MODEL APPLICATION FOR ADOPTION OF TSTF TRAVELER TSTF-493, REVISION 4,

"CLARIFY APPLICATION OF SETPOINT METHODOLOGY FOR LSSS FUNCTIONS,"

OPTION B, ADDITION OF A SETPOINT CONTROL PROGRAM

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: [PLANT]
DOCKET NO. 50-[XXX]
LICENSE AMENDMENT REQUEST FOR ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF) TRAVELER TSTF-493, REVISION 4, "CLARIFY APPLICATION OF SETPOINT METHODOLOGY FOR LSSS FUNCTIONS"

{NOTE: This model application and model safety evaluation are only applicable for adoption of TSTF-493 Option B - the Setpoint Control Program option.}

In accordance with the provisions of Section 50.90 of Title 10 of the *Code of Federal Regulations* (10 CFR), [LICENSEE] is submitting a request for an amendment to the [PLANT] Technical Specifications (TSs) to incorporate the NRC-approved TSTF-493, Revision 4, "Clarify Application of Setpoint Methodology for LSSS [limiting safety system settings] Functions," to be consistent with Option B.

The proposed amendment would revise the TSs by relocating Allowable Values (AVs) [and Nominal Trip Setpoints (NTSPs)] from TSs Section 3.3, "Instrumentation," to the [insert the facility Final Safety Analysis Report (FSAR) reference or the name of any document incorporated into the facility FSAR by reference] and by adding Administrative Control TS 5.5.[18], "Setpoint Control Program (SCP)." The TSs SCP program would require assessment of channel performance during testing to verify that instrument channel settings are consistent with values established by the NRC-approved setpoint methodology(ies) for [PLANT]. The TSs SCP would also apply new surveillance test evaluation criteria to certain instrument Functions, consistent with Attachment A of NRC-approved TSTF-493, Revision 4. The availability of this TSs improvement was announced in the *Federal Register* on [DATE] ([ ] FR [ ]).

Attachment 1 provides a description and analysis of the proposed changes including the requested confirmation of applicability and plant-specific verifications; technical analyses; regulatory analyses; and environmental considerations. Attachment 2 provides the plant-specific analysis for the list of instrument Functions that are surveillance tested in accordance with new evaluation criteria specified in TS 5.5.[18] Paragraph d. Attachment 3 provides the [PLANT] setpoint methodology(ies), for NRC staff review, that were used to establish instrument values of TS 5.5.[18] Paragraph b for the Functions described in TS 5.5.[18] Paragraph a. In addition, Attachment 3 provides the listing of program limiting trip setpoint (LTSP), NTSP, AV, as-found

tolerance (AFT), and as-left tolerance (ALT) (as applicable) values for each Function described in Paragraph a and identifies the setpoint methodology used to calculate these values. Attachment 4 provides markup pages of existing TSs and TSs Bases to show the proposed change in accordance with TSTF-493, Revision 4, Option B. Attachment 5 provides revised (clean) TSs pages.

[LICENSEE] requests approval of the proposed license amendment by [DATE], with the amendment being implemented [BY DATE OR WITHIN X DAYS].

In accordance with 10 CFR 50.91(a)(1), "Notice for Public Comment," the analysis about the issue of no significant hazards consideration using the standards in 10 CFR 50.92 is being provided to the Commission.

In accordance with 10 CFR 50.91(b)(1), "Notice for Public Comment; State Consultation," a copy of this application and the reasoned analysis about no significant hazards considerations is being provided to the designated [STATE] Official.

I declare [or certify, verify, state] under penalty of perjury that the foregoing is correct and true.

Executed on [date] [Signature]

If you should have any questions about this submittal, please contact [NAME, TELEPHONE NUMBER].

Sincerely,

[Name, Title]

Attachments: [As stated or provide list]

cc: [NRR Project Manager]
[Regional Office]
[Resident Inspector]
[State Contact]

ATTACHMENT 1

EVALUATION OF PROPOSED CHANGE

1.0 DESCRIPTION

The proposed amendment would revise the Technical Specifications (TSs) by relocating Allowable Values (AVs) from TSs Section 3.3, "Instrumentation," to the [insert the facility Final Safety Analysis Report (FSAR) reference or the name of any document incorporated into the facility FSAR by reference] and by adding TS 5.5.[18], "Setpoint Control Program (SCP)." The TSs SCP program would require the assessment of channel performance during testing to verify that instrument channel settings are consistent with values established by the NRC-approved setpoint methodology(ies) for [PLANT]. In addition, the TSs SCP applies additional surveillance test evaluation criteria to the applicable instrument Functions, consistent with Attachment A to Technical Specifications Task Force (TSTF) Traveler TSTF-493, Revision 4, "Clarify Application of Setpoint Methodology for LSSS [limiting safety system settings] Functions." Attachment A identifies Functions related to those variables that have a significant safety function as defined in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36(c)(1)(ii)(A). The TSs SCP will ensure that instrumentation will function as required to initiate protective systems or actuate mitigating systems at values equal to or more conservative than the point assumed in applicable safety analyses while providing the licensee with the flexibility to revise setpoints without requesting a license amendment.

This change is consistent with Option B of NRC-approved Revision 4 to TSTF-493. The availability of this TSs improvement was announced in the *Federal Register* on [DATE] ([ ] FR [ ]).

2.0 PROPOSED CHANGE

{NOTE: Throughout this model application the term "Limiting Trip Setpoint (LTSP)" refers to the calculated limiting setpoint setting based on vendor-specific setpoint methodologies for Babcock and Wilcox, Combustion Engineering, General Electric Boiling Water Reactor (BWR)/4 and BWR/6 plants, which correspond to the Standard Technical Specifications (STS) NUREGs-1430, 1432, 1433, and 1434. The term "Nominal Trip Setpoint (NTSP)" is the LTSP with margin added. This model application is written for plants using "LTSP." For Westinghouse plants, corresponding to STS NUREG-1431, the calculated limiting setpoint setting based on vendor-specific methodology is typically defined as the "Nominal Trip Setpoint (NTSP)." Using this convention, an application for NUREG-1431 plants would replace "Limiting Trip Setpoint" or "LTSP" with "Nominal Trip Setpoint" or "NTSP" as appropriate and would replace "Nominal Trip Setpoint" or "NTSP" with "field setting." For plants using other terminology, the terms in this model application may be replaced with like terms consistent with the plant-specific setpoint methodology and conforming changes should be made to TSs and TSs Bases. Plant-specific terminology is not considered to be a deviation with Revision 4 of TSTF-493.}

[LICENSEE] proposes to apply changes consistent with Option B of TSTF-493, Revision 4 to [PLANT] instrumentation Functions.

[LICENSEE] has reviewed the model safety evaluation (SE) as referenced in the *Federal Register* Notice of Availability published on [DATE] ([ ] FR [ ]). As described herein, [LICENSEE] has concluded that the justifications presented in the TSTF-493, Revision 4, Option B and the

model SE prepared by the NRC staff for Option B are applicable to [PLANT] support these changes to the [PLANT] TSs.

[LICENSEE] is [not] proposing variations or deviations from the TSs changes described in TSTF-493, Revision 4, or the NRC staff's model SE referenced in the Notice of Availability. {NOTE: Discuss any differences with Option B of TSTF-493, Revision 4, and provide justification for these differences. Additionally, discuss the effect of any changes on the NRC staff's model SE, including plant-specific information explaining the plant-unique design feature(s) that require such variations or deviations. Plant-specific system names, TSs numbering and titles are not considered to be differences with TSTF-493 or the NRC staff's model SE.}

{NOTE: A licensee may propose to apply the [PLANT]-SCP to all or a select set of Specifications provided that all of the Functions listed in Attachment A of the approved traveler for TSTF-493, except those that meet one of the TSTF-493 exception criteria, either receive the TSTF-493 surveillance Notes or are included in the [PLANT]-SCP.}

3.0 BACKGROUND

The background for this application is adequately addressed by the NRC Notice of Availability published in the *Federal Register* on [DATE] ([ ] FR [ ]).

4.0 TECHNICAL ANALYSIS

The Technical Analysis for this application is described in TSTF-493 as referenced in the NRC Notice of Availability published in the *Federal Register* on [DATE] ([ ] FR [ ]). Plant-specific information related to the Technical Analysis is described below to document that the content of TSTF-493, Revision 4, Option B is applicable to [PLANT].

4.1 Use of the term "Limiting Trip Setpoint"

The term "Limiting Trip Setpoint" (LTSP) is [PLANT] terminology for the setpoint value calculated by means of the plant-specific setpoint methodology documented in the Final Safety Analysis Report (FSAR) or a document incorporated by reference into the FSAR. The actual trip setpoint may be more conservative than the LTSP. The LTSP is the Limiting Safety System Setting[1] (LSSS) which is required to be in the TSs by 10 CFR 50.36. Attachment 3 contains [PLANT] setpoint methodology(ies) used in TSs 5.5.[18].b to calculate instrument LTSP values for the Functions described in TSs 5.5.[18] Paragraph a.

