii).

BASES

LCO

~~One method of protecting against large RCS LEAKAGE derives from the ability of instruments to rapidly detect extremely small leaks.~~ This LCO requires instruments of diverse monitoring principles to be OPERABLE to provide ~~a high degree of~~ confidence that ~~extremely small leaks~~ 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. TSTF-513

INSERT 1 TSTF-513

The LCO is satisfied when monitors of diverse measurement means are available. Thus, the containment sump inlet flow monitor, in combination with a particulate or gaseous radioactivity monitor ~~[and a containment air cooler condensate flow rate monitor]~~, provides an acceptable minimum. 1 5

APPLICABILITY

Because of elevated RCS temperature and pressure in MODES 1, 2, 3, and 4, RCS leakage detection instrumentation is required to be OPERABLE.

In MODE 5 or 6, the temperature is ≤ 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 is much smaller. Therefore, the requirements of this LCO are not applicable in MODES 5 and 6.

ACTIONS

A.1, A.2, and A.~~2~~ 3 TSTF-513 8

If the containment sump monitor is 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 pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and [RCP ~~seal injection and return~~ controlled bleed-off flows]). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established. TSTF-513 1 4

Restoration of the sump monitor to OPERABLE status is required to regain the function in a Completion Time of 30 days 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. TSTF-513

INSERT 2

TSTF -513 **INSERT 1**

The normal sump level signal provides input to the Critical Functions Monitoring System (CFMS) where the level signal is converted to flow rate and an alarm is generated by the CFMS at a leakage rate of 1 gpm or a 0.5 gpm increase. 1

The LCO requires two instruments to be OPERABLE.

normal

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 inlet leakage flow rate and is instrumented to detect when there is an 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. 2

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. In addition, background containment radioactivity may also affect the response time of the gaseous containment atmosphere radioactivity monitor. 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). The gaseous containment atmosphere radioactivity monitor is OPERABLE when it is capable of detecting a 1 gpm increase in unidentified LEAKAGE within 9 hours given an RCS activity equivalent to that assumed in the design calculations for the monitors (Ref. 3). 9 9

TSTF -513 **INSERT 2**

However, if the containment atmosphere gaseous radioactivity monitor is the only monitor remaining OPERABLE, then a Completion Time of 7 days from discovery of the containment sump monitor being inoperable concurrent with the gaseous monitor being the only OPERABLE monitor is required. The containment atmosphere gaseous radioactivity monitor typically cannot detect a 1 gpm leak within 1 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 and analyzed every 12 hours to provide alternate periodic information. The 12 hour interval is sufficient to detect increasing RCS leakage.

BASES

ACTIONS (continued)

and

B.1.1, B.1.2, B.2~~.1, and B.2.2~~ 5

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 an inventory balance performed every 24 hours, the reactor may be operated for up to 30 days to allow restoration of at least one of the 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 balance performed every 24 hours.~~ 5

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 pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and ~~[~~RCP ~~seal injection and return~~ controlled bleed-off 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. 1 4

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

~~If the required containment air cooler condensate flow rate monitor is 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 an 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.~~ 5

~~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.~~

BASES

ACTIONS (continued)

~~D.1 and D.2~~

~~If the required containment atmosphere radioactivity monitor and the containment air cooler condensate flow rate monitor are 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 monitors to OPERABLE status within 30 days to regain the intended leakage detection diversity. The 30 day Completion Times ensure that the plant will not be operated in a reduced configuration for a lengthy time period.]~~ 5

C

~~E~~.1 and ~~E~~.2 5

or

If any Required Action of Condition A, B, ~~[C], or [D]~~ cannot be met within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. 2

D

~~F~~.1 5

If all required monitors are 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 monitors. The check gives reasonable confidence the channel is operating properly. ~~The Frequency of [12] hours is based on instrument reliability and is reasonable for detecting off normal conditions.~~ TSTF-425-A

INSERT 3

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TSTF-425-A

INSERT 3

The Frequency is controlled under the Surveillance Frequency Control Program. 7

-- Reviewers 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 3.4.15.2

SR 3.4.15.2 requires the performance of a CHANNEL FUNCTIONAL TEST of the required containment atmosphere radioactivity monitors. The test ensures that the monitor can perform its function in the desired manner. The test verifies the alarm setpoint and relative accuracy of the instrument string. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. ~~The Frequency of 92 days considers instrument reliability, and operating experience has shown it proper for detecting degradation.~~ INSERT 3 TSTF-425-A

and

SR 3.4.15.3~~,~~ SR 3.4.15.4~~, and [SR 3.4.15.5]~~ 5

These SRs require the performance of a CHANNEL CALIBRATION for each of the required 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. Operating experience has shown this Frequency is acceptable.~~ INSERT 3 6 TSTF-425-A

REFERENCES
1. 10 CFR 50, Appendix A, Section IV, GDC 30.
2. Regulatory Guide 1.45~~.~~, Revision 0, "Reactor Coolant Pressure Boundary Leakage Detection Systems," May 1973 TSTF-513
3. UFSAR, Section ~~[ ]~~ 5.2.5. 1 2

TSTF-425-A

INSERT 3

The Frequency is controlled under the Surveillance Frequency Control Program. 7

-- Reviewers 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

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JUSTIFICATION FOR DEVIATIONS
ITS 3.4.15 BASES, RCS LEAKAGE DETECTION INSTRUMENTATION

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

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. SONGS does not have RCP seal injection and return flow; SONGS has RCP controlled bleed-off flow from each RCP. Therefore the term is being changed to be consistent with the SONGS design.

5. Changes are made to be consistent with changes made to the Specifications.

6. Changes are made to be consistent with the actual Surveillance Requirements.

7. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

8. TSTF-513 provided changes based on a plant design that includes a containment air cooler condensate flow rate monitor. SONGS does not include this type of monitor. Therefore, changes are made to adopt the TSTF, based on the SONGS specific design, as well as the changes made to the actual Specification.

9. The Bases words changed by TSTF-513 have been modified to state that the gaseous containment atmosphere radioactivity monitor is OPERABLE when it is capable of detecting a 1 gpm increase in unidentified LEAKAGE within 9 hours given RCS activity levels assumed in the design calculations for the monitors. This limitation of the gaseous containment atmosphere radioactivity monitor is due to the presence of background containment radioactivity. This limitation is reflected in the SONGS current licensing basis as submitted by letter dated April 17, 1995 and approved by the NRC by letter dated April 11, 1996.

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.

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ATTACHMENT 15

ITS 3.4.16 RCS SPECIFIC ACTIVITY

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

ITS

A01 L01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

RCS DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133 specific activity shall be within limits.

LCO 3.4.16

LCO 3.4.16 ~~The specific activity of the reactor coolant shall be limited to:~~

~~a. DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm; and~~

~~b. Gross specific activity ≤ 100/Ē μCi/gm.~~

Applicability

APPLICABILITY: MODES ~~1 and 2,~~ 1, 2, 3, and 4.
~~MODE 3 with RCS average temperature (T_{avg}) ≥ 500°F.~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A A. DOSE EQUIVALENT I-131 ~~> 1.0 μCi/gm.~~ not within limit.	------- NOTE ------- ~~The provisions of Specification 3.0.4 are not~~ LCO 3.0.4.c is applicable. --------------------	
	A.1 Verify DOSE EQUIVALENT I-131 ~~within the acceptable region of Figure 3.4.16-1~~ ≤ 60 μCi/gm. AND	Once per 4 hours
	A.2 Restore DOSE EQUIVALENT I-131 to within limit.	48 hours
INSERT 1		

(continued)

L01

INSERT 1

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

ITS

A01 L01

ACTIONS (continued)

ACTION C

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~B~~ C. Required Action and associated Completion Time of Condition A or B not met. OR DOSE EQUIVALENT I-131 ~~in the unacceptable region of Figure 3.4.16-1.~~ > 60 µCi/gm	~~B~~ C.1 Be in MODE 3 ~~with T_{avg} < 500°F.~~ INSERT 2	6 hours
~~C. Gross specific activity of the reactor coolant not within limit.~~	~~C.1 Perform SR 3.4.16.2.~~ ~~AND~~ ~~C.2 Be in MODE 3 with T_{avg} < 500°F.~~	~~4 hours~~ ~~6 hours~~

SURVEILLANCE REQUIREMENTS

SR 3.4.16.1

SURVEILLANCE	FREQUENCY
~~SR 3.4.16.1 Verify reactor coolant gross specific activity ≤ 100/Ē µCi/gm.~~ INSERT 3	~~7 days~~

(continued)

L01 **INSERT 2**

AND	
C.2 Be in MODE 5.	36 hours

L01 **INSERT 3**

SR 3.4.16.1	Verify reactor coolant DOSE EQUIVALENT XE-133 specific activity $\leq$ 500 μCi/gm.	In accordance with the Surveillance Frequency Control Program

