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

DRAFT

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 SPECIFICATION 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 Technical Specifications (TS) for [PLANT].

The proposed amendment would revise the TS by adding a new TS 5.5.[18], "Setpoint Control Program (SCP)." This 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 plant-specific setpoint methodology(ies). This change is consistent with Option B of NRC-approved Revision 4 to TSTF Improved Standard Technical Specification Change Traveler TSTF-493, "Clarify Application of Setpoint Methodology for LSSS [limiting safety system settings] Functions." The availability of this TS improvement was announced in the *Federal Register* on [Date] ([ ] FR [ ]).

Attachment 1 provides a description and assessment 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 evaluation for the list of instrument Functions that are described in SCP Paragraph a. Attachment 3 addresses the content and application of the plant-specific setpoint methodology required by the SCP Paragraph b. Attachment 3 includes the calculation basis for the [Limiting Trip Setpoint (LTSP), Nominal Trip Setpoint (NTPS)], [Nominal Trip Setpoint (NTSP), field setting], Allowable Value (AV), As-Found Tolerance band, and As-Left Tolerance band for each automatic protection instrumentation function. Attachment 3 also describes the program methods for ensuring the instrument variables that have a significant safety function required by SCP Paragraph d will function as required by verifying the As-Left Tolerance band and As-Found Tolerance band settings are consistent with those established by the setpoint

methodology. The discussion in Attachment 3 describes how the plant licensing basis meets the guidance provided in Regulatory Issue Summary (RIS) 2006-17, "NRC Staff Position on the Requirements of 10 CFR 50.36, 'Technical Specifications,' Regarding Limiting Safety System Settings During Periodic Testing and Calibration of Instrument Channels" and Regulatory Guide (RG) 1.105, Revision 3, "Setpoints for Safety-Related Instrumentation." Attachment 4 documents the plant-specific evaluation identifying the Functions required by SCP Paragraph d. Attachment 5 provides markup pages of existing TS and TS Bases to show the proposed change in accordance with TSTF-493, Revision 4, Option B. Attachment 6 provides revised (clean) TS pages and TS Bases as required by 10 CFR 50.36(a)(1).

{NOTE: For Option B applications that submit a setpoint methodology for NRC staff approval to meet the requirements of SCP Paragraph b, Attachments 5 and 6 can be submitted bracketing the required "letter, date and ADAMS accession number." The NRC staff will provide the license amendment "letter, date and ADAMS accession number" to be inserted into SCP Paragraph b before the amendment is issued.}

[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 the distribution requirements in 10 CFR 50.4.

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]

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ATTACHMENT 1

EVALUATION OF PROPOSED CHANGE

1.0 DESCRIPTION

The proposed amendment would revise the Technical Specifications (TS) by relocating [Allowable Values (AVs)] [Trip Setpoints (TSPs)] from Section 3.3, "Instrumentation," of the TS to a licensee-controlled Setpoint Control Program (SCP). In addition, additional Testing requirements are applied to the applicable instrument Functions listed in Attachment A to Technical Specifications Task Force (TSTF) Improved Standard Technical Specifications Change Traveler TSTF-493, Revision 4, "Clarify Application of Setpoint Methodology for LSSS [limiting safety system settings] Functions." Attachment A contains 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 SCP will ensure that instrumentation will function as required to initiate protective systems or actuate mitigating systems at the point assumed in applicable safety analyses while providing the licensee with the flexibility to revise setpoints without requesting a license amendment. The SCP contains the setpoint methodology and requirements to control instrumentation setpoints so that they will function as required by the licensee's Final Safety Analysis Report (FSAR).

This change is consistent with Option B of NRC-approved Revision 4 to TSTF-493. The availability of this TS 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 NUREGs-1430, 1432, 1433, and 1434 plants. This model application is written for plants using "LTSP." For NUREG-1431 plants, the calculated limiting setpoint setting based on vendor-specific methodology is defined as the "Nominal Trip Setpoint (NTSP)." Using this convention, an application for NUREG-1431 plants would replace "LTSP" with "NTSP" and would replace "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 TS Bases.}

[LICENSEE] has reviewed the two separate options in TSTF-493, Revision 4 for TS changes. Based on this review, [LICENSEE] proposes to add Option B TS for an SCP 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] and justify this amendment for the incorporation of the changes to the [PLANT] TS.