The LTSP is the least conservative value to which the instrument channel is adjusted to actuate. The Allowable Value[2] (AV) is derived from the LTSP. The LTSP is the limiting setting for an operable channel trip setpoint considering all credible instrument errors associated with the instrument channel. The LTSP is the least conservative value (with an as-left tolerance

1 10 CFR 50.36(c)(1(II)(a) states: "Limiting safety system settings for nuclear reactors are settings for automatic protective devices related to those variables having significant safety functions."

2 The instrument setting AV is a limiting value of an instrument as-found trip setting used during surveillances. The AV is more conservative than the analytical limit to account for applicable instrument measurement errors consistent with the plant-specific setpoint methodology. If during testing, the actual instrumentation setting is less conservative than the AV, the channel is declared inoperable and actions must be taken consistent with the TS requirements.

(ALT)) to which the channel must be reset at the conclusion of periodic testing to ensure that the analytical limit (AL) will not be exceeded during an anticipated operational occurrence (AOO) or accident before the next periodic surveillance or calibration. It is impossible to set a physical instrument channel to an exact value, so a calibration tolerance is established around the LTSP. Therefore, an instrument adjustment is considered successful if the LTSP as-left instrument setting is within the setting tolerance (i.e., a range of values around the LTSP). The Nominal Trip Setpoint (NTSP) is the LTSP with margin added. The NTSP is as conservative, or more conservative, than the LTSP.

4.2 Administrative Control TS 5.5.[18], Setpoint Control Program (SCP)

The program requirements of TS 5.5.[18] are implemented by the [PLANT] Setpoint Control Program ([PLANT]-SCP) which is incorporated in [FSAR Chapter [16, "title"]][name of document incorporated into [PLANT] FSAR by reference]. The SCP contains requirements for ensuring that setpoints for automatic protective devices are initially within and remain within the TSs requirements. The SCP contains a list of the specifications to which it applies and also provides a means for processing changes to instrumentation setpoints without prior NRC staff review and approval using the [PLANT] NRC-approved setpoint methodology(ies) identified in TS 5.5.[18].b. The SCP establishes additional surveillance requirement (SR) evaluation criteria to ensure that testing of automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A) will function as required. These criteria are applied to instrument Functions listed in Attachment 2, "Identification of Instrument Functions to be Included in TSs 5.5.[18], "Setpoint Control Program" for Application of Option B of TSTF-493, Revision 4. For Functions in the program, TSs SRs which verify LTSPs are revised to state that the SRs must be performed in accordance with the SCP.

SCP Paragraph a

SCP Paragraph a lists the Specifications of the Functions with setpoints controlled by the program.

SCP Paragraph b

SCP Paragraph b establishes program requirements to ensure LTSP, NTSP, AV, AFT band, and ALT band (as applicable) of the Functions described in SCP Paragraph a are calculated using the [PLANT] NRC-approved setpoint methodology. The SCP contains a list of LTSP, NTSP, AV, AFT, and ALT (as applicable) values for the Functions of the Specifications described in Paragraph a and identifies the setpoint methodology used to calculate these values.

Verifying that a trip setting is conservative with respect to the AV when a surveillance test is performed does not by itself verify the instrument channel will operate properly in the future. Although the channel was operable during the previous surveillance interval, if it is discovered that channel performance is outside the performance predicted by the plant setpoint calculations for the test interval, then the design basis for the channel may not be met, and proper operation of the channel for a future demand cannot be assured. The AFT is applied about the LTSP [or about any other more conservative setpoint]. The AFT ensures that channel operation is consistent with the assumptions or design inputs used in the setpoint calculations and establishes a high confidence of acceptable channel performance in the future. Because the tolerance allows for both conservative and non-conservative deviation from the LTSP, changes

in channel performance that are conservative with respect to the LTSP will also be detected and evaluated for possible effects on expected performance.

The calculated AFT is based on [the Square Root Sum of the Squares (SRSS) combination of either a) reference accuracy (RA), measurement and test equipment (M&TE) error (including M&TE readability (Rd)), and projected drift; or b) ALT and the projected drift (assuming that ALT is less than the SRSS combination of RA, M&TE error including Rd).] {NOTE: discuss the methods used for calculating the AFT and the ALT, including the methodology for combining uncertainties (e.g., normal radiation effect, temperature effect between calibrations, capillary tubing error) that are dependent on the application of the instrument Function.} Alternate methods must result in an AFT that is small enough to detect abnormal channel performance.

Verification that the measured setpoint is within the AFT is determined by [calculating the difference between the current as-found value and the LTSP or by calculating the difference between the current as-found value and the previous as-left value, if it is more conservative than the LTSP. In order to use the "as-found value minus LTSP" methodology, the ALT must be less than or equal to the SRSS combination of the RA, M&TE error, including Rd.]

SCP Paragraph c

SCP Paragraph c establishes program methods to ensure the instrument Functions with setpoints in the [PLANT]-SCP will perform as required by verifying during SRs that the ALT and AFT are consistent with those established by the setpoint methodology. Evaluation of channel performance will verify that the channel will continue to perform in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology. The purpose of the assessment is to ensure confidence in the channel performance prior to returning the channel to service. For channels determined to be operable but degraded, after returning the channel to service the channels will be evaluated under the plant Corrective Action Program (CAP). Entry into the CAP will ensure required review and documentation of the condition to establish a reasonable expectation for continued operability.

SCP Paragraph d

The general requirement in [PLANT]-SCP Paragraph c for all the affected Functions is augmented with additional requirements in [PLANT]-SCP Paragraph d. [PLANT]-SCP Paragraph d requires the program to apply exclusion criteria in order to identify the Functions described in Paragraph a that are automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A). The exclusion criteria are discussed in Section 4.3, below. The LTSP of these Functions are required to be designated as LSSSs. The Functions are verified to be operable by applying the following requirements during [{use only for NUREG-1430, 1432, 1433, and 1434 plants} channel calibrations, channel functional tests (with setpoint verification), and trip unit calibrations,] [{use only for NUREG-1431 plants} channel calibrations, channel operational tests, and trip actuation operational tests (with setpoint verification)] that verify the LTSP.

1. The as-found value of the instrument channel trip setting is compared with the previous as-left value or the specified NTSP.

2. If the as-found value of the instrument channel trip setting differs from the previous as-left value or the specified NTSP by more than the pre-defined test acceptance criteria band

(i.e., the specified AFT), then the instrument channel shall be evaluated to verify the instrument channel is performing as required before declaring the SR met and returning the instrument channel to service. This condition shall be entered in the plant CAP.

3. If the as-found value of the instrument channel trip setting is less conservative than the specified AV, then the SR is not met and the instrument channel shall be immediately declared inoperable.

4. The instrument channel setpoint shall be reset to a value that is within the ALT around the LTSP at the completion of the surveillance test; otherwise, the channel is inoperable (setpoints may be more conservative than the LTSP provided that the AFT and ALT apply to the actual setpoint used to confirm channel performance).

LTSP calculations based on the AL of the safety analysis are used to establish limiting safety system settings to ensure that trips or protective actions will occur prior to exceeding the process parameter value assumed by the safety analysis. LTSP calculations include an allowed limit of change (i.e., the AFT) that is expected to occur between successive performances of surveillance testing that assesses the values of the LTSP trip point. The least conservative as-found instrument trip value that a channel can have during calibration without requiring performing a TS remedial action is the setpoint AV. Discovering an instrument setting to be less conservative than the setting AV indicates that there may not be sufficient margin between the setting and the AL. Technical specifications [{use only for NUREG-1430, 1432, 1433, and 1434 plants} channel calibrations, channel functional tests (with setpoint verification), and trip unit calibrations,] [{use only for NUREG-1431 plants} channel calibrations, channel operational tests, and trip actuation operational tests (with setpoint verification)] are performed to verify channels are operating within the assumptions of the setpoint methodology calculated LTSP and that channel settings have not exceeded the TS AVs. When the measured as-found trip point is non-conservative with respect to the AV, the channel is inoperable and the actions identified in the TSs must be taken.

An evaluation of channel performance is required to be performed for the condition where the as-found value for the channel setpoint is outside its AFT but conservative with respect to the AV. Evaluation of channel performance will verify that the channel will continue to perform in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology. The purpose of the assessment is to ensure confidence in the channel performance prior to returning the channel to service.