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ITS

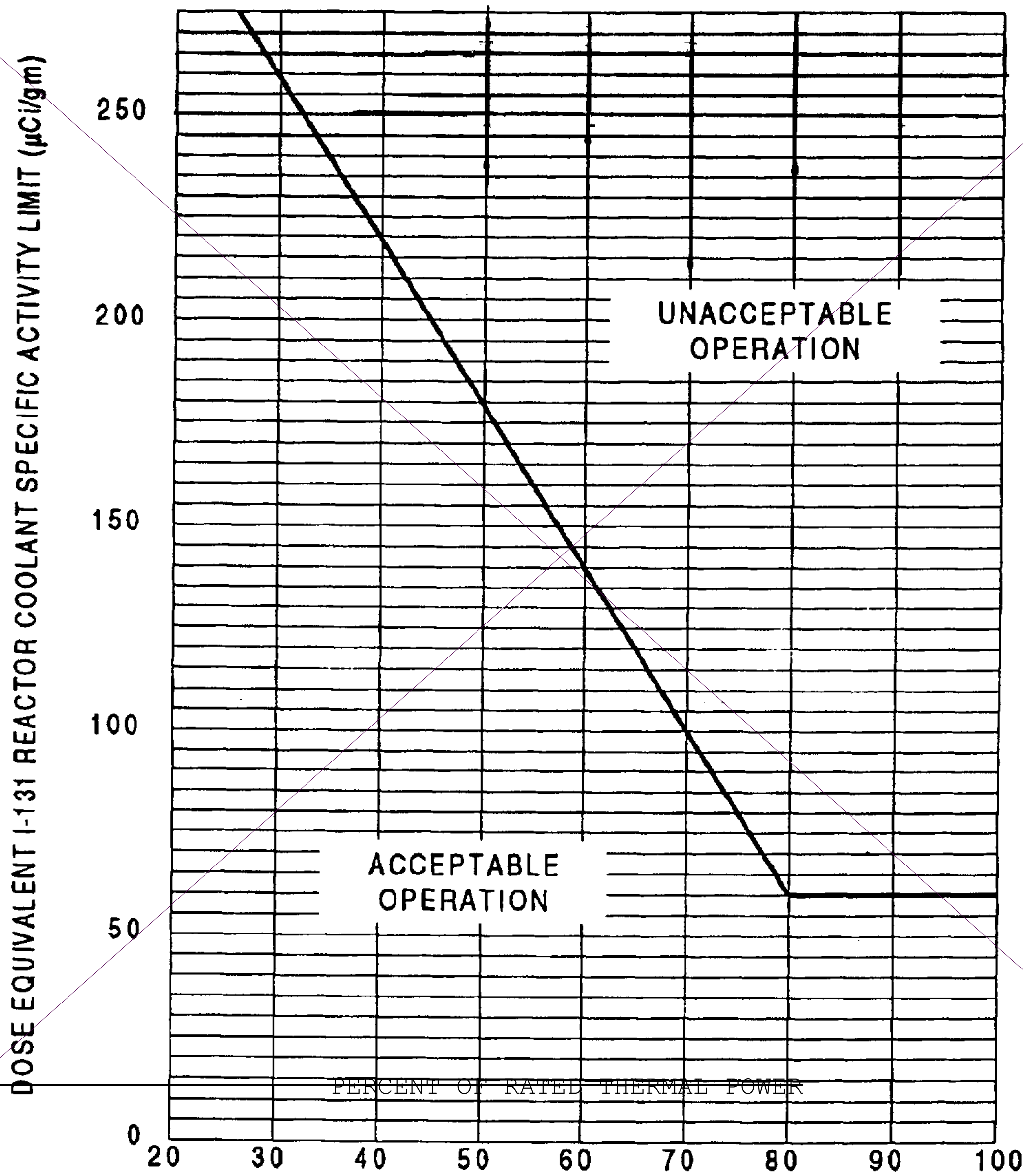
A01 L01

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.4.16.2 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 µCi/gm.	In accordance with the Surveillance Frequency Control Program ~~14 days~~ LA01 <u>AND</u> Between 2 and 6 hours after THERMAL POWER change of ≥ 15% RTP within a 1 hour period
~~SR 3.4.16.3~~	~~-------------------NOTE-------------------~~ ~~Not required to be performed until 31 days after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.~~ ~~--~~ ~~Determine Ē from a sample taken in MODE 1 after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.~~	~~184 days~~

A01 L01

ITS



~~Figure 3.4.16-1 (page 1 of 1)~~
~~Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity Limit~~
~~Versus Percent of RATED THERMAL POWER With Reactor Coolant~~
~~Specific Activity >1.0 µCi/gm DOSE EQUIVALENT I-131~~

ITS

A01 L01

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16

LCO 3.4.16 ~~The specific activity of the reactor coolant shall be limited to:~~ RCS DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133 specific activity shall be within limits.

~~a. DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm; and~~

~~b. Gross specific activity ≤ 100/Ē μCi/gm.~~

Applicability

APPLICABILITY: MODES ~~1 and 2,~~ 1, 2, 3, and 4.
~~MODE 3 with RCS average temperature (T_{avg}) ≥ 500°F.~~

ACTIONS

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 ~~> 1.0 μCi/gm.~~ not within limit.	- - - - - - - NOTE - - - - - ~~The provisions of Specification 3.0.4 are not~~ LCO 3.0.4.c is applicable. - - - - - - - - - - - - - - -	
	A.1 Verify DOSE EQUIVALENT I-131 ~~within the acceptable region of Figure 3.4.16-1~~ ≤ 60 μCi/gm.	Once per 4 hours
	AND	
	A.2 Restore DOSE EQUIVALENT I-131 to within limit.	48 hours

INSERT 1

(continued)

L01

INSERT 1

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

ITS

A01 L01

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION C	~~B~~ C. Required Action and associated Completion Time of Condition A or B not met. OR DOSE EQUIVALENT I-131 ~~in the unacceptable region of Figure 3.4.16-1.~~ > 60 μCi/gm	~~B~~ C.1 Be in MODE 3 ~~with T_{avg} < 500°F.~~ INSERT 2	6 hours
	~~C. Gross specific activity of the reactor coolant not within limit.~~	~~C.1 Perform SR 3.4.16.2.~~ ~~AND~~ ~~C.2 Be in MODE 3 with T_{avg} < 500°F.~~	~~4 hours~~ ~~6 hours~~

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.16.1	~~SR 3.4.16.1 Verify reactor coolant gross specific activity ≤ 100/Ē μCi/gm.~~ INSERT 3	~~7 days~~

(continued)

L01 **INSERT 2**

AND	
C.2 Be in MODE 5.	36 hours

L01 **INSERT 3**

SR 3.4.16.1	Verify reactor coolant DOSE EQUIVALENT XE-133 specific activity ≤ 500 μCi/gm.	In accordance with the Surveillance Frequency Control Program

ITS

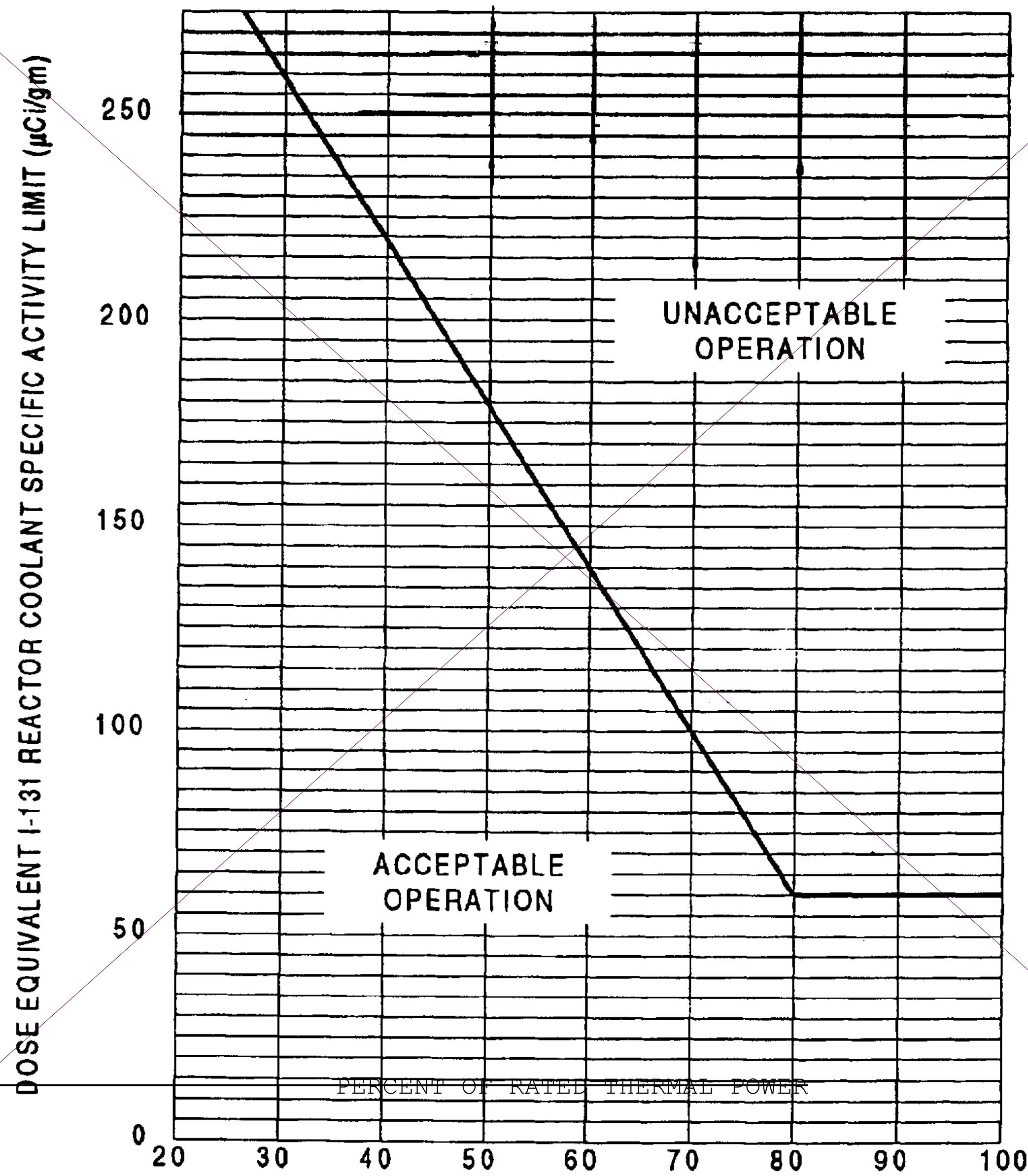
A01 L01

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.4.16.2	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 μCi/gm.	In accordance with the Surveillance Frequency Control Program ~~14 days~~ LA01 AND Between 2 and 6 hours after THERMAL POWER change of ≥ 15% RTP within a 1 hour period
	~~SR 3.4.16.3~~ ~~-------NOTE------- Not required to be performed until 31 days after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours. ----------~~ ~~Determine Ē from a sample taken in MODE 1 after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.~~	~~184 days~~

A01 L01

ITS



~~Figure 3.4.16-1 (page 1 of 1)~~
~~Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity Limit~~
~~Versus Percent of RATED THERMAL POWER With Reactor Coolant~~
~~Specific Activity >1.0 μCi/gm DOSE EQUIVALENT I-131~~

DISCUSSION OF CHANGES
ITS 3.4.16, RCS SPECIFIC ACTIVITY

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.4.16.2 requires verifying reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm every 14 days and between 2 and 6 hours after THERMAL POWER change of ≥ 15% RTP within a 1 hour period. ITS SR 3.4.16.2 requires a similar Surveillance and specifies the periodic Frequency as "In accordance with the Surveillance Frequency Control Program," as well as the situational Frequency (i.e., the 2 to 6 hour Frequency). This changes the CTS by moving the 14 day Frequency for the SR and the Bases for the Frequency to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

DISCUSSION OF CHANGES
ITS 3.4.16, RCS SPECIFIC ACTIVITY

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 has been reviewed and approved by the NRC. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

DISCUSSION OF CHANGES
ITS 3.4.16, RCS SPECIFIC ACTIVITY

- A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
- Independence of barriers is not degraded;
- Defenses against human errors are preserved; and
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

DISCUSSION OF CHANGES
ITS 3.4.16, RCS SPECIFIC ACTIVITY

NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequency is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 CTS 3.4.16, RCS Specific Activity, is currently based on RCS DOSE EQUIVALENT I-131 (DEI-131). ITS 3.4.16 is based on RCS DOSE EQUIVALENT I-131 AND DOSE EQUIVALENT XE-133. The CTS is being changed as follows, which is consistent with TSTF-490.

