

November 4, 2008

Technical Specifications Task Force (TSTF)
11921 Rockville Pike
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SUBJECT: EVALUATION OF TSTF RESPONSES TO NRC STAFF REQUEST FOR
ADDITIONAL INFORMATION (RAI) REGARDING TRAVELER TSTF-493,
REVISION 2, "CLARIFY APPLICATION OF SETPOINT METHODOLOGY FOR
LSSS FUNCTIONS"

DOCKET NO: PROJ0753; TAC MD5249

REFERENCE: Letter from the Technical Specifications Task Force to the NRC, "Response to
NRC July 25, 2007 Request for Additional Information Regarding TSTF-493,
Revision 2, "Clarify Application of Setpoint Methodology for LSSS Functions,"
dated January 18, 2008.

Dear Members of the TSTF:

The contents of the evaluation provided by this letter have been reviewed by and coordinated with the appropriate authorities within the Office of Nuclear Reactor Regulation. In the reference letter you replied to the NRC staff letter dated June 25, 2007 (Agencywide Document and Management Systems (ADAMS) Accession Number ML072050146), which requested information about issues that need to be resolved in order for TSTF-493, Revision 2 to be approved and made available as a consolidated line item improvement (CLIIP) TSTF traveler. TSTF-493 is intended to provide licensees with a readily adoptable approach to ensure that plant technical specifications (TSs) conform to the requirements of 10 CFR 50.36. This letter documents the staff evaluation of the RAI responses (see enclosure) and identifies the review information the staff needs to process requests to approve the TSTF-493, Revision 3 for plant-specific license applications. The review information was discussed during the September 30, 2008, public meeting between the NRC staff and the TSTF.

In its RAI letter the NRC staff requested the TSTF Owners Group submit screening criteria used to identify instrument functions determined to be Safety Limit (SL) Limiting Safety System Settings (LSSSs). This request was made in order to account for the significant differences in the numbers and scope of SL-LSSSs instrument functions identified in the different vendor TS contained in TSTF-493, Revision 2. Furthermore, it was thought this information would help to reconcile each vendor SL-LSSSs TS position with the NRC staff position in Regulatory Issue Summary 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" dated August 24, 2006. The RAI letter also requested information regarding the agreement criteria for non-SL LSSSs setpoint verification testing to ensure it would be addressed in the TSTF. The RAI suggested using agreement criteria modeled after the agreement concepts in the Nuclear Energy Institute (NEI) letter to Mr. James Lyons (NRC) from Alexander Marion (NEI) dated May 18, 2005. The above items address the

most significant requests for information. Other items in the letter involved changes to Bases discussion on SL-LSSSs and changes to Reviewers notes regarding surveillance testing agreement criteria for digital components. Bases editorial changes and TSTF technical justification editorial changes were also identified.

The September 30, 2008 public meeting between the NRC staff and the TSTF was held to establish a common technical solution to the scope of content issue for SL versus non-SL LSSSs instrument functions in TSTF-493, Revision 3. At the meeting the NRC staff emphasized two important concerns addressed by the RAIs.

First, to satisfy the requirement of 10 CFR 50.36(c)(1)(ii)(A), the staff guidance for the subset of variables TSTF-493 should designate as SL-LSSSs includes automatic protective devices in TSs for specified variables on which SLs have been placed that: (1) initiate a reactor trip; or (2) actuate safety systems to reasonably protect the integrity of physical barriers that guard against the uncontrolled release of radioactivity.

LCOs that contain SL-LSSSs should include the Reactor Trip System (Reactor Protection System for BWRs), Engineered Safety Feature Actuation System (Emergency Core Cooling System for BWRs) instrumentation and there may be some instrument system functions in other LCOs identified by the BWROG as being SL-LSSSs. Manual actuations, interlocks, permissives and automatic actuation logic circuits are not SL-LSSSs. The instrumentation for these LCOs will ensure acceptable fuel design limits are not exceeded, and reactor coolant pressure boundary limits have sufficient margin to ensure design conditions are not exceeded during design basis events. TS Notes for each SL-LSSSs instrument function should be included to ensure testing agreement criteria are contained in TS to verify the instruments are functioning as required and to establish TS operability criteria for the requirements of 10 CFR 50.36. This position is consistent with RIS 2006-17.

Second, for each instrument function not labeled as a SL-LSSS, the TS Bases should address the agreement concepts for testing (similar to the Notes 1 & 2 for SL-LSSS (ADAMS Accession Number ML052500004) to ensure instruments are functioning as required in accordance with safety analyses of record. This would resolve any concern with staff RAIs to request this information during individual plant-specific license amendment reviews.