Verifying that a trip setting is conservative with respect to the AV when an SR is performed does not by itself verify the instrument channel will operate properly in the future. Although the channel was operable during the previous surveillance interval, if it is discovered that channel performance is outside the performance predicted by the plant setpoint calculations for the test interval, then the design basis for the channel may not be met, and proper operation of the channel for a future demand cannot be assured. [PLANT]-SCP paragraph d formalizes the establishment of the appropriate AFT for each channel. This AFT is applied about the LTSP or about any other more conservative setpoint. The AFT ensures that channel operation is consistent with the assumptions or design inputs used in the setpoint calculations and establishes a high confidence of acceptable channel performance in the future. Because the setting tolerance allows for both conservative and non-conservative deviation from the LTSP, changes in channel performance that are conservative with respect to the LTSP will also be detected and evaluated for possible effects on expected performance.

For some instrumentation Function channels the ALT is established to ensure that realistic values are used that do not mask instrument performance. Setpoint calculations assume that the instrument setpoint is left at the [LTSP] within a specific ALT (e.g., 25 psig ± 2 psig). A tolerance band is necessary because it is not possible to read and adjust a setting to an absolute value due to the readability and/or accuracy of the test instruments or the ability to adjust potentiometers. The ALT is normally as small as possible considering the tools and the objective to meet an as low as reasonably achievable calibration setting of the instruments. The ALT is considered in the setpoint calculation. Failure to set the actual plant trip setpoint within the LTSP ALT, would invalidate the assumptions in the setpoint calculation because any subsequent instrument drift would not start from the expected as-left setpoint.

SCP Paragraph e

The program requirements of TS 5.5.[18] are implemented by the [PLANT] Setpoint Control Program ([PLANT]-SCP) which is incorporated in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference.] Changes to the values listed in [PLANT]-SCP are controlled by 10 CFR 50.59.

4.3 Evaluation of Exclusion Criteria

Exclusion criteria are used to determine which Functions do not need to receive the additional requirements in SCP Paragraph d, as discussed in TSTF-493, Rev. 4. Instruments are excluded from the additional requirements when their functional purpose can be described as (1) a manual actuation circuit, (2) an automatic actuation logic circuit, or (3) an instrument function that derives input from contacts which have no associated sensor or adjustable device. Many permissives or interlocks are excluded if they derive input from a sensor or adjustable device that is tested as part of another TSs function. Accordingly, the list of Functions included in the SCP identified in Attachment 2 of this application was developed on the principle that all Functions in the affected TSs are included unless one or more of the exclusion criterion apply. If the excluded functions differ from the list of excluded functions in TSTF-493, Revision 4, a justification for that deviation is provided in Attachment 2.

4.4 Setpoint Methodology

{NOTE: For Option B applications that submit a setpoint methodology for NRC staff approval, Attachments 4 and 5 of the application can be submitted using brackets in place of the SCP Paragraph b requirement to specify the reference for the NRC safety evaluation that approved the setpoint methodology. The NRC staff will provide the approved methodology safety evaluation reference, which will include the date and ADAMS accession number, to be inserted into SCP Paragraph b before the amendment is issued.}

The [PLANT or LICENSEE] [proposed] setpoint methodology in Attachment 3 includes the content and application requirements of the TSs SCP Paragraphs b and c. The program includes the calculation basis for the LTSP, NTSP, AV, AFT band, and ALT band for each automatic protection instrumentation function

The affected TSs SRs are: [insert plant-specific SRs list].

The affected [PLANT] TS Tables are: [insert plant-specific list]

{NOTE: To support NRC assessment of the acceptability of the Attachment 3 [PLANT] Setpoint Calculation Methodology provide documentation (including sample calculations) of the methodology used for establishing the LTSP and the limiting acceptable values for the allowable value and the as-found and as-left tolerances as measured in periodic surveillance testing as described below. Indicate the related AL and other limiting design values (and the sources of these values) for each setpoint.}

4.5 Limiting Settings of Safety Systems

{NOTE: State that the Functions listed in SCP Paragraph d are consistent with the list in TSTF-493, Revision 4, or justify any deviations from the TSTF-493 list.}

5.0 REGULATORY SAFETY ANALYSIS

5.1 NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

[LICENSEE] has evaluated the proposed changes to the TSs using the criteria in 10 CFR 50.92 and has determined that the proposed changes do not involve a significant hazards consideration.

Basis for proposed no significant hazards consideration: As required by 10 CFR 50.91(a), the [LICENSEE] analysis of the issue of no significant hazards consideration is presented below:

1: Does the Proposed Change Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated?

Response: No

The proposed change clarifies the requirements for instrumentation to ensure the instrumentation will actuate as assumed in the safety analysis. The proposed change also allows the relocation of the plant-specific setpoints to licensee control provided the NRC has approved (1) the methodology used to calculate the values of any setpoints that are changing, and (2) that future changes to the setpoints are controlled under the SCP. Instruments are not an assumed initiator of any accident previously evaluated. The proposed change will ensure that the instruments actuate as assumed to mitigate the accidents previously evaluated. Relocated setpoints will continue to be determined using [PLANT] NRC-approved methodologies and under TSs controls, which ensures that the instruments continue to act to mitigate accidents previously evaluated as assumed. 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 change does not involve a physical alteration of the plant, i.e., no new or different type of equipment will be installed. The change does not alter assumptions made in the safety analysis but ensures that the instruments perform as assumed in the accident analysis. The proposed change is consistent with the safety analysis assumptions.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3: Does the Proposed Change Involve a Significant Reduction in a Margin of Safety?

Response: No

The proposed change clarifies the requirements for instrumentation that will assure that (1) TSs AVs will be limiting settings for assessing instrument channel operability and (2) will be conservatively determined so that evaluation of instrument performance history and the ALT requirements of the calibration procedures will not have an adverse effect on equipment operability. The proposed change also allows the relocation of the plant-specific setpoints to licensee control provided the NRC has approved the methodology used to calculate the setpoints and that future changes to the setpoints are controlled under the SCP. No change is made to the accident analysis assumptions. NRC review of future changes to setpoints is eliminated, which has the potential to reduce a margin of safety. However, the NRC will review and approve the methodology used to determine the setpoints and future setpoint changes will be performed in accordance with the SCP. As a result, any reduction in the margin of safety provided by NRC review of individual setpoint changes will not be significant. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

5.2 APPLICABLE REGULATORY REQUIREMENTS/CRITERIA

A description of the proposed TSs change and its relationship to applicable regulatory requirements were published in the *Federal Register* Notice of Availability on [DATE] ([ ] FR [ ]). [LICENSEE] has reviewed the NRC staff's model SE published as part of the Notice of Availability and concluded that the regulatory evaluation section is [not] applicable to [PLANT]. {NOTE: If regulatory evaluation section in model SE is not applicable, discuss/provide applicable regulatory requirements and criteria. Additionally, discuss the effect of any changes on the NRC staff's model SE, including plant-specific information explaining the plant-unique design feature(s) that require such variations or deviations. Plant-specific system names, specification numbering and titles are not considered to be differences with TSTF-493 or the NRC staff's model SE.}

6.0 ENVIRONMENTAL CONSIDERATION

The proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR Part 20, and would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

7.0 REFERENCES

{NOTE: Provide list of references}

ATTACHMENT 2

IDENTIFICATION OF INSTRUMENT FUNCTIONS TO BE INCLUDED IN TECHNICAL SPECIFICATION 5.5.[18], "SETPOINT CONTROL PROGRAM" FOR APPLICATION OF OPTION B OF TSTF-493, REVISION 4, "CLARIFY APPLICATION OF SETPOINT METHODOLOGY FOR LSSS FUNCTIONS"

{NOTE: Each licensee proposing to adopt TSTF-493, Option B, must identify their plant-specific technical specifications (TSs) instrument Functions from the list in the applicable standard technical specifications (STS) instrumentation tables provided below that will have setpoint values applied to TS 5.5.[18] Setpoint Control Program (SCP), Paragraph d. The Tables below also identify STS instrumentation Functions whose setpoints are not required to be applied to the SCP Paragraph d because the Functions meet one or more of the exclusion criteria.

Licensees may deviate from the TSTF-493 based on the plant-specific design and analysis. Licensee evaluations to justify deviations based on plant-specific design and analysis must include an evaluation of their plant-specific TSs instrument Functions that are not included in the list of applicable STS instrument tables provided below. In particular, the licensee justification must include plant-specific information explaining the plant-unique design feature(s) that require such deviations. In addition, the licensee must confirm that the exclusion criterion are met for each bypass, permissive, and interlock instrumentation Function. Plant-specific system names, specification numbering and titles are not considered to be differences with TSTF-493. However, to aid the NRC staff review, licensees should indicate the comparable TSTF-493, Revision 4, instrument Function if it is not clear from the plant-specific name.