1. LCO 3.4.16, "RCS Specific Activity," is revised to delete references to gross specific activity, and reference limits on DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133, and delete Figure 3.4.16-1, "Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity Limit versus Percent of RATED THERMAL POWER."

2. The Applicability of LCO 3.4.16 is revised to indicate the LCO is applicable in MODES 1, 2, 3, and 4.

3. The ACTIONS Table is modified as follows:

   a. ACTION A is modified by deleting the specific value for the DOSE EQUIVALENT I-131 limit from the Condition and replacing it with an upper limit requirement (i.e., not within limit), deleting the reference to Figure 3.4.16-1, and modifying the reference to LCO 3.0.4 in the Required Actions Note.

   b. A new ACTION (ACTION B) is added to provide the actions when DOSE EQUIVALENT XE-133 is not within limits.

   c. ACTION B is modified by renumbering to ACTION C (due to the addition of new ACTION B), modifying the first Condition to include new Condition B, deleting the reference to Figure 3.4.16-1 and providing the specific value of the DOSE EQUIVALENT I-131 upper limit, and modifying the Required Actions and Completion Times to exit the new Applicability (i.e., be in MODE 3 in 6 hours and in MODE 5 in 36 hours).

DISCUSSION OF CHANGES
ITS 3.4.16, RCS SPECIFIC ACTIVITY

4. SR 3.4.16.1 is revised to delete the previous gross specific activity Surveillance and replace it with a Surveillance to verify the limit for DOSE EQUIVALENT XE-133. Note that the proposed Frequency for the new SR is consistent with the allowances of TSTF-425 (i.e., the Frequency is in accordance with the Surveillance Frequency Control Program).

5. SR 3.4.16.3, which requires a determination of E-Bar, is deleted.

When E-Bar is determined using a design basis approach in which it is assumed that 1.0% of the power is being generated by fuel rods having cladding defects and it is also assumed that there is no removal of fission gases from the letdown flow, the value of E-Bar is dominated by Xe-133. The other nuclides have relatively small contributions. However, during normal plant operation there are typically only a small amount of fuel defects and the radioactive nuclide inventory can become dominated by tritium and corrosion and/or activation products, resulting in the determination of a value of E-Bar that is very different than would be calculated using the design basis approach. The accident dose analyses become disconnected from plant operation and the LCO becomes essentially meaningless. It also results in a TS limit that can vary during operation as different values for E-Bar are determined.

Additionally, since the concern associated with the coolant activity is the acute dose that the operators and the public might receive in the event of a postulated accident, the manner in which E-Bar is calculated gives undue importance to nuclides that are primarily beta-emitters. Beta radiation will contribute to a skin dose, but not to the whole body dose. Dose limits for the general population do not include consideration of the beta-skin dose.

Since the purpose of the LCO on gross activity is to support the dose analyses for design basis accidents, it would be more appropriate to have the LCO apply to the noble gas concentration in the primary coolant. Thus, it is recommended that the current LCO on gross coolant activity be replaced by an LCO on reactor coolant noble gas activity, which is based on DOSE EQUIVALENT XE-133. The determination of DOSE EQUIVALENT XE-133 will be performed in a similar manner to that currently used in determining DEI-131, except that the calculation of DOSE EQUIVALENT XE-133 is based on the acute dose to the whole body and considers the noble gases which are significant in terms of contribution to whole body dose. Some noble gas isotopes are not included due to low concentration, short half life, or small dose conversion factor. The calculation of DOSE EQUIVALENT XE-133 would use either the average gamma disintegration energies for the nuclides or the effective dose conversion factors from Table III.1 of EPA Federal Guidance Report No. 12. Using this approach, the limit on the amount of noble gas activity in the primary coolant would not fluctuate with variations in the calculated values of E-Bar.

The Technical Specifications developed for the AP600 advanced reactor utilized an LCO for primary coolant DOSE EQUIVALENT XE-133 activity in place of the LCO on gross specific activity based on E-Bar. This approach was approved by the NRC.

DISCUSSION OF CHANGES
ITS 3.4.16, RCS SPECIFIC ACTIVITY

Typically, the radiological consequence analyses for accidents that take into account the pre-existing iodine spike do not use the elevated primary coolant iodine concentrations permitted by the LCO for operation at power levels below 80% RTP. Instead, the analyses use the primary coolant concentration associated with 100% power operation (typically this is 60 μCi/gm DOSE EQUIVALENT I-131; however, in some instances, the value has been reduced to a lower limit in the LCO).

It is not expected that plant operation at the reduced power levels would result in iodine concentrations that exceed the upper limit defined for full power operation. However, the current LCO allows operation at higher iodine concentrations than that at which the plant analyses are performed.

The curve in Figure 3.4.16-1 was not included in the Technical Specifications developed for the AP600, and the LCO for primary coolant iodine activity was approved by the NRC without the curve.

The Completion Time for revised TS 3.4.16 Required Action B.1 will require restoration of DOSE EQUIVALENT XE-133 to within limit in 48 hours. This is consistent with the Completion Time for current Required Action A.2 for DOSE EQUIVALENT I-131. The Completion Time of 48 hours for revised Required Action B.1 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 an accident occurring during this time period.

The Applicability is changed from MODES 1, 2, and MODE 3 with RCS average Temperature ≥ 500ºF to MODES 1, 2, 3 and 4. 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 steam line break or steam generator tube rupture. 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.

The proposed changes are consistent with TSTF-490-A, Revision 0, with the exception of a Note that was not included as part of SR 3.4.16.1. TSTF change traveler TSTF-490-A, Revision 0, "Deletion of E Bar definition and Revision to RCS Specific Activity Tech Spec" was announced for availability in the Federal Register on March 15, 2007 as part of the consolidated line item improvement process (CLIIP). The changes were approved by the NRC staff Safety Evaluation (SE) dated March 8, 2007 (ADAMS Accession No. ML070250176). SCE has reviewed the NRC staff SE listed above, the Federal Notice for comment published November 20, 2006 (including the model SE), and the Federal Notice of availability published on March 15, 2007. SCE has concluded that the justifications presented in TSTF-490-A, Revision 0 and the model SE prepared by the NRC staff are applicable to SONGS Units 2 and 3 and justify this change.

This change is designated as less restrictive because the LCO is now being based on noble gas activity versus gross specific activity.

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16

LCO 3.4.16 ~~The specific activity of the reactor coolant shall be within limits.~~

RCS DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133 specific activity shall be within limits.

TSTF-490-A

Applicability

APPLICABILITY: MODES ~~1 and 2,~~ ~~MODE 3 with RCS average temperature (T_{avg}) ≥ 500°F.~~

1, 2, 3, and 4.

TSTF-490-A

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A A. DOSE EQUIVALENT I-131 ~~> 1.0 µCi/gm~~. not within limit TSTF-490-A	--------------------NOTE------------------- LCO 3.0.4.c is applicable. --- A.1 Verify DOSE EQUIVALENT I-131 ~~within the acceptable region of Figure 3.4.16-1~~. ≤ 60 µCi/gm TSTF-490-A AND A.2 Restore DOSE EQUIVALENT I-131 to within limit.	Once per 4 hours 48 hours
INSERT 1 TSTF-490-A		
ACTION B ~~B~~ C. Required Action and associated Completion Time of Condition A or B not met. OR DOSE EQUIVALENT I-131 ~~in the unacceptable region of Figure 3.4.16-1~~. > 60 µCi/gm	~~B~~ C.1 Be in MODE 3 ~~with T_{avg} < 500°F~~. INSERT 2 TSTF-490-A	6 hours

TSTF-490-A

INSERT 1

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

TSTF-490-A

INSERT 2

AND C.2 Be in MODE 5.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~C. Gross specific activity of the reactor coolant not within limit.~~	~~C.1 Be in MODE 3 with T_{avg} < 500°F.~~	~~6 hours~~

TSTF-490-A

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	~~Verify reactor coolant gross specific activity ≤ 100/Ē μCi/gm.~~ INSERT 3	~~7 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.4.16.2 (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 μCi/gm.	~~14 days~~ AND Between 2 and 6 hours after THERMAL POWER change of ≥ 15% RTP within a 1 hour period
~~SR 3.4.16.3~~	~~------NOTE------ Not required to be performed until 31 days after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours. ------~~ ~~Determine Ē from a sample taken in MODE 1 after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.~~	~~184 days~~

TSTF-490-A TSTF-425-A
2 TSTF-490-A
TSTF-425-A
TSTF-490-A

TSTF-490-A

INSERT 3

Verify reactor coolant DOSE EQUIVALENT XE-133 specific activity ≤ [~~280~~] 500 µCi/gm. 2