[LICENSEE] is [not] proposing variations or deviations from the TS changes described in TSTF-493, Revision 4, or the NRC staff's model SE referenced in the Notice of Availability. [Discuss any differences with Option B of TSTF-493, Revision 4, and provide justification for

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these differences. {NOTE: A licensee may propose to apply the 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 SCP.} 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, TS numbering and titles are not considered to be differences with TSTF-493 or the NRC staff's model SE.]

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

[LICENSEE] has prepared the technical analyses 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" is added as generic terminology for the setpoint value calculated by means of the plant-specific setpoint methodology documented in the 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 LSSS which under 10 CFR 50.36 must be in the TSs.

The [LTSP] is more conservative than the AV and is the nominal value to which the instrument channel is adjusted to actuate. The [LTSP] is the limiting setting for the 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 (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, the [LTSP] is considered a nominal value and the instrument adjustment is considered successful if the as-left instrument setting is within the setting tolerance (i.e., a range of values around the [LTSP]). The [NTSP] is the [LTSP] with margin added. The [NTSP] is always equal to or more conservative than the [LTSP].

4.2 Setpoint Control Program

TS 5.5.[18], "Setpoint Control Program" is added to the [PLANT] Administrative Controls TSs. The new program establishes the requirements for ensuring that setpoints for automatic protective devices are initially within and remain within the TS requirements. The SCP also provides a means for processing changes to instrumentation setpoints without prior NRC review and approval using the NRC-approved setpoint methodology(ies) identified in the SCP. This program applies to instrument Functions for the Specifications listed in Attachment 2, "Identification of Functions to be Included in TS 5.5.[18], "Setpoint Control Program" for Application of Option B of TSTF-493, Revision 4." For Functions in the program, TS

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Surveillances Requirements (SRs) which verify AVs or TSPs are revised to state that the SRs must be performed in accordance with the SCP.

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

SCP Paragraph b establishes program requirements to ensure Nominal Trip Setpoint (NTSP), AV, As-Found Tolerance (AFT) band, and ALT band (as applicable) of the Functions described in SCP Paragraph a are calculated using the NRC-approved setpoint methodology. The methodology used to determine the AFT and ALT is identified in SCP Paragraph b. In addition, the SCP contains a list of 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. The reference NRC-approved setpoint methodology(ies) is also identified.

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 As-Found setting tolerance 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 is two-sided, changes in channel performance that are conservative with respect to the tolerance 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, 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, and Rd). {NOTE: discuss the different methods for calculating the AFT, including the inclusion of additional uncertainties (e.g., normal radiation effect, temperature effect between calibrations, capillary tubing error) depending 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 minus [LTSP/NTSP] methodology, the ALT must be less than or equal to the SRSS combination of the RA, M&TE, and Rd.]

SCP Paragraph c establishes program methods to ensure the instrument Functions with setpoints in the SCP will function as required by verifying the As-Left and As-Found settings are consistent with those established by the setpoint methodology. Evaluation of channel performance will verify that the channel will continue to behave 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,

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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.

The general requirement in Paragraph c of the SCP for all the affected Functions is augmented with additional requirements in Paragraph d of the SCP. SCP Paragraph d identifies the Functions of the 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 LTSP of these Functions are LSSSs. These Functions are demonstrated to be functioning as required 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 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 NTSP at the completion of the surveillance test; otherwise, the channel is inoperable (setpoints may be more conservative than the NTSP provided that the AFT and ALT apply to the actual setpoint used to confirm channel performance).

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 described in Paragraph d. The LTSP of these Functions are required to be designated as LSSSs. These Functions are demonstrated to be functioning as required by applying As-Found and As-Left assessments described in Paragraph d during CHANNEL CALIBRATIONS, trip unit calibrations and CHANNEL FUNCTIONAL TESTS that verify the [LTSP/NTSP].