Licensees should only include in their submittal the table that corresponds to their plant design.}

The following tables identify instrumentation Functions for which SCP requirements apply and for those instrumentation Functions which are excluded from the requirements of the SCP.

Babcock and Wilcox Plants (NUREG-1430) Instrumentation Functions Applicable to SCP Requirements

Table 3.3.1-1, "Reactor Protection System Instrumentation" Functions

1. Nuclear Overpower
   a. High Setpoint
   b. Low Setpoint
2. RCS High Outlet Temperature
3. RCS High Pressure
4. RCS Low Pressure
5. RCS Variable Low Pressure
6. Reactor Building High Pressure
7. Reactor Coolant Pump to Power
8. Nuclear Overpower RCS Flow and Measured AXIAL POWER IMBALANCE
9. Main Turbine Trip (Control Oil Pressure)
10. Loss of Main Feedwater Pumps (Control Oil Pressure)
11. Shutdown Bypass RCS High Pressure

Table 3.3.5-1, "Engineered Safety Feature Actuation System Instrumentation" Functions

1. Reactor Coolant System Pressure - Low Setpoint (HPI Actuation, RB Isolation, RB Cooling, EDG Start)
2. Reactor Coolant System Pressure - Low Low Setpoint (HPI Actuation, LPI Actuation, RB Isolation, RB Cooling)
3. Reactor Building (RB) Pressure - High Setpoint (HPI Actuation, LPI Actuation, RB Isolation, RB Cooling)
4. Reactor Building Pressure - High High Setpoint (RB Spray Actuation)

Babcock and Wilcox Plants (NUREG-1430) Instrumentation Functions Excluded from SCP Requirements

No TSs instrumentation Functions were excluded from assessing the as-found and as-left tolerances during TSs testing.

Westinghouse Plants (NUREG-1431) Instrumentation Functions Applicable to SCP Requirements

Table 3.3.1-1, "Reactor Trip System Instrumentation" Functions

2. Power Range Neutron Flux
   a. High
   b. Low
3. Power Range Neutron Flux Rate
   a. High Positive Rate
   b. High Negative Rate
4. Intermediate Range Neutron Flux
5. Source Range Neutron Flux
6. Overtemperature ΔT
7. Overpower ΔT
8. Pressurizer Pressure
   a. Low
   b. High
9. Pressurizer Water Level - High
10. Reactor Coolant Flow - Low
12. Undervoltage RCPs
13. Underfrequency RCPs
14. Steam Generator (SG) Water Level - Low Low
15. SG Water Level - Low
    Coincident with Steam Flow/Feedwater Flow Mismatch
16. Turbine Trip
    a. Low Fluid Oil Pressure

Table 3.3.2-1, "Engineered Safety Feature Actuation System Instrumentation" Functions

1. Safety Injection
   c. Containment Pressure - High 1
   d. Pressurizer Pressure - Low
   e. Steam Line Pressure
      (1) Low
      (2) High Differential Pressure Between Steam Lines
   f. High Steam Flow in Two Steam Lines
      Coincident with Tavg - Low Low

g. High Steam Flow in Two Steam Lines
Coincident with Steam Line Pressure - Low

2. Containment Spray
c. Containment Pressure High - 3 (High High)
d. Containment Pressure High - 3 (Two Loop Plants)

3. Containment Isolation
b. Phase B Isolation
(3) Containment Pressure High - 3 (High High)

4. Steam Line Isolation
c. Containment Pressure - High 2
d. Steam Line Pressure
(1) Low
(2) Negative Rate - High
e. High Steam Flow in Two Steam Lines
Coincident with Tavg - Low Low
f. High Steam Flow in Two Steam Lines
Coincident with Steam Line Pressure - Low
g. High Steam Flow
Coincident with Tavg - Low Low
h. High High Steam Flow

5. Turbine Trip and Feedwater Isolation
b. SG Water Level - High High (P-14)

6. Auxiliary Feedwater
c. SG Water Level - Low Low
e. Loss of Offsite Power
f. Undervoltage Reactor Coolant Pump
g. Trip of all Main Feedwater Pumps
h. Auxiliary Feedwater Pump Suction Transfer on Suction Pressure - Low

7. Automatic Switchover to Containment Sump
b. Refueling Water Storage Tank (RWST) Level - Low Low
c. RWST Level - Low Low
Coincident with Containment Sump Level - High

Westinghouse Plants (NUREG-1431) Instrumentation Functions Excluded from SCP Requirements

Table 3.3.1-1, "Reactor Trip System Instrumentation" Functions

1. Manual Reactor Trip – (Manual actuation excluded from surveillance Notes)
11. Reactor Coolant Pump (RCP) Breaker Position – (Mechanical component excluded from surveillance Notes)
b. Turbine Stop Valve Closure (Mechanical component excluded from surveillance Notes)
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS) (Automatic actuation logic circuit excluded from surveillance Notes)
18. Reactor Trip System Interlocks i excluded from surveillance Notes if it derives input from a sensor or adjustable device that is tested as part of another TSs function.)
19. Reactor Trip Breakers (RTBs) (Mechanical component excluded from surveillance Notes)
20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms (Mechanical component excluded from surveillance Notes)
21. Automatic Trip Logic (Automatic actuation logic circuit excluded from surveillance Notes)

Table 3.3.2-1, "Engineered Safety Feature Actuation System Instrumentation" Functions

1. Safety Injection
   a. Manual Initiation (Manual actuation excluded from surveillance Notes)
   b. Automatic Actuation Logic and Actuation Relays (Automatic actuation logic circuit excluded from surveillance Notes)
2. Containment Spray
   a. Manual Initiation - (Manual actuation excluded from surveillance Notes)
   b. Automatic Actuation Logic and Actuation Relays (Automatic actuation logic circuit excluded from surveillance Notes)
3. Containment Isolation
   a. Phase A Isolation
      (1) Manual Initiation (Manual actuation excluded from surveillance Notes)
      (2) Automatic Actuation Logic and Actuation Relays (Automatic actuation logic circuit excluded from surveillance Notes)
      (3) Safety Injection (Automatic actuation logic circuit excluded from surveillance Notes)
   b. Phase B Isolation
      (1) Manual Initiation (Manual actuation excluded from surveillance Notes)
      (2) Automatic Actuation Logic and Actuation Relays (Automatic actuation logic circuit excluded from surveillance Notes)
4. Steam Line Isolation
   a. Manual Initiation (Manual actuation excluded from surveillance Notes)
   b. Automatic Actuation Logic and Actuation Relays (Automatic actuation logic circuit excluded from surveillance Notes)
   g. High Steam Flow
      Coincident with Safety Injection (Automatic actuation logic circuit excluded from surveillance Notes)
   h. High High Steam Flow
      Coincident with Safety Injection (Automatic actuation logic circuit excluded from surveillance Notes)
5. Turbine Trip and Feedwater Isolation
   a. Automatic Actuation Logic and Actuation Relays (Automatic actuation logic circuit excluded from surveillance Notes)
   c. Safety Injection (Automatic actuation logic circuit excluded from surveillance Notes)
6. Auxiliary Feedwater
   a. Automatic Actuation Logic and Actuation Relays (Solid State Protection System) (Automatic actuation logic circuit excluded from surveillance Notes)
   b. Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS) (Automatic actuation logic circuit excluded from surveillance Notes)
   d. Safety Injection (Automatic actuation logic circuit excluded from surveillance Notes)
7. Automatic Switchover to Containment Sump
   a. Automatic Actuation Logic and Actuation Relays (Automatic actuation logic circuit excluded from surveillance Notes)
   b. Refueling Water Storage Tank (RWST) Level - Low Low
      Coincident with Safety Injection (Automatic actuation logic circuit excluded from surveillance Notes)
   c. RWST Level - Low Low
      Coincident with Safety Injection (Automatic actuation logic circuit excluded from surveillance Notes)
8. ESFAS Interlocks excluded from surveillance Notes if it derives input from a sensor or adjustable device that is tested as part of another TSs function.)