U2/U3 CTS

RCS Specific Activity
3.4.16

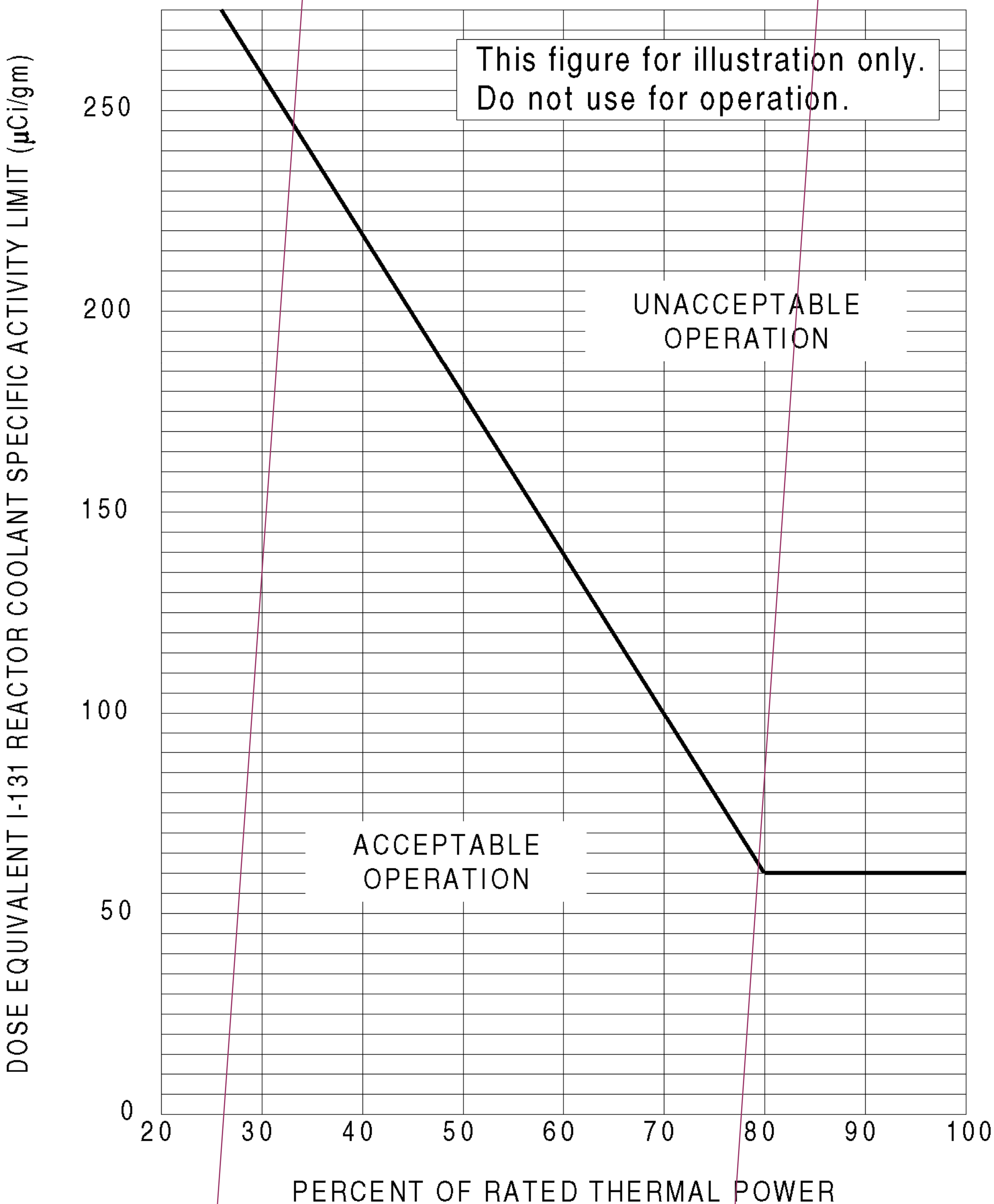

Figure 3.4.16-1 (page 1 of 1)
Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity Limit Versus Percent of RATED THERMAL POWER With Reactor Coolant Specific Activity >1.0 µCi/gm DOSE EQUIVALENT I-131

TSTF-490-A

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.16, RCS SPECIFIC ACTIVITY

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

2. The TSTF also included in SR 3.4.16.1 a Note that allowed the SR to only be performed in MODE 1. However, based on previous Amendments submitted by other Licensees, the NRC has requested that this Note not be included. Therefore, SCE has not included this Note. In addition, the same Note has been deleted from SR 3.4.16.2 for the same reason.

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

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.16 RCS Specific Activity

TSTF-490-A

BASES

BACKGROUND	The Code of Federal Regulations, 10 CFR 100 (Ref. 1) specifies the maximum dose to the whole body and the thyroid an individual at the site boundary can receive for 2 hours during an accident. The limits on specific activity ensure that the doses are held to a small fraction of the 10 CFR 100 limits during analyzed transients and accidents. The RCS specific activity LCO limits the allowable concentration level of radionuclides in the reactor coolant. The LCO limits are established to minimize the offsite radioactivity dose consequences in the event of a steam generator tube rupture (SGTR) accident. The LCO contains specific activity limits for both DOSE EQUIVALENT I-131 and gross specific activity. The allowable levels are intended to limit the 2 hour dose at the site boundary to a small fraction of the 10 CFR 100 dose guideline limits. The limits in the LCO are standardized based on parametric evaluations of offsite radioactivity dose consequences for typical site locations. The parametric evaluations showed the potential offsite dose levels for an SGTR accident were an appropriately small fraction of the 10 CFR 100 dose guideline limits. Each evaluation assumes a broad range of site applicable atmospheric dispersion factors in a parametric evaluation.
APPLICABLE SAFETY ANALYSES	The LCO limits on the specific activity of the reactor coolant ensure that the resulting 2 hour doses at the site boundary will not exceed a small fraction of the 10 CFR 100 dose guideline limits following an SGTR accident. The SGTR safety analysis (Ref. 2) assumes the specific activity of the reactor coolant at the LCO limits and an existing reactor coolant steam generator (SG) tube leakage rate of 1 gpm. The analysis also assumes a reactor trip and a turbine trip at the same time as the SGTR event. The analysis for the SGTR accident establishes the acceptance limits for RCS specific activity. Reference to this analysis is used to assess changes to the facility that could affect RCS specific activity as they relate to the acceptance limits.

INSERT 1

TSTF-490-A

INSERT 1

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 GDC 19. The limits on specific activity ensure that the offsite and control room doses are appropriately limited during analyzed transients and accidents.

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 (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 [1 gpm] exists. The safety analyses assume the specific activity of the secondary coolant is at its limit of [0.1] μCi/gm DOSE EQUIVALENT I-131 from LCO 3.7.19, "Secondary Specific Activity."

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 [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

TSTF-490-A

BASES

APPLICABLE SAFETY ANALYSES (continued)

The rise in pressure in the ruptured SG causes radioactively contaminated steam to discharge to the atmosphere through the atmospheric dump valves or the main steam safety valves. The atmospheric discharge stops when the turbine bypass to the condenser removes the excess energy to rapidly reduce the RCS pressure and close the valves. The unaffected SG removes core decay heat by venting steam until the cooldown ends.

The safety analysis shows the radiological consequences of an SGTR accident are within a small fraction of the Reference 1 dose guideline limits. Operation with iodine specific activity levels greater than the LCO limit is permissible, if the activity levels do not exceed the limits shown in Figure 3.4.16-1 for more than 48 hours.

The remainder of the above limit permissible iodine levels shown in Figure 3.4.16-1 are acceptable because of the low probability of an SGTR accident occurring during the established 48 hour time limit. The occurrence of an SGTR accident at these permissible levels could increase the site boundary dose levels, but still be within 10 CFR 100 dose guideline limits.

INSERT 2

RCS specific activity satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

The specific iodine activity is limited to 1.0 μCi/gm DOSE EQUIVALENT I-131, and the gross specific activity in the primary coolant is limited to the number of μCi/gm equal to 100 divided by $\bar{E}$ (average disintegration energy of the sum of the average beta and gamma energies of the coolant nuclides). The limit on DOSE EQUIVALENT I-131 ensures the 2 hour thyroid dose to an individual at the site boundary during the Design Basis Accident (DBA) will be a small fraction of the allowed thyroid dose. The limit on gross specific activity ensures the 2 hour whole body dose to an individual at the site boundary during the DBA will be a small fraction of the allowed whole body dose.

The SGTR accident analysis (Ref. 2) shows that the 2 hour site boundary dose levels are within acceptable limits. Violation of the LCO may result in reactor coolant radioactivity levels that could, in the event of an SGTR, lead to site boundary doses that exceed the 10 CFR 100 dose guideline limits.

TSTF-490-A

INSERT 2

APPLICABLE SAFETY ANALYSES (continued)

to the accident. In both cases, the noble gas specific activity is assumed to be ~~[280]~~ 500 µCi/gm DOSE EQUIVALENT XE-133. 2

the contaminated secondary fluid reaching each SG is released via the safety valves, and by

used to perform the plant cooldown to shutdown cooling entry

The SGTR analysis assumes ~~a rise in pressure in the ruptured SG causes radioactively contaminated steam to discharge to the atmosphere through the~~ atmospheric dump valves ~~or the main steam safety valves~~. ~~The atmospheric discharge stops when the turbine bypass to the condenser removes the excess energy to rapidly reduce the RCS pressure and close the valves.~~ The unaffected SG removes core decay heat by venting steam until the cooldown ends and the Shutdown Cooling (SDC) ~~system~~ is placed in service. 1 4

The SLB radiological analysis assumes that offsite power is lost at the same time as the pipe break occurs outside containment. The affected SG blows down completely and steam is vented directly to the atmosphere. The unaffected SG removes core decay heat by venting steam to the atmosphere until the cooldown ends and the SDC 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. 2

~~The limits on RCS specific activity are also used for establishing standardization in radiation shielding and plant personnel radiation protection practices.~~ 7

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 ~~[~~1.0~~]~~ µCi/gm DOSE EQUIVALENT I-131, and the noble gas specific activity in the reactor coolant is limited to 500 ~~[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~~ Refs.3 and 4). 2 2 1

The SLB and SGTR accident analyses (Refs. ~~3~~ 5 and ~~4~~ 6) 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~~ Refs.3 and 4). 1 1

TSTF-490-A

BASES

APPLICABILITY

In MODES 1 and 2, and in MODE 3 with RCS average temperature ≥ 500°F, operation within the LCO limits for DOSE EQUIVALENT I-131 and gross specific activity is necessary to contain the potential consequences of an SGTR to within the acceptable site boundary dose values.

For operation in MODE 3 with RCS average temperature < 500°F, and in MODES 4 and 5, the release of radioactivity in the event of an SGTR is unlikely since the saturation pressure of the reactor coolant is below the lift pressure settings of the atmospheric dump valves and main steam safety valves.

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 the limits of Figure 3.4.16-1 are not exceeded. The Completion Time of 4 hours is required to obtain and analyze a sample.