SCP Paragraph e specifies that changes to the program will be made in accordance with the requirements of 10 CFR 50.59 and revisions or supplements to the program will be provided upon issuance to the NRC.

4.3 Evaluation of Exclusion Criterion

Exclusion criteria that are used to determine which Functions do not need to receive the additional requirements in Paragraph d. Instruments are excluded from the additional

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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 TS 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 exclusions described below apply.

1. In accordance with the exclusion criteria, the SCP Paragraph d surveillance tests are not applied to Functions which utilize manual actuation circuits, automatic actuation logic circuits, or derive their input from contacts which are determined by analysis to have no associated sensor or adjustable device (e.g, limit switches, breaker position switches, manual actuation switches, float switches, proximity detectors). Permissives and interlocks that derive input from a sensor or adjustable device that is tested as part of another TS function are also excluded.

The SCP Paragraph d surveillance tests are not applied to Functions which utilize mechanical components to sense the trip setpoint, or to manual initiation circuits because current functional SRs, which have no setpoint verifications, adequately demonstrate the operability of these Functions. Comparison of periodic SR results to provide an indication of channel (or individual device) performance is not valid for most mechanical components. While it is possible to verify that a limit switch functions at a point of travel, a change in the surveillance result probably indicates that the switch has moved, not that the input/output relationship has changed. Therefore, a comparison of SR results would not provide an indication of the channel or component performance.

2. The SCP Paragraph d surveillance tests are also not applied to TSs associated with mechanically operated safety relief valves. The performance of these components is already controlled (i.e., trended with ALT and AFT) under the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants testing program.

3. The SCP Paragraph d surveillance tests are not normally applied to Functions and SRs, which test only digital components. For purely digital components, such as actuation logic circuits, relays, and any other tests using a digital or on/off input, there is no expected change in result between SRs and any test result other than the identified TS surveillance acceptance criteria would be considered inoperable. Where separate ALT and AFT is established for digital component SRs, the requirements would apply.

4.4 Setpoint Methodology

[PLANT] setpoint calculations calculate a LTSP based on the AL of the Safety Analysis to ensure that trips or protective actions will occur prior to exceeding the process parameter value assumed by the Safety Analysis calculations. These setpoint calculations also calculate a limit of expected change (i.e., the AFT) between performance of the surveillance tests for assessing the value of the setpoint setting. The least conservative As-Found instrument setting 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. TSs [{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-

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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 setpoint is non-conservative with respect to the AV, the channel is inoperable and the actions identified in the TSs must be taken.

The [PLANT] [proposed] setpoint methodology includes the content and application requirements of the 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. {NOTE: include in the application a description of the method the program will establish to ensure that Functions described in SCP Paragraph a (i.e., Functions not described as LSSSs in accordance with SCP Paragraph d) will function as required by verifying the As-Left and As-Found settings are consistent with those established by the setpoint methodology.}

{NOTE: discuss how the proposed plant licensing basis meets the guidance provided in Regulatory Issue Summary (RIS) 2006-17 and Regulatory Guide (RG) 1.105, Revision 3. Describe the measures to be taken to ensure that the instrument channels are capable of performing their safety function(s) in accordance with applicable design requirements and associated analyses. Provide information on the controls employed to ensure that the As-Left trip setting after completion of periodic surveillance is consistent with the setpoint methodology.}

The [PLANT] corrective action processes (including plant procedures) detail the plant-specific requirements for restoring channels to operable status. {NOTE: describe how the controls established by plant procedures would ensure that corrective actions will be implemented.}

{NOTE: demonstrate that the calculation basis for the LTSP, NTSP, AV, AFT band and ALT band are consistent with the revised setting limits for the instrument functions identified in TS 5.5.[18] Paragraph a.} These calculations meet the guidance provided in RIS 2006-17 and RG 1.105, Revision 3. The [LICENSEE] has revised the affected TS Surveillances [insert plant-specific SR list] and TS Tables [insert plant-specific list] where these setting are listed.