Combustion Engineering (NUREG-1432) Instrumentation Functions Applicable to SCP Requirements

Specification 3.3.1, “Reactor Protection System Instrumentation” (Analog) Functions

1. Variable High Power Trip
2. Power Rate of Change - High
3. Reactor Coolant Flow - Low
4. Pressurizer Pressure - High
5. Containment Pressure - High
6. Steam Generator Pressure - Low
7a. Steam Generator A Level - Low
7b. Steam Generator B Level - Low
8. Axial Power Distribution - High
9a. Thermal Margin/Low Pressure (TM/LP)
9b. Steam Generator Pressure Difference
10. Loss of Load (turbine stop valve control oil pressure)

Table 3.3.4-1, "Engineered Safety Features Actuation System Instrumentation" (Analog) Functions

1. Safety Injection Actuation Signal (SIAS)
    a. Containment Pressure - High
    b. Pressurizer Pressure – Low
2. Containment Spray Actuation Signal
    a. Containment Pressure - High
3. Containment Isolation Actuation Signal
    a. Containment Pressure - High
    b. Containment Radiation - High
4. Main Steam Isolation Signal
    a. Steam Generator Pressure - Low
5. Recirculation Actuation Signal
    a. Refueling Water Tank Level - Low
6. Auxiliary Feedwater Actuation Signal (AFAS)
    a. Steam Generator A Level - Low
    b. Steam Generator B Level - Low
    c. Steam Generator Pressure Difference - High (A > B) or (B > A)

Table 3.3.1-1, "Reactor Protective System Instrumentation" (Digital) Functions

1. Linear Power Level - High
2. Logarithmic Power Level - High
3. Pressurizer Pressure - High
4. Pressurizer Pressure - Low
5. Containment Pressure - High
6. Steam Generator #1 Pressure - Low
7. Steam Generator #2 Pressure - Low
8. Steam Generator #1 Level - Low
9. Steam Generator #2 Level - Low
10. Reactor Coolant Flow, Steam Generator #1 - Low
11. Reactor Coolant Flow, Steam Generator #2 - Low
12. Loss of Load (turbine stop valve control oil pressure)
13. Local Power Density - High

14. Departure from Nucleate Boiling Ratio (DNBR) - Low

Table 3.3.5-1, "Engineered Safety Features Actuation System Instrumentation" (Digital) Functions

1. Safety Injection Actuation Signal
   a. Containment Pressure - High
   b. Pressurizer Pressure – Low
2. Containment Spray Actuation Signal
   a. Containment Pressure - High High
3. Containment Isolation Actuation Signal
   a. Containment Pressure - High
   b. Pressurizer Pressure - Low
4. Main Steam Isolation Signal
   a. Steam Generator Pressure - Low
   b. Containment Pressure - High
5. Recirculation Actuation Signal
   a. Refueling Water Storage Tank Level – Low
6. Emergency Feedwater Actuation Signal SG #1 (EFAS-1)
   a. Steam Generator Level - Low
   b. SG Pressure Difference - High
   c. Steam Generator Pressure - Low
7. Emergency Feedwater Actuation Signal SG #2 (EFAS-2)
   a. Steam Generator Level - Low
   b. SG Pressure Difference - High
   c. Steam Generator Pressure – Low

Combustion Engineering Plants (NUREG-1432) Instrumentation Functions Excluded from SCP Requirements

Table 3.3.5-1, "Engineered Safety Features Actuation System Instrumentation" (Digital) Functions

2. Containment Spray Actuation Signal
   a. Containment Pressure - High High
   b. Automatic SIAS (Automatic actuation logic circuit excluded from surveillance Notes)

BWR/4 Plants (NUREG-1433) Instrumentation Functions Applicable to SCP Requirements

Table 3.3.1.1-1, "Reactor Protection System Instrumentation" Functions

1. Intermediate Range Monitors
   a. Neutron Flux - High
2. Average Power Range Monitors
   a. Neutron Flux - High, Setdown
b. Flow Biased Simulated Thermal Power - High
   c. Fixed Neutron Flux - High
   d. Downscale
3. Reactor Vessel Steam Dome Pressure - High
4. Reactor Vessel Water Level - Low, Level 3
6. Drywell Pressure - High
9. Turbine Control Valve Fast Closure, Trip Oil Pressure - Low

Table 3.3.2.1-1, "Control Rod Block Instrumentation" Functions

1. Rod Block Monitor
    a. Low Power Range - Upscale
    b. Intermediate Power Range - Upscale
    c. High Power Range - Upscale

Table 3.3.4.1-1, "EOC-RPT Instrumentation" Functions
1. Trip Units
3. Turbine Control Valve - Fast Closure, Trip Oil Pressure - Low

Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation" Functions
1. Core Spray System
    a. Reactor Vessel Water Level - Low Low Low, Level 1
    b. Drywell Pressure - High
2. Low Pressure Coolant Injection (LPCI) System
    a. Reactor Vessel Water Level - Low Low Low, Level 1
    b. Drywell Pressure - High
    g. Low Pressure Coolant Injection Pump Discharge Flow - Low Bypass (If valve locked open, Function can be removed from TS)
3. High Pressure Coolant Injection (HPCI) System
    a. Reactor Vessel Water Level - Low Low, Level 2
    b. Drywell Pressure – High
    c. Reactor Vessel Water Level - High, Level 8 (Optional to include surveillance Notes or not)
    d. Condensate Storage Tank Level – Low (If mechanical device, excluded from surveillance Notes)
    e. Suppression Pool Water Level – High (If mechanical device, excluded from surveillance Notes)
    f. High Pressure Coolant Injection Pump Discharge Flow - Low (Bypass) (If valve locked open, Function can be removed from TS)(If mechanical device, excluded from surveillance Notes)
4. Automatic Depressurization System (ADS) Trip System A
    a. Reactor Vessel Water Level - Low Low Low, Level 1
    b. Drywell Pressure - High
    d. Reactor Vessel Water Level - Low, Level 3 (Confirmatory)
5. ADS Trip System B
    a. Reactor Vessel Water Level - Low Low Low, Level 1
    b. Drywell Pressure - High
    d. Reactor Vessel Water Level - Low, Level 3 (Confirmatory)

Table 3.3.5.2-1, "Reactor Core Isolation Cooling System Instrumentation" Functions
1. Reactor Vessel Water Level - Low Low, Level 2
2. Reactor Vessel Water Level - High, Level 8 - (Optional to include surveillance Notes or not)
3. Condensate Storage Tank Level - Low (If mechanical device, excluded from surveillance Notes)
4. Suppression Pool Water Level - High (If mechanical device, excluded from surveillance Notes)

BWR/4 Plants (NUREG-1433) Instrumentation Functions Excluded from SCP Requirements

Table 3.3.1.1-1, "Reactor Protection System Instrumentation" Functions
1. Intermediate Range Monitors

b. Inop (Interlock excluded from surveillance Notes)
2. Average Power Range Monitors
e. Inop (Interlock excluded from surveillance Notes)
5. Main Steam Isolation Valve - Closure (Mechanical device excluded from surveillance Notes)
7. Scram Discharge Volume Water Level - High
a. Resistance Temperature Detector (Mechanical device excluded from surveillance Notes)
b. Float Switch (Mechanical device excluded from surveillance Notes)
8. Turbine Stop Valve - Closure (Mechanical device excluded from surveillance Notes)
10. Reactor Mode Switch - Shutdown Position (Manual actuation excluded from surveillance Notes)
11. Manual Scram (Manual actuation excluded from surveillance Notes)

Table 3.3.2.1-1, "Control Rod Block Instrumentation" Functions
1. Rod Block Monitor
d. Inop (Interlock excluded from surveillance Notes)
e. Downscale (Not part of RPS or ECCS excluded from surveillance Notes)
f. Bypass Time Delay (Permissive or interlock excluded from surveillance Notes if it derives input from a sensor or adjustable device that is tested as part of another TSs function.)
2. Rod Worth Minimizer (Not part of RPS or ECCS excluded from surveillance Notes)
3. Reactor Mode Switch - Shutdown Position (Manual actuation excluded from surveillance Notes)

Table 3.3.4.1-1, "EOC-RPT Instrumentation" Functions
2. Turbine Stop Valve - Closure (Mechanical component excluded from surveillance Notes)

Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation" Functions
1. Core Spray System
c. Reactor Steam Dome Pressure - Low (Injection Permissive) (Actuation logic excluded from surveillance Notes)
d. Core Spray Pump Discharge Flow - Low (Bypass) (Actuation logic excluded from surveillance Notes)
e. Manual Initiation - Manual (Manual actuation excluded from surveillance Notes)
2. Low Pressure Coolant Injection (LPCI) System
c. Reactor Steam Dome Pressure - Low (Injection Permissive) (Actuation logic excluded from surveillance Notes)
d. Reactor Steam Dome Pressure - Low (Recirculation Discharge Valve Permissive) (Actuation logic excluded from surveillance Notes)
e. Reactor Vessel Shroud Level - Level 0 (Actuation logic excluded from surveillance Notes)
f. Low Pressure Coolant Injection Pump Start - Time Delay Relay
Pumps A,B,D (Permissive or interlock excluded from surveillance Notes if it derives input from a sensor or adjustable device that is tested as part of another TSs function.)
Pump C (Permissive or interlock excluded from surveillance Notes if it derives input from a sensor or adjustable device that is tested as part of another TSs function.)
h. Manual Initiation (Manual actuation excluded from surveillance Notes)
3. High Pressure Coolant Injection (HPCI) System
g. Manual Initiation (Manual actuation excluded from surveillance Notes)
4. Automatic Depressurization System (ADS) Trip System A
c. Automatic Depressurization System Initiation Timer (Actuation logic excluded from surveillance Notes)
e. Core Spray Pump Discharge Pressure – High (Actuation logic excluded from surveillance Notes)

f. Low Pressure Coolant Injection Pump Discharge Pressure – High (Actuation logic excluded from surveillance Notes)
g. Automatic Depressurization System Low Water Level Actuation Timer (Actuation logic excluded from surveillance Notes)
h. Manual Initiation (Manual actuation excluded from surveillance Notes)