Sampling must continue for trending. The DOSE EQUIVALENT I-131 must be restored to within limits within 48 hours. INSERT 3

The Completion Time of 48 hours is required if the limit violation resulted from normal iodine spiking.

A Note permits the use of the provisions of LCO 3.0.4.c. This allowance permits entry into the applicable MODE(S) while relying on the ACTIONS. 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

If a Required Action and associated Completion Time of Condition A is not met or if the DOSE EQUIVALENT I-131 is in the unacceptable region of Figure 3.4.16-1, the reactor must be brought to MODE 3 with RCS average temperature < 500°F within 6 hours. The allowed Completion Time of 6 hours is required to reach MODE 3 below 500°F without challenging plant systems.

TSTF-490-A

INSERT 3

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~~ Refs.3 and 4). 1

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. 2

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.

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BASES

ACTIONS (continued)

C.1

With the gross specific activity in excess of the allowed limit, the unit must be placed in a MODE in which the requirement does not apply.

The change within 6 hours to MODE 3 and RCS average temperature < 500°F lowers the saturation pressure of the reactor coolant below the setpoints of the main steam safety valves and prevents venting the SG to the environment in an SGTR event. The allowed Completion Time of 6 hours is required to reach MODE 3 below 500°F from full power conditions and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.16.1

The Surveillance requires performing a gamma isotopic analysis as a measure of the gross specific activity of the reactor coolant at least once per 7 days. While basically a quantitative measure of radionuclides with half lives longer than 15 minutes, excluding iodines, 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 gross specific activity.

INSERT 4

Trending the results of this Surveillance allows proper remedial action to be taken before reaching the LCO limit under normal operating conditions. The Surveillance is applicable in MODES 1 and 2, and in MODE 3 with RCS average temperature at least 500°F. The 7 day Frequency considers the unlikelihood of a gross fuel failure during the time.

SR 3.4.16.2

This Surveillance is performed to ensure iodine remains within limit during normal operation and following fast power changes when fuel failure is more apt to occur. The 14 day Frequency is adequate to trend changes in the iodine activity level considering gross activity is monitored every 7 days. The Frequency, between 2 hours and 6 hours after a power change of ≥ 15% RTP within a 1 hour period, is established because the iodine levels peak during this time following fuel failure; samples at other times would provide inaccurate results.

1

3.4.16

TSTF-490-A

INSERT 4

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. 4

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. 2

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 ~~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. TSTF-425-A

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.~~ TSTF-425-A 6

The Frequency is controlled under the Surveillance Frequency Control Program.

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.~~ 5

TSTF-490-A

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.16.3

A radiochemical analysis for Ē determination is required every 184 days (6 months) with the plant operating in MODE 1 equilibrium conditions. The Ē determination directly relates to the LCO and is required to verify plant operation within the specified gross activity LCO limit. The analysis for Ē is a measurement of the average energies per disintegration for isotopes with half lives longer than 15 minutes, excluding iodines. The Frequency of 184 days recognizes Ē does not change rapidly.

INSERT 5

This SR has been modified by a Note that indicates sampling is required to be performed within 31 days after 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for at least 48 hours. This ensures the radioactive materials are at equilibrium so the analysis for Ē is representative and not skewed by a crud burst or other similar abnormal event.

REFERENCES

1. 10 CFR 100.11, 1973.

2. FSAR, Section [15.6.3].

TSTF-490-A

INSERT 5

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.16.2

The Frequency is controlled under the Surveillance Frequency Control Program.

---REVIEWERS NOTE ---
Plant 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 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. 6 TSTF-425-A 3

The Note modifies this 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. 5

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. 2

3 2. Standard Review Plan (SRP) Section 15.1.5 Appendix A (SLB) and Section 15.6.3 (SGTR). 1

2 1. 10 CFR 50.67. 1

4 2. Standard Review Plan (SRP) Section 15.0.1 "Radiological Consequence Analyses Using Alternative Source Terms."] 1 2

5 U 3. FSAR, Section [15.1.5]. 15.1.3 1 2

6 U 4. FSAR, Section [15.6.3]. 1 2

JUSTIFICATION FOR DEVIATIONS
ITS 3.4.16 BASES, RCS OPERATIONAL LEAKAGE

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

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. Changes are made to be consistent with changes made to the Specification.

6. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

7. ISTS 3.4.15 ASA Bases states that "the limits on RCS specific activity are also used for establishing standardization in radiation shielding and plant personnel radiation protection practices." This statement is not true for SONGS. UFSAR Section 12.3.1.2 addresses plant personnel radiation protection practices (i.e., radiation zoning and access control, including radiation maps). Therefore, this information is not retained.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.16, RCS SPECIFIC ACTIVITY

10 CFR 50.92 EVALUATION
FOR
LESS RESTRICTIVE CHANGE L01

Southern California Edison (SCE) is updating the San Onofre Nuclear Generating Station (SONGS) TS to Improved Technical Specifications (ITS) as outlined in NUREG-1432, Rev. 3.0, "Standard Technical Specifications, Combustion Engineering Plants" and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal. The proposed change involves making the Current Technical Specifications (CTS) less restrictive. Below is the description of this less restrictive change and the determination of No Significant Hazards Considerations for conversions to NUREG-1432, Rev. 3.0.

CTS 3.4.16, RCS Specific Activity, is currently based on RCS DOSE EQUIVALENT I-131 (DEI-131). ITS 3.4.16 is based on RCS DOSE EQUIVALENT I-131 AND DOSE EQUIVALENT XE-133. The CTS is being changed as follows, which is consistent with TSTF-490.

1. LCO 3.4.16, "RCS Specific Activity," is revised to delete references to gross specific activity, and reference limits on DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133, and delete Figure 3.4.16-1, "Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity Limit versus Percent of RATED THERMAL POWER."

2. The Applicability of LCO 3.4.16 is revised to indicate the LCO is applicable in MODES 1, 2, 3, and 4.

3. The ACTIONS Table is modified as follows:

   a. ACTION A is modified by deleting the specific value for the DOSE EQUIVALENT I-131 limit from the Condition and replacing it with an upper limit requirement (i.e., not within limit), deleting the reference to Figure 3.4.16-1, and modifying the reference to LCO 3.0.4 in the Required Actions Note.

   b. A new ACTION (ACTION B) is added to provide the actions when DOSE EQUIVALENT XE-133 is not within limits.

   c. ACTION B is modified by renumbering to ACTION C (due to the addition of new ACTION B), modifying the first Condition to include new Condition B, deleting the reference to Figure 3.4.16-1 and providing the specific value of the DOSE EQUIVALENT I-131 upper limit, and modifying the Required Actions and Completion Times to exit the new Applicability (i.e., be in MODE 3 in 6 hours and in MODE 5 in 36 hours).

4. SR 3.4.16.1 is revised to delete the previous gross specific activity Surveillance and replace it with a Surveillance to verify the limit for DOSE EQUIVALENT XE-133. Note that the proposed Frequency for the new SR is

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.16, RCS SPECIFIC ACTIVITY

consistent with the allowances of TSTF-425 (i.e., the Frequency is in accordance with the Surveillance Frequency Control Program).

5. SR 3.4.16.3, which requires a determination of E-Bar, is deleted.

When E-Bar is determined using a design basis approach in which it is assumed that 1.0% of the power is being generated by fuel rods having cladding defects and it is also assumed that there is no removal of fission gases from the letdown flow, the value of E-Bar is dominated by Xe-133. The other nuclides have relatively small contributions. However, during normal plant operation there are typically only a small amount of fuel defects and the radioactive nuclide inventory can become dominated by tritium and corrosion and/or activation products, resulting in the determination of a value of E-Bar that is very different than would be calculated using the design basis approach. The accident dose analyses become disconnected from plant operation and the LCO becomes essentially meaningless. It also results in a TS limit that can vary during operation as different values for E-Bar are determined.

Additionally, since the concern associated with the coolant activity is the acute dose that the operators and the public might receive in the event of a postulated accident, the manner in which E-Bar is calculated gives undue importance to nuclides that are primarily beta-emitters. Beta radiation will contribute to a skin dose, but not to the whole body dose. Dose limits for the general population do not include consideration of the beta-skin dose.

Since the purpose of the LCO on gross activity is to support the dose analyses for design basis accidents, it would be more appropriate to have the LCO apply to the noble gas concentration in the primary coolant. Thus, it is recommended that the current LCO on gross coolant activity be replaced by an LCO on reactor coolant noble gas activity, which is based on DOSE EQUIVALENT XE-133. The determination of DOSE EQUIVALENT XE-133 will be performed in a similar manner to that currently used in determining DEI-131, except that the calculation of DOSE EQUIVALENT XE-133 is based on the acute dose to the whole body and considers the noble gases which are significant in terms of contribution to whole body dose. Some noble gas isotopes are not included due to low concentration, short half life, or small dose conversion factor. The calculation of DOSE EQUIVALENT XE-133 would use either the average gamma disintegration energies for the nuclides or the effective dose conversion factors from Table III.1 of EPA Federal Guidance Report No. 12. Using this approach, the limit on the amount of noble gas activity in the primary coolant would not fluctuate with variations in the calculated values of E-Bar.

The Technical Specifications developed for the AP600 advanced reactor utilized an LCO for primary coolant DOSE EQUIVALENT XE-133 activity in place of the LCO on gross specific activity based on E-Bar. This approach was approved by the NRC.

Typically, the radiological consequence analyses for accidents that take into account the pre-existing iodine spike do not use the elevated primary coolant iodine concentrations permitted by the LCO for operation at power levels below 80% RTP. Instead, the analyses use the primary coolant concentration associated with 100% power operation (typically this is 60 μCi/gm DOSE EQUIVALENT I-131; however, in some instances, the value has been reduced to a lower limit in the LCO).

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.16, RCS SPECIFIC ACTIVITY

It is not expected that plant operation at the reduced power levels would result in iodine concentrations that exceed the upper limit defined for full power operation. However, the current LCO allows operation at higher iodine concentrations than that at which the plant analyses are performed.

The curve in Figure 3.4.16-1 was not included in the Technical Specifications developed for the AP600, and the LCO for primary coolant iodine activity was approved by the NRC without the curve.