4.5 Limiting Settings of Safety Systems

{NOTE: provide documentation of the plant-specific evaluation for identifying the 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. In this evaluation explain the basis for this determination, including the consideration of the three exclusion criterion listed of Paragraph d. Be sure the evaluation also establishes the list of TS SRs, which are applicable to the performance testing criterion of Paragraph d. Also identify all deviations from the list provided in TSTF-493, Revision 4, and explain the basis for these deviations.}

{NOTE: In accordance with the SCP, for Functions which are not evaluated under the scope of Paragraph d, but are included in Paragraph a, explain how the requirements of Paragraph c will be met. This ensures that instruments meeting the requirements SCP Paragraph c will perform their safety function as required by 10 CFR 50.36(c)(1)(ii)(A).}

5.0 REGULATORY SAFETY ANALYSIS

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5.1 NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

[LICENSEE] has evaluated the proposed changes to the TS 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 setpoint that are changing, and (2) the methodology used to calculate future changes to the setpoints and that future changes to the setpoints are controlled under a TS 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 NRC-approved methodologies and under TS 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 behave 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 Allowable Values (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 As-Left Tolerance requirements of the calibration procedures will not have an adverse effect on equipment operability. The proposed

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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 a TS 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 TS 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 TS 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}

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ATTACHMENT 2

IDENTIFICATION OF FUNCTIONS TO BE INCLUDED IN TS 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 TSTF-493 Option B TS changes must identify their plant-specific TS instrument Functions from the list in the applicable Standard Technical Specifications (STS) Instrumentation Tables provided below that will have setpoint values applied to the 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 Table assessments based on the plant-specific design and analysis. Licensees must submit the analysis for NRC staff review and approval. In particular, licensee analyses must include plant-specific information explaining the plant-unique design feature(s) that require such deviations and must verify 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.}

The following Tables identify instrumentation Functions, by TS Table, for which SCP requirements apply and for those instrumentation Functions which are excluded from the requirements of the SCP.

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)

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No TS instrumentation Functions were excluded from assessing the As-Found and As-Left Tolerances during TS testing.

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

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(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

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 TS 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

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(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 TS function.)

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

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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

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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

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)

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

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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)

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)

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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 TS 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 TS 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 TS 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

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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)

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

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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)

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)

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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 TS 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)

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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)

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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 NUREGs-1430, 1432, 1433, and 1434 plants. This SE is written for plants using "LTSP." For NUREG-1431 plants 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 "LTSP" with "NTSP" and would replace "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 TS Bases.}

By letter dated [DATE], [LICENSEE] (the licensee) proposed changes to the Technical Specifications (TS) for [PLANT]. The proposed amendment would revise the TS by relocating [Allowable Values (AVs)] [Trip Setpoints (TSPs)] from Section 3.3, "Instrumentation," of the TS to a licensee-controlled Setpoint Control Program (SCP). In addition, additional Testing requirements are applied to the applicable instrument Functions listed in Attachment A to Technical Specifications Task Force (TSTF) Improved Standard Technical Specifications Change Traveler TSTF-493, Revision 4, "Clarify Application of Setpoint Methodology for LSSS [limiting safety system settings] Functions." Attachment A contains 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 licensee stated that the application is consistent with Option B of NRC-approved Revision 4 to TSTF-493. [Discuss any differences with TSTF-493, Revision 4.] The availability of this TS improvement was announced in the *Federal Register* on [Date] ([ ] FR [ ]).

The SCP will ensure that instrumentation will function as required to initiate protective systems or actuate mitigating systems at the point assumed in applicable safety analyses while providing the licensee with the flexibility to revise setpoints without requesting a license amendment. The SCP contains the setpoint methodology and requirements to control instrumentation setpoints so that they will function as required by the licensee's Final Safety Analysis Report (FSAR).