5. ADS Trip System B
c. Automatic Depressurization System Initiation Timer (Actuation logic excluded from surveillance Notes)
e. Core Spray Pump Discharge Pressure – High (Actuation logic excluded from surveillance Notes)
f. Low Pressure Coolant Injection Pump Discharge Pressure – High (Actuation logic excluded from surveillance Notes)
g. Automatic Depressurization System Low Water Level Actuation Timer (Actuation logic excluded from surveillance Notes)
h. Manual Initiation (Manual actuation excluded from surveillance Notes)

Table 3.3.5.2-1, "Reactor Core Isolation Cooling System Instrumentation" Functions
5. Manual Initiation (Manual actuation excluded from surveillance Notes)

BWR/6 Plants (NUREG-1434) Instrumentation Functions Applicable to SCP Requirements

Table 3.3.1.1-1, "Reactor Protection System Instrumentation" Functions
1. Intermediate Range Monitors
a. Neutron Flux – High
2. Average Power Range Monitors
a. Neutron Flux - High, Setdown
b. Flow Biased Simulated Thermal Power - High
c. Fixed Neutron Flux - High
3. Reactor Vessel Steam Dome Pressure - High
4. Reactor Vessel Water Level - Low, Level 3
5. Reactor Vessel Water Level - High, Level 8
7. Drywell Pressure - High
8. Scram Discharge Volume Water Level - High
a. Transmitter/Trip Unit
9. Turbine Stop Valve Closure, Trip Oil Pressure - Low
10. Turbine Control Valve Fast Closure, Trip Oil Pressure – Low (if mechanical device is used then exempt from surveillance Notes)

Table 3.3.2.1-1, "Control Rod Block Instrumentation" Functions
1. Rod Pattern Control System
a. Rod withdrawal limiter

Table 3.3.4.1-1, "EOC-RPT Instrumentation" Functions
1. Trip Units
2. Turbine Stop Valve Closure, Trip Oil Pressure – Low (if mechanical device is used then exempt from surveillance Notes)
3. Turbine Control Valve Fast Closure, Trip Oil Pressure - Low

Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation" Functions
1. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems

a. Reactor Vessel Water Level - Low Low Low, Level 1
b. Drywell Pressure – High

2. LPCI B and LPCI C Subsystems
a. Reactor Vessel Water Level - Low Low Low, Level 1
b. Drywell Pressure - High

3. High Pressure Core Spray (HPCS) System
a. Reactor Vessel Water Level - Low Low, Level 2
b. Drywell Pressure - High
c. Reactor Vessel Water Level - High, Level 8 (Optional to include surveillance Notes or not)
d. Condensate Storage Tank Level – Low (If mechanical device, excluded from surveillance Notes)
e. Suppression Pool Water Level – High (If mechanical device, excluded from surveillance Notes)
f. HPCS Pump Discharge Pressure - High (Bypass) (If mechanical device, excluded from surveillance Notes) (If valve locked open, Function can be removed from TS)
g. HPCS System Flow Rate - Low (Bypass) (If mechanical device, excluded from surveillance Notes) (If valve locked open, Function can be removed from TS)

4. Automatic Depressurization System (ADS) Trip System A
a. Reactor Vessel Water Level - Low Low Low, Level 1
b. Drywell Pressure - High
d. Reactor Vessel Water Level - Low, Level 3 (Confirmatory)

5. ADS Trip System B
a. Reactor Vessel Water Level - Low Low Low, Level 1
b. Drywell Pressure - High
d. Reactor Vessel Water Level - Low, Level 3 (Confirmatory)

Table 3.3.5.2-1, "Reactor Core Isolation Cooling System Instrumentation" Functions

1. Reactor Vessel Water Level - Low Low, Level 2
2. Reactor Vessel Water Level - High, Level 8 (Optional to include surveillance Notes or not)
3. Condensate Storage Tank Level - Low (If mechanical device, excluded from surveillance Notes)
4. Suppression Pool Water Level - High (If mechanical device, excluded from surveillance Notes)

Table 3.3.6.5-1, "Relief and Low-Low Set (LLS) Instrumentation" Functions

1. Trip Unit
2. Relief Function
a. Low
b. Medium
c. High
3. LLS Function
a. Low (open and close)
b. Medium (open and close)
c. High (open and close)

BWR/6 Plants (NUREG-1434) Instrumentation Functions Excluded From SCP Requirements

Table 3.3.1.1-1, "Reactor Protection System Instrumentation" Functions

1. Intermediate Range Monitors

b. Inop (Interlock excluded from surveillance Notes)
2. Average Power Range Monitors
d. Inop (Interlock excluded from surveillance Notes)
6. Main Steam Isolation Valve - Closure (Mechanical component excluded from surveillance Notes)
8. Scram Discharge Volume Water Level - High
b. Float Switch (Mechanical component excluded from surveillance Notes)
11. Reactor Mode Switch - Shutdown Position (Manual actuation excluded from surveillance Notes)
12. Manual Scram (Manual actuation excluded from surveillance Notes)

Table 3.3.2.1-1, "Control Rod Block Instrumentation" Functions
1. Rod Pattern Control System
b. Rod pattern controller (Not part of RPS or ECCS excluded from surveillance Notes)
2. Reactor Mode Switch - Shutdown Position (Manual actuation excluded from surveillance Notes)

Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation" Functions
1. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems
c. LPCI Pump A Start - Time Delay Relay (Permissive or interlock excluded from surveillance Notes if it derives input from a sensor or adjustable device that is tested as part of another TSs function.)
d. Reactor Steam Dome Pressure - Low (Injection Permissive) (Actuation logic excluded from surveillance Notes)
e. LPCS Pump Discharge Flow - Low (Bypass) (Actuation logic excluded from surveillance Notes)
f. LPCI Pump A Discharge Flow - Low (Bypass) (Actuation logic excluded from surveillance Notes)
g. Manual Initiation (Manual actuation excluded from surveillance Notes)
2. LPCI B and LPCI C Subsystems
c. LPCI Pump B Start - Time Delay Relay (Permissive or interlock excluded from surveillance Notes)
d. Reactor Steam Dome Pressure - Low (Injection Permissive) (Actuation logic excluded from surveillance Notes)
e. LPCI Pump B and LPCI Pump C Discharge Flow - Low (Bypass) (Actuation logic excluded from surveillance Notes)
f. Manual Initiation (Manual actuation excluded from surveillance Notes)
3. High Pressure Core Spray (HPCS) System
h. Manual Initiation (Manual actuation excluded from surveillance Notes)
4. Automatic Depressurization System (ADS) Trip System A
c. ADS Initiation Timer (Actuation logic excluded from surveillance Notes)
e. LPCS Pump Discharge Pressure – High (Actuation logic excluded from surveillance Notes)
f. LPCI Pump A Discharge Pressure – High (Actuation logic excluded from surveillance Notes)
g. ADS Bypass Timer (High Drywell Pressure) (Actuation logic excluded from surveillance Notes)
h. Manual Initiation (Manual actuation excluded from surveillance Notes)
5. ADS Trip System B
c. ADS Initiation Timer (Actuation logic excluded from surveillance Notes)

e. LPCI Pumps B & C Discharge Pressure – High (Actuation logic excluded from surveillance Notes)
f. ADS Bypass Timer (High Drywell Pressure) (Actuation logic excluded from surveillance Notes)
g. Manual Initiation (Manual actuation excluded from surveillance Notes)

Table 3.3.5.2-1, "Reactor Core Isolation Cooling System Instrumentation" Functions
5. Manual Initiation (Manual actuation excluded from surveillance Notes)

ATTACHMENT 3

[PLANT] SETPOINT METHODOLOGY

Attachment 3 provides the [PLANT] setpoint methodology(ies), for NRC staff review, that were used to establish instrument values of TSs 5.5.[18] Paragraph b for the Functions described in TSs 5.5.[18] Paragraph a.