The Completion Time for revised TS 3.4.16 Required Action B.1 will require restoration of DOSE EQUIVALENT XE-133 to within limit in 48 hours. This is consistent with the Completion Time for current Required Action A.2 for DOSE EQUIVALENT I-131. The Completion Time of 48 hours for revised Required Action B.1 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 an accident occurring during this time period.

The Applicability is changed from MODES 1, 2, and MODE 3 with RCS average Temperature ≥ 500ºF to MODES 1, 2, 3 and 4. 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 steam line break or steam generator tube rupture. 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.

The proposed changes are consistent with TSTF-490-A, Revision 0, with the exception of a Note that was not included as part of SR 3.4.16.1. TSTF change traveler TSTF-490-A, Revision 0, "Deletion of E Bar definition and Revision to RCS Specific Activity Tech Spec" was announced for availability in the Federal Register on March 15, 2007 as part of the consolidated line item improvement process (CLIIP). The changes were approved by the NRC staff Safety Evaluation (SE) dated March 8, 2007 (ADAMS Accession No. ML070250176). SCE has reviewed the NRC staff SE listed above, the Federal Notice for comment published November 20, 2006 (including the model SE), and the Federal Notice of availability published on March 15, 2007. SCE has concluded that the justifications presented in TSTF-490-A, Revision 0 and the model SE prepared by the NRC staff are applicable to SONGS Units 2 and 3 and justify this change.

An evaluation has been performed to determine whether or not a significant hazards consideration is involved with these proposed Technical Specification changes by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.16, RCS SPECIFIC ACTIVITY

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

   Response: No

   Reactor coolant specific activity is not an initiator for any accident previously evaluated. The Completion Time when primary coolant gross activity is not within limit is not an initiator for any accident previously evaluated. The current variable limit on primary coolant iodine concentration is not an initiator to any accident previously evaluated. As a result, the proposed change does not significantly increase the probability of an accident. The proposed change will limit primary coolant noble gases to concentrations consistent with the accident analyses. The proposed change to the Completion Time has no impact on the consequences of any design basis accident since the consequences of an accident during the extended Completion Time are the same as the consequences of an accident during the current Completion Time. As a result, the consequences of any accident previously evaluated are not significantly increased. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

   Response: No

   The proposed change in specific activity limits does not alter any physical part of the plant nor does it affect any plant operating parameter. The change does not create the potential for a new or different kind of accident from any previously calculated. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. **Does the proposed change involve a significant reduction in a margin of safety?**

   Response: No

   The proposed change revises the limits on noble gas radioactivity in the primary coolant. The proposed change is consistent with the assumptions in the safety analyses and will ensure the monitored values protect the initial assumptions in the safety analyses. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, SCE concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

ATTACHMENT 16

ITS 3.4.17 STEAM GENERATOR TUBE INTEGRITY

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 Steam Generator (SG) Tube Integrity

LCO 3.4.17

LCO 3.4.17 SG tube integrity shall be maintained.

AND

All SG tubes satisfying the tube repair criteria shall be plugged in accordance with the Steam Generator Program.

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 repair criteria and not plugged 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.	7 days
	AND	
	A.2 Plug the affected tube(s) in accordance with the Steam Generator Program.	Prior to entering MODE 4 following the next refueling outage or SG tube inspection
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.	6 hours
	AND	
	B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.17.1	SR 3.4.17.1 Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program
SR 3.4.17.2	SR 3.4.17.2 Verify that each inspected SG tube that satisfies the tube repair criteria is plugged in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection

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3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 Steam Generator (SG) Tube Integrity

LCO 3.4.17

LCO 3.4.17 SG tube integrity shall be maintained.

AND

All SG tubes satisfying the tube repair criteria shall be plugged in accordance with the Steam Generator Program.

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 repair criteria and not plugged 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 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 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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.17.1	SR 3.4.17.1 Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program
SR 3.4.17.2	SR 3.4.17.2 Verify that each inspected SG tube that satisfies the tube repair criteria is plugged in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection

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DISCUSSION OF CHANGES
ITS 3.4.17, STEAM GENERATOR TUBE INTEGRITY

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) 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-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

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)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.~~18~~ 17 Steam Generator (SG) Tube Integrity (3)

LCO 3.4.17

LCO 3.4.~~18~~ 17 SG tube integrity shall be maintained. (3)

AND

All SG tubes satisfying the tube 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 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.	7 days	(2)
		AND		
		A.2 Plug ~~[or repair]~~ the affected tube(s) in accordance with the Steam Generator Program.	Prior to entering MODE 4 following the next refueling outage or SG tube inspection	(2)
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.	6 hours	
		AND		
		B.2 Be in MODE 5.	36 hours	

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.4.17.1	SR 3.4.~~18~~ 17.1	Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program	3
SR 3.4.17.2	SR 3.4.~~18~~ 17.2	Verify that each inspected SG tube that satisfies the tube repair criteria is plugged ~~[or repaired]~~ in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection	3 2

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JUSTIFICATION FOR DEVIATIONS
ITS 3.4.17, STEAM GENERATOR TUBE INTEGRITY

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

2. SONGS Units 2 and 3 are not licensed for repair of SG tubes, so this bracketed allowance has been deleted.

3. ISTS 3.4.17, "Special Test Exceptions (STE) – RCS Loops" has not been adopted, therefore ISTS 3.4.18, "Steam Generator Tube Integrity" has been renumbered to ITS 3.4.17, "Steam Generator Tube Integrity."

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

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.~~18~~ 17 Steam Generator (SG) Tube Integrity 3

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.

2.11

Specification 5.5.9, "Steam Generator (SG) Program," requires that a program be established and implemented to ensure that SG tube integrity 3
2.11 is maintained. Pursuant to Specification 5.5.9, tube integrity is 3
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
2.11 Specification 5.5.9. Meeting the SG performance criteria provides 3
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

UFSAR 15.6.3.2.2

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,"~~ 0.5 gallons per minute (720 gallons per day) to each SG, 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 reaching each SG is ~~only briefly~~ released to the atmosphere via the safety valves and ~~the majority is discharged to the main condenser~~ by the atmospheric dump valve used to perform the plant cooldown to shutdown cooling entry. 1

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 a ~~the total~~ primary to secondary LEAKAGE from each ~~all~~ SG~~s~~ of 0.5 gallons ~~[1 gallon~~ per minute~~]~~ or is assumed to increase to 0.5 gallons ~~[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 19 (Ref. 2), 10 CFR ~~100~~ 50.67 (Ref. 3) or the NRC approved licensing basis (e.g., a small fraction of these limits). 1 2 1

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 repair criteria be plugged ~~[or repaired]~~ in accordance with the Steam Generator Program. 3

During an SG inspection, any inspected tube that satisfies the Steam Generator Program repair criteria is ~~[repaired or]~~ removed from service by plugging. If a tube was determined to satisfy the repair criteria but was not plugged ~~[or repaired]~~, the tube may still have tube integrity. 3 3

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. 3

A SG tube has tube integrity when it satisfies the SG performance criteria. The SG performance criteria are defined in Specification 5.5.~~9~~ 2.11, "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. 3

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~~ 0.5 gpm from each SG or gpm
~~per SG, except for specific types of degradation at specific locations where the NRC has approved greater accident induced leakage.]~~ total for both SGs. The 2
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.

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.

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

Condition A applies if it is discovered that one or more SG tubes examined in an inservice inspection satisfy the tube repair criteria but were not plugged ~~[or repaired]~~ in accordance with the Steam Generator Program as required by SR 3.4.~~18~~ 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 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 3 3 3

BASES

ACTIONS (continued)

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. 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. 3

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.~~18~~.1 17 3

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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Steam Generator Program determines the scope of the inspection and the methods used to determine whether the tubes contain flaws satisfying the tube repair criteria. Inspection scope (i.e., which tubes or areas of tubing within the SG are to be inspected) is a 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.

The Steam Generator Program defines the Frequency of SR 3.4.~~18~~ 17.1. 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.~~9~~ 2.11 contains prescriptive requirements concerning inspection intervals to provide added assurance that the SG performance criteria will be met between scheduled inspections. 3 3

SR 3.4.~~18~~ 17.2 3

During an SG inspection, any inspected tube that satisfies the Steam Generator Program repair criteria is [repaired or] removed from service by plugging. The tube repair criteria delineated in Specification 5.5.~~9~~ 2.11 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 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. 3

~~[Steam generator tube repairs are only performed using approved repair methods as described in the Steam Generator Program.]~~ 3

The Frequency of prior to entering MODE 4 following a SG inspection ensures that the Surveillance has been completed and all tubes meeting the repair criteria are plugged ~~[or repaired]~~ prior to subjecting the SG tubes to significant primary to secondary pressure differential. 3

BASES

REFERENCES

1. NEI 97-06, "Steam Generator Program Guidelines."

2. 10 CFR 50 Appendix A, GDC 19.