The proposed change will assure that (1) TSs AVs[1] calculated using NRC-approved

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 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

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methods in the industry standard ISA-S67.04-1994 Part II, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation," will be limiting settings for assessing instrument channel operability, and (2) will be conservatively determined so that evaluation of instrument performance history and the As-Left Tolerance (ALT) band requirements of the calibration procedures and other testing that checks trip setpoint setting values will not have an adverse effect on equipment operability. In addition, the proposed change will ensure that TSs requirements, not plant procedures (when AVs are used as the LSSS[2]) will be used for assessing instrument channel operability and ensuring that instruments will always actuate safety functions at the point assumed in the applicable safety analysis.

The proposed change would revise the [PLANT] TSs consistent with the NRC-approved TSTF-493, Revision 4, to be consistent with Option B. Under Option B, a SCP is added to the Administrative Controls section of the TSs. The new program, entitled the Setpoint Control Program (SCP or the program), requires the licensee to use an NRC-approved methodology(ies) for calculating and verifying instrument setpoints. The SCP also provides a means for processing changes to instrumentation setpoints under 10 CFR Section 50.59. Option B allows the relocation of the instrument setpoint values from the TSs to licensee control by including setpoint values in a licensee controlled document that is in the FSAR or in a document that has been incorporated by reference in the FSAR.

The regulatory basis for the proposed TS 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 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.

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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."

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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.

The Commission's regulatory requirements related to the content of the TS are contained in 10 CFR 50.36. The regulation at 10 CFR 50.36 requires applicants for nuclear power plant operating licenses to include TS as part of the license. The regulation requires, in part, that the TS 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)(1)(ii)(A).

- 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)(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,

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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 TS 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 TS limits. The RG endorses Part I 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 I 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-specific setpoint methodology documented in [the FSAR][insert the name of a document incorporated by reference into the FSAR.]

The trip setpoint may be more conservative than the LTSP. For the purposes of TS equipment Operability establish by 10 CFR 50.36, the plant-specific value for the LSSS is in the SCP.

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 TS requirements through the addition of TS 5.5.[18], "Setpoint Control Program." 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 review and approval and identifies the NRC-approved setpoint methodology(ies) that may be used to make these changes.

In proposing new program requirements the licensee is relocating control of changes to instrument AVs [and nominal trip setpoints (NTSPs)] from TS Section 3.3,"Instrumentation," to licensee controlled SCP. This is allowed by 10 CFR 50.36 because the instrument LCOs are still retained in TS, and the surveillance requirements (SRs) to verify the operability of the instruments are also retained in TS. Only the acceptance criteria are relocated to licensee control, and the acceptance criteria must be determined in accordance with the NRC-approved

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methodology(ies). The program is [described in the FSAR][in a document that has been incorporated by reference in the FSAR]. Accordingly, changes to the program are controlled by 10 CFR 50.59, "Changes, tests, experiments." The reference setpoint methodology document will be listed in the SCP. The licensee identified the following TS as the specifications to which the SCP applies. {REVIEWER'S NOTE: List the licensee identified Section 3.3 TSs by TS number and title.} TS SRs which verify AVs or TSPs 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 TS values to licensee controlled documents and requiring the values to be determined using an 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 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 TS. However, the specific values of these limits may be modified by licensees, without affecting nuclear safety, provided that these changes are determined using an NRC-approved methodology and consistent with all applicable limits of the plant safety analysis that are addressed in the FSAR.

The NRC staff finds that the process on which to base future changes to TSs required AVs and LTSP limits will be made is similar to the precedent established in Generic Letter (GL) 88-16, "Removal of Cycle-Specific Parameter Limits from Technical Specifications," (ADAMS Accession No. ML031130447). The NRC staff therefore finds that the scope of the program described in TS 5.5.[18] is sufficient to ensure instrument Functions necessary to assure safety functions will always actuate at the point assumed in the applicable safety analysis will be periodically assessed.