{NOTE: To support NRC staff assessment of the acceptability of the Attachment 3, provide documentation (including sample calculations) of the methodology used for establishing the LTSP, NTSP, AV and the limiting acceptable values for the as-found and as-left tolerances as measured in periodic surveillance testing as described below. Indicate the related analytical limits and other limiting design values (and the sources of these values) for each setpoint.}

MODEL SAFETY EVALUATION FOR PLANT-SPECIFIC ADOPTION OF TSTF TRAVELER TSTF-493, REVISION 4, "CLARIFY APPLICATION OF SETPOINT METHODOLOGY FOR LSSS FUNCTIONS," OPTION B, ADDITION OF A SETPOINT CONTROL PROGRAM

1.0 INTRODUCTION

{REVIEWER'S NOTE: Throughout this safety evaluation (SE) the term "Limiting Trip Setpoint (LTSP)" refers to the calculated limiting setpoint setting based on vendor-specific setpoint methodologies for Babcock and Wilcox, Combustion Engineering, General Electric Boiling Water Reactor (BWR)/4 and BWR/6 plants, (corresponding to Standard Technical Specification (STS) NUREGs-1430, 1432, 1433, and 1434.) The term "Nominal Trip Setpoint (NTSP)" is the LTSP with margin added. This SE is written for plants using "LTSP." For Westinghouse plants (corresponding to STS NUREG-1431) the calculated limiting setpoint setting based on vendor-specific methodology is "Nominal Trip Setpoint (NTSP)." Using this convention, an SE for NUREG-1431 plants would replace "Limiting Trip Setpoint" or "LTSP" with "Nominal Trip Setpoint" or "NTSP" as appropriate and would replace "Nominal Trip Setpoint" or "NTSP" with "field setting." For plants using other terminology, the terms in this SE may be replaced with like terms consistent with the plant-specific setpoint methodology and conforming changes should be made to TSs and TSs Bases.}

By letter dated [DATE], [LICENSEE] (the licensee) proposed an amendment to the Technical Specifications (TSs) for [PLANT]. The proposed amendment would revise the TSs by relocating Allowable Values (AVs) [and Nominal Trip Setpoints (NTSPs)] from TSs Section 3.3, "Instrumentation," to the [insert the facility Final Safety Analysis (FSAR) reference or the name of any document incorporated into the facility FSAR by reference] and by adding Administrative Control TSs 5.5.[18], "Setpoint Control Program (SCP)." The licensee stated that the application is consistent with Option B of NRC-approved Revision 4 to TSTF-493. {REVIEWER'S NOTE: discuss any differences with TSTF-493, Revision 4.} The availability of this TSs improvement was announced in the *Federal Register* on [DATE] ([ ] FR [ ]). The licensee's new program requires them to use their NRC-approved methodology(ies) for calculating and verifying instrument setpoints. The new program provides a means for processing changes to instrumentation setpoints under Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.59, "Changes, tests, experiments." The new program also provides for licensee control of changes to relocated setpoint values listed in a licensee controlled document that is in [FSAR Section [16], "title"][name of any document that has been incorporated in the FSAR by reference].

The SCP will ensure that instrumentation will function as required to initiate protective systems or actuate mitigating systems at values equal to or more conservative that the point assumed in applicable safety analyses while providing the licensee with the flexibility to revise setpoints without requesting a license amendment. The SCP references the [PLANT] NRC-approved setpoint methodology(ies) and requirements to control instrumentation setpoints so that they will function as assumed in applicable safety analyses.

The proposed change will resolve operability determination issues associated with potentially non-conservative TS AVs[1] calculated using some methods in the industry standard

1 The instrument setting "Allowable Value" is a limiting value of an instrument's as-found trip setting used during surveillances. The AV is more conservative than the Analytical Limit (AL) to account for applicable

ISA-S67.04-1994 Part 2, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." The concern is that when these values are used to assess instrument channel performance during testing, non-conservative decisions about the equipment operability may result. In addition the proposed change will resolve operability determination issues related to relying on AVs associated with TSs Limiting Safety System Settings (LSSSs)[2] to ensure that TSs requirements, not plant procedures, will be used for assessing instrument channel operability.

The regulatory basis for the proposed TSs changes is described in Section 2.0 of this SE. The technical evaluation, including the approach used to assess the instrumentation methodology, is discussed in Section 3.0 of this SE.

2.0 REGULATORY EVALUATION

Plant protective systems are designed to initiate reactor trips (scrams) or other protective actions before selected unit parameters exceed ALs assumed in the safety analysis in order to prevent violation of the reactor core safety limits (SLs) and reactor coolant system (RCS) pressure SL from postulated anticipated operational occurrences (AOOs) and to assist the engineered safety features (ESF) systems in mitigating accidents. The reactor core SLs and RCS pressure SL ensure that the integrity of the reactor core and RCS is maintained. The design criteria for instrumentation used by this evaluation are:

The regulation at 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 13, Instrumentation and control, states:

> Instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. Appropriate controls shall be provided to maintain these variables and systems within prescribed operating ranges.

The regulation at 10 CFR Part 50, Appendix A, GDC 20, Protection system functions, states:

> The protection system shall be designed (1) to initiate automatically the operation of appropriate systems including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and (2) to sense accident conditions and to initiate the operation of systems and components important to safety.

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instrument measurement errors consistent with the plant-specific setpoint methodology. If during testing, the actual instrumentation setting is less conservative than the AV, the channel is declared inoperable and actions must be taken consistent with the TS requirements.

2 10 CFR 50.36(c)(1(II)(a) states: "Limiting safety system settings for nuclear reactors are settings for automatic protective devices related to those variables having significant safety functions."

The Commission's regulatory requirements related to the content of the TSs are contained in 10 CFR 50.36. The regulation at 10 CFR 50.36 requires applicants for nuclear power plant operating licenses to include TSs as part of the license. The regulation requires, in part, that the TSs include items in the following categories: (1) Safety limits, limiting safety systems settings, and limiting control settings; (2) Limiting conditions for operation; (3) Surveillance requirements; (4) Design features; and (5) Administrative controls. However, the regulation does not specify the particular requirements to be included in TSs.

Instrumentation required by the TSs has been designed to assure that the applicable safety analysis limits will not be exceeded during accidents and AOOs. This is achieved by specifying the LTSPs, including testing requirements to assure the necessary quality of systems, in terms of parameters directly monitored by the applicable instrumentation systems for LSSSs, as well as specifying limiting conditions for operation (LCOs) on other plant parameters and equipment in accordance with 10 CFR 50.36(c)(2).

- Section 50.36(c)(1)(i)(A) states in part:

  > Safety limits for nuclear reactors are limits upon important process variables that are found to be necessary to reasonably protect the integrity of certain of the physical barriers that guard against the uncontrolled release of radioactivity.

- Section 50.36(c)(1)(ii)(A) states in part:

  > Limiting safety system settings for nuclear reactors are settings for automatic protective devices related to those variables having significant safety functions. Where a limiting safety system setting is specified for a variable on which a safety limit has been placed, the setting must be so chosen that automatic protective action will correct the abnormal situation before a safety limit is exceeded. If, during operation, it is determined that the automatic safety system does not function as required, the licensee shall take appropriate action, which may include shutting down the reactor.

- Section 50.36(c)(2) states in part:

  > Limiting conditions for operation. Limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met.

- Section 50.36(c)(3) states in part:

  > 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.

- Section 50.36(c)(5), states in part:

> Administrative controls are the provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure the operation of the facility in a safe manner.

In addition to the regulatory requirements stated above, the NRC staff also considered the previously approved guidance in {REVIEWER'S NOTE: Choose the NUREG citation that pertains to the LAR: [NUREG–1430, Revision 3, ''Standard Technical Specifications, Babcock and Wilcox Plants,'' June 2004][NUREG–1431, Revision 3, ''Standard Technical Specifications, Westinghouse Plants,'' dated June 2004] [NUREG–1432, Revision 3, ''Standard Technical Specifications, Combustion Engineering Plants,'' dated June 2004][NUREG-1433, Revision 3, "Standard Technical Specifications, General Electric Plants, BWR/4," dated June 2004][NUREG-1434, Revision 3, "Standard Technical Specifications, General Electric Plants, BWR/6," dated June 2004]}, and Regulatory Guide (RG) 1.105, Revision 3, "Setpoints for Safety-Related Instrumentation," for determining the acceptability of revising instrumentation TSs requirements. RG 1.105, Revision 3, describes a method acceptable to the NRC staff for complying with the NRC's regulations for ensuring that setpoints for safety-related instrumentation are initially within and remain within the TSs limits. The RG endorses Part 1 of ISA-S67.04-1994, "Setpoints for Nuclear Safety-Related Instrumentation," subject to NRC staff clarifications. The ISA standard provides a basis for establishing setpoints for nuclear instrumentation for safety systems and addresses known contributing errors in the channel. Part 1 establishes a framework for ensuring that setpoints for nuclear safety-related instrumentation are established and maintained within specified limits.