3. 10 CFR ~~100~~ 50.67. 1

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 TUBE INTEGRITY

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

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. Changes are made to be consistent with changes made to the Specifications.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.4.17, STEAM GENERATOR TUBE INTEGRITY

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

ATTACHMENT 17

RELOCATED/DELETED CURRENT TECHNICAL SPECIFICATIONS (CTS)

CTS 3.4.3.1, PRESSURIZER HEATUP/COOLDOWN LIMITS

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

~~3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~3.4.3.1 Pressurizer Heatup and Cooldown Limits~~

~~LCO 3.4.3.1 Pressurizer heatup and cooldown rates shall be maintained within the following limits:~~

~~a. A maximum heatup of 200°F in any 1 hour period,~~

~~b. A maximum cooldown of 200°F in any 1 hour period.~~

~~APPLICABILITY: At all times.~~

~~ACTIONS~~

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

R01

~~(continued)~~

ACTIONS (continued)

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C. ----------NOTE---------- Required Action C.2 shall be completed whenever this Condition is entered. ---------------------~~ ~~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.~~	~~Immediately~~
	~~AND~~	
	~~C.2 Determine Pressurizer is acceptable for continued operation.~~	~~Prior to entering MODE 4~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.3.1.1~~	~~--------------------NOTE-------------------- Only required to be performed during Pressurizer heatup and cooldown operations. ---~~ ~~Verify Pressurizer heatup and cooldown rates within the following limits:~~ ~~a. A maximum heatup of 200°F in any 1 hour period,~~ ~~b. A maximum cooldown of 200°F in any 1 hour period.~~	~~30 minutes~~
~~SR 3.4.3.1.2~~	~~The spray water temperature differential shall be determined for use in the UFSAR.~~	~~For each cycle of auxiliary spray operation and for each cycle of main spray operation when the RCS cold leg temperature is < 500°F.~~

R01

~~3.4 REACTOR COOLANT SYSTEM (RCS)~~

~~3.4.3.1 Pressurizer Heatup and Cooldown Limits~~

~~LCO 3.4.3.1 Pressurizer heatup and cooldown rates shall be maintained within the following limits:~~

~~a. A maximum heatup of 200°F in any 1 hour period,~~

~~b. A maximum cooldown of 200°F in any 1 hour period.~~

~~APPLICABILITY: At all times.~~

~~ACTIONS~~

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

~~(continued)~~

R01

ACTIONS (continued)

~~CONDITION~~	~~REQUIRED ACTION~~	~~COMPLETION TIME~~
~~C. ----------NOTE---------- Required Action C.2 shall be completed whenever this Condition is entered. ------------------------~~ ~~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 Pressurizer is acceptable for continued operation.~~	~~Immediately~~ ~~Prior to entering MODE 4~~

~~SURVEILLANCE REQUIREMENTS~~

~~SURVEILLANCE~~		~~FREQUENCY~~
~~SR 3.4.3.1.1~~	~~--------------------NOTE-------------------- Only required to be performed during Pressurizer heatup and cooldown operations. --~~ ~~Verify Pressurizer heatup and cooldown rates within the following limits:~~ ~~a. A maximum heatup of 200°F in any 1 hour period,~~ ~~b. A maximum cooldown of 200°F in any 1 hour period.~~	~~30 minutes~~
~~SR 3.4.3.1.2~~	~~The spray water temperature differential shall be determined for use in the UFSAR.~~	~~For each cycle of auxiliary spray operation and for each cycle of main spray operation when the RCS cold leg temperature is ≤ 500°F.~~

R01

DISCUSSION OF CHANGES
CTS 3.4.3.1, PRESSURIZER HEATUP/COOLDOWN LIMITS

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

R01 CTS 3.4.3.1 states that the pressurizer heatup and cooldown rates shall be maintained to a maximum of 200°F in any one hour period. The limits meet the requirements given in the ASME Boiler and Pressure Vessel Code, Section III, articles NB-3653.1, NB-3653.2, and NB-3653.7 requirements. These limitations are consistent with structural analysis results. However, these limits are not initial condition assumptions of a DBA or transient. These limits represent operating restrictions and Criterion 2 includes operating restrictions. However, it should be noted that in the Final Policy Statement 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; therefore, it will be relocated to the Licensee Controlled Specifications (LCS).

This change is acceptable because CTS 3.4.3.1 does not meet the 10 CFR 50.36(c)(2)(ii) criteria for inclusion into the ITS.

10 CFR 50.36(c)(2)(ii) Criteria Evaluation:

1. The pressurizer heatup and cooldown 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 Heatup and Cooldown Limits Specification does not satisfy criterion 1.

2. The pressurizer heatup and cooldown limits are not a process variable 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 Heatup and Cooldown Limits Specification does not satisfy criterion 2.

3. The pressurizer temperature limits are not a structure, system or component that is part of the 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 Heatup and Cooldown Limits Specification does not satisfy criterion 3.

4. The pressurizer heatup and cooldown 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. As discussed in the

DISCUSSION OF CHANGES
CTS 3.4.3.1, PRESSURIZER HEATUP/COOLDOWN LIMITS

Appendices of CEN-355, "CE Owners Group RSTS Criteria Application, the pressurizer heatup and cooldown rates were found to be a nonsignificant risk contributor to core damage frequency and offsite releases. SCE has reviewed this evaluation, considers it applicable to SONGS Units 2 and 3, and concurs with this assessment. The Pressurizer Heatup and Cooldown Limits Specification does not meet criterion 4.

Since the 10 CFR 50.36(c)(2)(ii) criteria have not been met, the Pressurizer Heatup and Cooldown Limits LCO and Surveillances may be relocated out of the Technical Specifications. CTS 3.4.3.1, Pressurizer Heatup and Cooldown Limits, will be relocated to the SONGS LCS. The LCS is currently incorporated by reference into the UFSAR, thus any changes to the LCS are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as relocation because the Specification did not meet the criteria in 10 CFR 50.36(c)(2)(ii) and has been relocated to the LCS.

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3.4.3.1, PRESSURIZER HEATUP/COOLDOWN LIMITS

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

ATTACHMENT 18

IMPROVED STANDARD TECHNICAL SPECIFICATIONS (ISTS) NOT ADOPTED IN SONGS ITS

ISTS 3.4.11, PRESSURIZER POWER OPERATED RELIEF VALVES (PORVs)

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

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

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

--NOTE--

Separate Condition entry is allowed for each PORV and each block valve.

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
B. One PORV inoperable and not capable of being manually cycled.	B.1	Close associated block valve.	1 hour
	<u>AND</u>		
	B.2	Remove power from associated block valve.	1 hour
	<u>AND</u>		
	B.3	Restore PORV to OPERABLE status.	72 hours
C. One block valve inoperable.	C.1	Place associated PORV in manual control.	1 hour
	<u>AND</u>		

1

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	C.2	Restore block valve to OPERABLE status.	72 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	D.2	Be in MODE 4.	[12] hours
E. Two PORVs inoperable and not capable of being manually cycled.	E.1	Close associated block valves.	1 hour
	<u>AND</u>		
	E.2	Remove power from associated block valves.	1 hour
	<u>AND</u>		
	E.3	Be in MODE 3.	6 hours
	<u>AND</u>		
	E.4	Be in MODE 4.	[12] hours
F. Two block valves inoperable.	F.1	Restore at least one block valve to OPERABLE status.	2 hours
G. Required Action and associated Completion Time of Condition F not met.	G.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	G.2	Be in MODE 4.	[12] hours

1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.11.1	------------------------------NOTES---------------------------- 1. Not required to be performed with block valve closed in accordance with the Required Actions of this LCO. 2. Only required to be performed in MODES 1 and 2. --- Perform a complete cycle of each block valve.	[92] days
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
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]
SR 3.4.11.4	[Verify PORVs and block valve(s) are capable of being powered from an emergency power supply.	[18] months]

1

JUSTIFICATION FOR DEVIATIONS
ISTS 3.4.11, PRESSURIZER POWER OPERATED RELIEF VALVES (PORVs)

1. ISTS 3.4.11, " Pressurizer Power Operated Relief Valves (PORVs)," is not included in the San Onofre Nuclear Generation Station (SONGS) ITS. SONGS does have PORVs. Therefore, the PORVs are not required to be included in the SONGS Units 2 and 3 ITS.

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

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

BASES

BACKGROUND

The pressurizer is equipped with two types of devices for pressure relief: pressurizer safety valves and PORVs. The PORV is an air operated valve that is automatically opened at a specific set pressure when the pressurizer pressure increases and is automatically closed on decreasing pressure. The PORV may also be manually operated using controls installed in the control room.

An electric, motor operated, normally open, block valve is installed between the pressurizer and the PORV. The function of the block valve is to isolate the PORV. Block valve closure is accomplished manually using controls in the control room and may be used to isolate a leaking PORV to permit continued power operation. Most importantly, the block valve is used to isolate a stuck open PORV to isolate the resulting small break loss of coolant accident (LOCA). Closure terminates the RCS depressurization and coolant inventory loss.

The PORV and its block valve controls are powered from normal power supplies. Their controls are also capable of being powered from emergency supplies. Power supplies for the PORV are separate from those for the block valve. Power supply requirements are defined in NUREG-0737, Paragraph II, G.1 (Ref. 1). 1

The PORV setpoint is above the high pressure reactor trip setpoint and below the opening setpoint for the pressurizer safety valves as required by Reference 2. The purpose of the relationship of these setpoints is to limit the number of transient pressure increase challenges that might open the PORV, which, if opened, could fail in the open position. The PORV setpoint thus limits the frequency of challenges from transients and limits the possibility of a small break LOCA from a failed open PORV. Placing the setpoint below the pressurizer safety valve opening setpoint reduces the frequency of challenges to the safety valves, which, unlike the PORV, cannot be isolated if they were to fail to open.

The primary purpose of this LCO is to ensure that the PORV and the block valve are operating correctly so the potential for a small break LOCA through the PORV pathway is minimized, or if a small break LOCA were to occur through a failed open PORV, the block valve could be manually operated to isolate the path.

BASES

BACKGROUND (continued)

The PORV may be manually operated to depressurize the RCS as deemed necessary by the operator in response to normal or abnormal transients. The PORV may be used for depressurization when the pressurizer spray is not available, a condition that may be encountered during loss of offsite power. Operators can manually open the PORVs to reduce RCS pressure in the event of a steam generator tube rupture (SGTR) with offsite power unavailable.

The PORV 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 functions as an automatic overpressure device and limits challenges to the safety valves. Although the PORV acts as an overpressure device for operational purposes, safety analyses [do not take credit for PORV actuation, but] do take credit for the safety valves.

The PORV also provides low temperature overpressure protection (LTOP) during heatup and cooldown. LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System," addresses this function. 1

APPLICABLE SAFETY ANALYSES

The PORV small break LOCA break size is bounded by the spectrum of piping breaks analyzed for plant licensing. Because the PORV small break LOCA is located at the top of the pressurizer, the RCS response characteristics are different from RCS loop piping breaks; analyses have been performed to investigate these characteristics.

The possibility of a small break LOCA through the PORV is reduced when the PORV flow path is OPERABLE and the PORV opening setpoint is established to be reasonably remote from expected transient challenges. The possibility is minimized if the flow path is isolated.

The PORV opening setpoint has been established in accordance with Reference 2. It has been set so expected RCS pressure increases from anticipated transients will not challenge the PORV, minimizing the possibility of small break LOCA through the PORV.

Overpressure protection is provided by safety valves, and analyses do not take credit for the PORV opening for accident mitigation.

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

BASES

LCO

The LCO requires the PORV and its associated block valve to be OPERABLE. The block valve is required to be OPERABLE so it may be used to isolate the flow path if the PORV is not OPERABLE.