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 SCP 5.5.[18] Paragraph a. The licensee's proposed SCP Paragraph a lists the Specifications for Functions with setpoints controlled by the program. The NRC staff reviewed the licensee's list, and finds that the Specifications 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 SCP-approved methodology for establishing requirement 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 Nominal Trip Setpoint (NTSP), AV, AFT band, and As-Left Tolerance (ALT) band (as applicable) of the

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Functions described in SCP Paragraph a are calculated using the NRC-approved setpoint methodology. In addition, Paragraph b of the program contains a list of 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.

SCP Paragraph c establishes program methods to ensure the instrument Functions with relocated setpoints will function as required by verifying the As-Left and As-Found settings are consistent with those established by the setpoint methodology. Evaluation of channel performance is described and will verify that the channel will continue to behave 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 SCP met the content and application requirements of the SCP Paragraphs b and c. The application discussed how the plant licensing basis meets the guidance provided in RIS 2006-17 and RG 1.105, Revision 3. The licensee described the measures to be taken to ensure that instrument channels will be capable of performing their safety function(s) in accordance with applicable design requirements and associated analyses. Information was provided on the controls employed to ensure that the As-Left trip setting after completion of periodic surveillance is consistent with the setpoint methodology. The plant corrective action processes (including plant procedures) detailed the plant-specific requirements for restoring channels to operable status. The licensee also described how the controls established by plant procedures would ensure that corrective actions will be implemented.

The licensee has demonstrated the calculation basis for the LTSP, NTSP, AV, AFT band and ALT band are consistent with the setting limits for the instrument functions identified in SCP Paragraph d. These calculations meet the guidance provided in RIS 2006-17 and RG 1.105, Revision 3. Based on this the NRC staff concludes that the licensee setpoint methodology is acceptable. The licensee has revised the affected TS Surveillances [insert plant-specific SR list] and TS Tables [insert plant-specific list] where these settings are listed. Since these settings 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.]

The licensee stated that the general requirement in Paragraph c. of the SCP for all the affected Functions is augmented with additional requirements in Paragraph d of the SCP. 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 licensee stated that the LTSP of these Functions are LSSSs and these Functions are demonstrated to be functioning as required 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

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verification)] that verify the LTSP. Specifically:

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 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 NTSP at the completion of the surveillance test; otherwise, the channel is inoperable (setpoints may be more conservative than the NTSP provided that the AFT and ALT apply to the actual setpoint used to confirm channel performance).

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.). The licensee noted that many permissives or interlocks are excluded if they derive input from a sensor or adjustable device that is tested as part of another TS function. Instrument Functions not meeting one or more of the exclusion criteria are identified in the [PLANT] SCP.

The licensee provided documentation of the plant-specific evaluation for identifying the 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. The evaluation explained the basis for this determination, including the consideration of the three exclusion criterion listed in TSTF-493, Revision 4, SCP Paragraph d. The evaluation also established the list of TS SRs, which are applicable to the performance testing criterion of Paragraph d. [The licensee has also identified all deviations from the list provided in TSTF-493, Revision 4, and has explained the basis for these deviations.]

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 TS Surveillances that evaluate setpoint settings, including the AFT band and ALT band (as applicable) the requirement of SCP, Paragraph d are met. The NRC staff finds this acceptable and the requirements of TS 5.5.[18] are consistent with TSTF-493, Revision 4, Attachment A.

In accordance with the SCP for Functions which are not evaluated under the scope of Paragraph d, but are included in Paragraph a, the licensee has explained how the requirements of Paragraph c will be met. This ensures that instruments meeting the requirements of

Paragraph c. of the SCP will perform their safety function as required by 10 CFR 50.36(c)(1)(ii)(A).

SCP Paragraph e specifies that changes to the program will be made in accordance with the requirements of 10 CFR 50.59 and revisions or supplements to the program will be provided upon issuance to the NRC. The licensee adoption of requirements to identify program revisions or supplements is acceptable to the NRC staff.

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 representative of the instrument setpoint methodology for the proposed TS changes and are therefore acceptable. Additionally, the NRC staff concludes that by meeting the SCP described in TS 5.5.[18], Paragraph d, instrument function operability will be controlled in the TS rather than procedures. 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 the proposed TS 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.}

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