3.0 TECHNICAL EVALUATION

{REVIEWER'S NOTE: The plant-specific SE discussion may deviate from this generic evaluation due to the plant-specific setpoint methodology and licensing basis.}

3.1 Background

3.1.1 Limiting Trip Setpoints

The licensee added the term "Limiting Trip Setpoint" as generic terminology for the setpoint value calculated by means of the [PLANT] NRC approved setpoint methodology documented SCP Paragraph b. {REVIEWER'S NOTE: Describe the terms used in the setpoint methodology and describe how the licensee applied these terms to calculate the LTSP, NTSP, AV, AFT and ALT values described in the [PLANT] NRC-approved setpoint methodology, SCP Paragraph b using appropriate NRC staff review guidance.}

3.2 SCP Requirements for Processing Setpoint Changes

The licensee proposed adding a program to the Administrative Controls section of the TSs consistent with Option B of TSTF-493, Revision 4. The approved Option B establishes the requirements necessary for ensuring that setpoints for automatic protective devices are initially within and remain within the TSs requirements through the addition of SCP. The licensee stated that its proposed new program is consistent with the program described in the approved TSTF-493, Revision 4. The SCP also provides a means for the licensee to process changes to instrumentation setpoints without prior NRC staff review and approval and identifies the licensee's NRC-approved setpoint methodology(ies) that may be used to make these changes.

In proposing new program requirements, the licensee is relocating instrument AVs [and NTSPs] values from TSs Section 3.3,"Instrumentation," to licensee controlled [PLANT]-SCP. Under 10 CFR 50.36 the instrument LCOs are still retained in TS by requiring the adherence to values referenced in the SCP, and by requiring surveillance requirements (SRs) to perform testing to verify the operability of the instruments in accordance with the SCP. The AV [and NTPS] values are relocated to licensee control; future changes to these values must be determined in accordance with the licensee's NRC-approved methodology(ies). The program is [described in the FSAR Chapter [16], "title"][name of a document that has been incorporated in the FSAR by reference]. Accordingly, changes to the program are controlled by 10 CFR 50.59. The reference setpoint methodology document will be listed in the TSs SCP. The licensee identified the following TSs as the specifications to which the SCP applies. {REVIEWER'S NOTE: List the licensee identified Section 3.3 TSs by TSs number and title.} TSs SRs which verify AVs or LTSPs are revised to state that the SRs must be performed in accordance with the SCP.

The current method of controlling instrument setpoints to assure conformance to 10 CFR 50.36 is to specify the value in the TSs. Relocating the TSs values to licensee controlled documents and requiring the values to be determined using the licensee's NRC-approved methodology and acceptance criteria assures conformance to 10 CFR 50.36. The controls on the relocated setpoints continue to ensure that the lowest functional capability or performance levels of instrumentation required for safe operation is met. This permits operation at any specific value determined by the licensee, using the licensee's NRC-approved methodology, to be within the acceptance criteria.

It is essential to plant safety that a plant is operated within the bounds of the parameter limits and that a requirement to maintain the plant within the appropriate bounds must be retained in the TSs. However, the specific values of these limits may be modified by the licensee, without affecting nuclear safety, provided that these changes are determined using the [PLANT] NRC-approved methodology and consistent with all applicable limits of the plant safety analysis that are addressed in the FSAR.

The NRC staff therefore finds that the scope of the SCP described in TS 5.5.[18] is sufficient to ensure instrument Functions necessary to assure safety functions will actuate at the point assumed in the applicable safety analysis will be periodically assessed. The NRC staff also finds that the process on which to base future changes to TSs required AVs and LTSP limits will ensure changes are made in accordance with 10 CFR 50.90.

3.3 TS 5.5.[18], Setpoint Control Program

3.3.1 Scope and Content of the SCP

The licensee described the plant-specific evaluation for the list of instrument Functions that are described in TS 5.5.[18] Paragraph a. The licensee's proposed SCP Paragraph a lists the TSs for Functions with setpoints controlled by the program. The NRC staff reviewed the licensee's list, and finds that the TSs listed in SCP Paragraph a are consistent with the Functions that are required to be controlled by the SCP approved methodology as identified in the approved TSTF-493, Revision 4.

The NRC staff finds that the Specifications listed in SCP Paragraph a are consistent with the Functions that will be controlled by the licensee's NRC-approved methodology for

establishing requirements on which to base future changes to TSs required AVs and LTSP limits, and is therefore acceptable.

The licensee SCP Paragraph b establishes program requirements to ensure LTSP, NTSP, AV, AFT, and ALT (as applicable) of the Functions described in SCP Paragraph a are calculated using the licensee's NRC-approved setpoint methodology. In addition, Paragraph b of the program contains a list of LTSP, NTSP, AV, AFT, and ALT (as applicable) values for the Functions of the TSs described in Paragraph a and identifies the setpoint methodology used to calculate these values.

SCP Paragraph c establishes program methods to ensure the instrument Functions with relocated setpoints will function as required by verifying the AFT and ALT are consistent with those established by the setpoint methodology. Evaluation of channel performance is described and will verify that the channel will continue to perform in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology. The assessment will establish an acceptable level of confidence in the channel performance prior to returning the channel to service. For channels determined to be operable but degraded, the licensee stated that after returning the channel to service channels will be evaluated under the plant Corrective Action Program (CAP). Entry into the CAP will ensure required review and documentation of the condition to establish a reasonable expectation for continued operability.

The licensee has demonstrated the calculation basis for the LTSP, NTSP, AV, AFT and ALT are consistent with the setting limits for the instrument Functions identified in SCP Paragraph d. The licensee has revised the affected TSs Surveillances [insert plant-specific SR list] and revised TSs Tables [insert plant-specific list] where these Functions are listed. Since the settings of these Functions are calculated based on the acceptable methodology, they are acceptable to the NRC staff. {REVIEWER'S NOTE: Insert a summary statement, detailing the extent of the NRC staff review, addressing any NRC staff request that resulted in modification of the application with a supplemental letter.}

In accordance with the SCP, the general requirement in Paragraph c for all the affected Functions is augmented with additional requirements in Paragraph d. In accordance with SCP Paragraph d the licensee identified the Functions of Specifications described in SCP Paragraph a that are automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A).

The surveillance test requirements for Paragraph d includes the exclusion criteria that are used to determine which Functions must receive the additional requirements in Paragraph d. The licensee identified instruments that would be excluded (i.e., meets TSTF-493, Revision 4 Attachment A Exclusion Criteria) because their functional purpose can be described as (1) a manual actuation circuit, (2) an automatic actuation logic circuit, or (3) an instrument function that derives input from contacts which have no associated sensor or adjustable device (i.e., limit switches, breaker position switches, etc.). Instrument Functions not meeting one or more of the exclusion criteria are identified in the SCP.

The licensee justified any deviations from the TSTF-493, Revision 4, list of Functions that are automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A) as required by SCP Paragraph d.

Since automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A) are consistent with the plant-specific license basis

and since performance based testing is applied to all current TSs Surveillances that evaluate such settings, including the AFT and ALT (as applicable) the requirement of SCP, Paragraph d are met.

SCP Paragraph e specifies that the program requirements of TS 5.5.[18] are implemented by the SCP which is incorporated in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference.] Changes to the values listed in the FSAR SCP [document incorporated by reference in the FSAR] are controlled by 10 CFR 50.59.

3.3.2 Evaluation

{REVIEWER'S NOTE: Use this paragraph if the demonstration is sufficient.} Based on the review of the licensee's application, the NRC staff concludes that the licensee setpoint calculations are consistent with Regulatory Guide (RG) 1.105, Revision 3, "Setpoints for Safety-Related Instrumentation," methodology for the proposed TS changes and are therefore acceptable. Additionally, the NRC staff concludes that by implementing plant procedures to meet the SCP program requirements, the determination of instrument function operability will be controlled by the requirements of TS 5.5.[18] during SR testing specified in the TSs. By meeting the requirements of Paragraph c, the licensee has also demonstrated that these instruments will perform their safety function. The NRC staff further concludes that by meeting the requirements of Paragraph d the proposed TSs changes meet the requirements of 10 CFR 50.36(c)(1)(ii)(A) and therefore, are acceptable.

4.0 CONCLUSIONS

{REVIEWER'S NOTE: Provide conclusion.}

5.0 STATE CONSULTATION

{REVIEWER'S NOTE: Provide State consultation paragraph.}

6.0 ENVIRONMENTAL CONSIDERATION

{REVIEWER'S NOTE: Provide environmental consideration.}

7.0 REFERENCES

{REVIEWER'S NOTE: Provide list of references.}