Valve OPERABILITY also means the PORV setpoint is correct. By ensuring that the PORV opening setpoint is correct, the PORV is not subject to frequent challenges from possible pressure increase transients, and therefore the possibility of a small break LOCA through a failed open PORV is not a frequent event.

APPLICABILITY

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. A likely cause for PORV small break LOCA is a result of pressure increase transients that cause 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. Pressure increase transients can occur any time the steam generators are used for heat removal. The most rapid increases will occur at higher operating power and pressure conditions of MODES 1 and 2.

Pressure increases are less prominent in MODE 3 because the core input energy is reduced, but the RCS pressure is high. Therefore, this LCO is applicable in MODES 1, 2, and 3. The LCO is not applicable in MODE 4 when both pressure and core energy are decreased and the pressure surges become much less significant. The PORV setpoint is reduced for LTOP in MODES 4, 5, and 6 with the reactor vessel head in place. LCO 3.4.12 addresses the PORV requirements in these MODES. 1

ACTIONS

The ACTIONS are modified by a Note. The Note clarifies that all pressurizer PORVs and block valves are treated as separate entities, each with separate Completion Times (i.e., the Completion Time is on a component basis).

A.1

With the PORV inoperable and capable of being manually cycled, either the PORV must be restored or the flow path isolated within 1 hour. The block valve should be closed but power must be maintained to the associated block valve, since removal of power would render the block valve inoperable. Although the PORV may be designated inoperable, it may be able to be manually opened and closed and in this manner can be used to perform its function. PORV inoperability may be due to seat leakage, instrumentation problems, automatic control problems, or other causes that do not prevent manual use and do not create a possibility for

BASES

ACTIONS (continued)

a small break LOCA. For these reasons, the block valve may be closed but the Action requires power be maintained to the valve. This Condition is only intended to permit operation of the plant for a limited period of time not to exceed the next refueling outage (MODE 6) so that maintenance can be performed on the PORVs to eliminate the problem condition. The PORVs should normally be available for automatic mitigation of overpressure events and should be returned to OPERABLE status prior to entering startup (MODE 2).

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 minor problems can be corrected or closure can be accomplished in this time period.

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

If one PORV is inoperable and not capable of being manually cycled, it must either be isolated, by closing the associated block valve and removing the power from the block valve, or restored to OPERABLE status. The Completion Time of 1 hour is reasonable, based on challenges to the PORVs during this time period, and provides 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. Because there is at least one PORV that remains OPERABLE, an additional 72 hours is provided to restore the inoperable PORV to OPERABLE status. 1

C.1 and C.2

If one block valve is inoperable, then it must be restored to OPERABLE status, or the associated PORV placed in manual control. The prime importance for the capability to close the block valve is to isolate a stuck open PORV. Therefore, if the block valve 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 is inoperable. The Completion Times of 1 hour are reasonable based on the small potential for challenges to the system during this time period and provide 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 to OPERABLE status. The time allowed to restore the block

BASES

ACTIONS (continued)

valve is based upon the Completion Time for restoring an inoperable PORV in Condition B since the PORVs are not capable of automatically mitigating an overpressure event when placed in manual control. If the block valve is restored within the Completion Time of 72 hours, the power will be restored and the PORV restored to OPERABLE status.

D.1 and D.2

If the Required Action cannot be met within the associated Completion Time, 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 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.

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 one PORV is restored and one PORV remains inoperable, then the plant will be in Condition B with the time clock started at the original declaration of having two PORVs inoperable. 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 Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems. Similarly, the Completion Time of 12 hours to reach MODE 4 is reasonable, considering that a plant can cool down within that time frame on one safety system train. In MODES 4 and 5, maintaining PORV OPERABILITY may be required. See LCO 3.4.12. 1

BASES

ACTIONS (continued)

F.1

If two block valves are inoperable, it is necessary to restore at least one block valve to OPERABLE status within 2 hours. The Completion Time is reasonable based on the small potential for challenges to the system during this time and provides the operator time to correct the situation.

G.1 and G.2

If the Required Actions and associated Completion Times of Condition E or F are not met, then the plant must be brought to a MODE in which the LCO does not apply. The plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging safety systems. Similarly, the Completion Time of 12 hours to reach MODE 4 is reasonable considering that a plant can cool down within that time frame on one safety system train. In MODES 4 and 5, maintaining PORV OPERABILITY may be required. See LCO 3.4.12.

1

SURVEILLANCE REQUIREMENTS

SR 3.4.11.1

Block valve cycling verifies that it can be closed if necessary. The basis for the Frequency of [92 days] is the ASME Code (Ref. 3).

This SR is modified by two Notes. Note 1 modifies this SR by stating that this SR 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.]

SR 3.4.11.2

SR 3.4.11.2 requires complete cycling of each PORV. PORV cycling demonstrates its function. The Frequency of [18] months is based on a typical refueling cycle and industry accepted practice.

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

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.]

[SR 3.4.11.4

This Surveillance is not required for plants with permanent 1E power supplies to the valves. The test demonstrates that emergency power can be provided and is performed by transferring power from the normal supply to the emergency supply and cycling the valves. The Frequency of [18] months is based on a typical refueling cycle and industry accepted practice.] 1

REFERENCES

1. NUREG-0737, Paragraph II, G.I, November 1980.

2. Inspection and Enforcement (IE) Bulletin 79-05B, April 21, 1979.

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

[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.]

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JUSTIFICATION FOR DEVIATIONS
ISTS 3.4.11 BASES, PRESSURIZER POWER OPERATED RELIEF VALVES (PORVs)

1. The ISTS 3.4.11 Bases is not included because the ISTS 3.4.11 Specification was not included in the SONGS Units 2 and 3 ITS.

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ISTS 3.4.17, SPECIAL TEST EXCEPTIONS (STE) – RCS LOOPS

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

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 Special Test Exception (STE)-RCS Loops

LCO 3.4.17 The requirements of LCO 3.4.4, "RCS Loops - MODES 1 and 2," and the listed requirements of LCO 3.3.1, "Reactor Protective System (RPS) Instrumentation - Operating," for the [(Analog) RC flow low, thermal margin or low pressure, and asymmetric steam generator transient protective trip functions] [(Digital) high log power, high local power density, low departure from nucleate boiling ratio protective trip functions] may be suspended provided:

a. THERMAL POWER ≤ 5% RTP and

b. The reactor trip setpoints of the OPERABLE power level channels are set ≤ 20% RTP.

APPLICABILITY: MODE 2, during startup and PHYSICS TESTS.

ACTIONS

1

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. THERMAL POWER not within limit.	A.1 Open reactor trip breakers.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.17.1	Verify THERMAL POWER ≤ 5% RTP.	1 hour
SR 3.4.17.2	Perform a CHANNEL FUNCTIONAL TEST on each logarithmic power level and linear power level neutron flux monitoring channel.	12 hours prior to initiating startup or PHYSICS TESTS

JUSTIFICATION FOR DEVIATIONS
ISTS 3.4.17, SPECIAL TEST EXCEPTION (STE) –
RCS LOOPS

1. ISTS 3.4.17, "Special Test Exception (STE) – RCS Loops," is not included in the San Onofre Nuclear Generation Station (SONGS) ITS. SONGS does not currently perform no-flow testing in MODE 2 (i.e., natural circulation demonstration, station blackout, and loss of offsite power) therefore, there is no need to take exceptions to the requirements of LCO 3.4.4, "RCS Loops – MODES 1 and 2" and LCO 3.3.1, "Reactor Protection System (RPS) Instrumentation – Operating." Therefore, this STE is not required to be included in the SONGS Units 2 and 3 ITS.

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

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.17 Special Test Exception (STE) RCS Loops

BASES

BACKGROUND

This special test exception to LCO 3.4.4, "RCS Loops - MODES 1 and 2," and LCO 3.3.1, "RPS Instrumentation," permits reactor criticality under no flow conditions during PHYSICS TESTS (natural circulation demonstration, station blackout, and loss of offsite power) while at low THERMAL POWER levels. Section XI of 10 CFR Part 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 10 CFR 50, Appendix A, GDC 1 (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 facility 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 mixing occurs and that pressure can be controlled using auxiliary spray and pressurizer heaters powered from the emergency power sources.

APPLICABLE SAFETY ANALYSES

As described in LCO 3.0.7, compliance with Special Test Exception LCOs is optional, and therefore no criteria of 10 CFR 50.36(c)(2)(ii) apply. Special 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 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 this 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 < 5% RTP and the reactor trip setpoints of the OPERABLE power level channels are set ≤ 20% RTP. These limits ensure no Safety Limits or fuel design limits will be violated. The exception is allowed even though there are no bounding safety analyses. These tests are allowed since they 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 coolant pumps.
APPLICABILITY	This LCO ensures that the plant will not be operated in MODE 1 without forced circulation. It only allows testing under these conditions while in MODE 2. This testing establishes 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. 1
ACTIONS	A.1 If THERMAL POWER increases to > 5% RTP, the reactor must be tripped immediately. This ensures the plant is not placed in an unanalyzed condition and prevents exceeding the specified acceptable fuel design limits.
SURVEILLANCE REQUIREMENTS	SR 3.4.17.1 THERMAL POWER must be verified to be within limits once per hour to ensure that the fuel design criteria are not violated during the performance of the PHYSICS TESTS. The hourly Frequency has been shown by operating practice to be sufficient to regularly assess conditions for potential degradation and verify operation is within the LCO limits. 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)

SR 3.4.17.2

Within 12 hours of initiating startup or PHYSICS TESTS, a CHANNEL FUNCTIONAL TEST must be performed on each logarithmic power level and linear power level neutron flux monitoring channel to verify OPERABILITY and adjust setpoints to proper values. This will ensure that the Reactor Protection System is properly aligned to provide the required degree of core protection during startup or 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 CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The interval is adequate to ensure that the appropriate equipment is OPERABLE prior to the tests to aid the monitoring and protection of the plant during these tests.

REFERENCES

1. 10 CFR 50, Appendix B, Section XI. 1

2. 10 CFR 50, Appendix A, GDC 1, 1988.

JUSTIFICATION FOR DEVIATIONS
ISTS 3.4.17 BASES, SPECIAL TEST EXCEPTION (STE) –
RCS LOOPS

1. The ISTS 3.4.17 Bases is not included because the ISTS 3.4.17 Specification was not included in the SONGS Units 2 and 3 ITS.

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