The NRC staff believes that if TSTF-493, Revision 3 is revised to include the scope of the SL related LSSS discussed above, and TSTF-493, Revision 3 is revised to include the operability requirement for non-SL related LSSS in the Bases for the remainder of STS instrument functions, then any licensee can adopt the updated TSTF-493 with only one condition which is stated below. This condition is plant-specific and licensees will be required to address it in their submittal. The condition is as follows:

“Setpoint Calculation Methodology: Provide documentation, including sample calculations, of the methodology used for establishing the limiting setpoint (or nominal setpoint) and the limiting acceptable values for the As-Found and As-Left setpoints as measured in periodic surveillance testing. Indicate the related Analytical Limits/design limits and other limiting design values (and the sources of these values) for each setpoint.”

For licensees who adopt TSTF-493, future license amendment requests to revise setpoints would only require the licensee to address the above setpoint methodology requirement. The licensee will not be required to justify whether setpoints are SL-LSSS or not.

If you have any questions related to this issue or action please contact Carl Schulten at (301) 415-1192 or e-mail carl.schulten@nrc.gov or Hukam Garg at (301) 415-2929 or e-mail hukam.garg@nrc.gov.

Sincerely,

/RA/

Robert B. Elliott, Chief
Technical Specifications Branch
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

cc: See next page

Enclosure:
As stated

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Enclosure:
 As stated

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Evaluation of TSTF-493, Revision 2 RAI Responses

Request for Additional Information

1. Identify the screening criteria used by the TSTF for deciding whether a BWR Technical Specifications (TS) Instrumentation Function is a Safety Limit related (SL-related) or non-Safety Limit (non-SL) related Limiting Safety System Settings (LSSS). For example, BWR/4 and BWR/6 instrument functions for Drywell Pressure High, Suppression Pool Water Level High and Reactor Vessel Water Level –Low Low Low are not denoted as SL-related LSSS and no justification is included in the TSTF for this determination.

Response: [summarized]

Based on these safety limits, a systematic process was developed to identify limiting safety system settings which are consistent with the objective of protecting one or more of the four safety limits. A key element of this systematic process is that only those instrument settings that protect the four safety limits (based on safety analysis for each specific BWR) are considered.

To determine a set of LSSSs, it was necessary to employ a consistent set of criteria that applied to the current BWR safety analysis, and considering only parameters in the improved Standard Technical Specification Tables in Section 3.3 and 3.4.

The results of applying this systematic process resulted in the list of potential SL-LSSSs identified in TSTF-493 for a limiting BWR/4 and BWR/6. This is the "limiting" list of functions because all BWRs may not have all the SL-LSSS functions identified in the TSTF due to plant specific analysis revisions or licensing basis changes.

The PWROG determined that it was not possible to generically limit the list of potential SL-LSSS functions identified in TSTF-493 other than to exclude permissives and interlocks. For the PWR plants, all possible SL-LSSS were identified in the TSTF-493 markups, and each plant specific submittal will identify whether the generic SL-LSSS apply and remove any of those identified in TSTF-493 that are not consistent with the plant specific safety analysis. The addition of a reviewers Note requiring identification of functions that are not a SL-LSSS as follows: "Where a function does not directly protect a Safety Limit," add the following statement in the function discussion below. "The setpoint for this function does not provide an automatic trip setpoint that protects against violating the Reactor Core Safety Limit or Reactor Coolant System Pressure Safety Limit during AOOs. This LSSS is not a SL-LSSS."

Disposition:

First, to satisfy the requirement of 10 CFR 50.36, TSTF-493 should designate each reactor trip and engineered safety feature automatic protective device instrument function as a SL-LSSS except for manual actuations, interlocks, permissives and automatic actuation logic circuits. TS Notes for each SL-LSSSs instrument function should be included to ensure testing agreement criteria are contained in TS which verify the instruments are functioning as required. Implicit in this position is that the instrument functions in these LCOs preserve the integrity of the fuel cladding and the Reactor Coolant System (RCS) because they are equipment that meet the

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LCO requirements of 10 CFR 50.36(c)(2)(ii) Criterion 3: "A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

2. For each instrument function not labeled as a SL-LSSS, revise the Bases for the instrument function to include the justification for the determination. For setpoint verification surveillance tests conducted on these functions, also revise these surveillance test Bases to include performance-based acceptance criteria (similar to the Notes 1 & 2 for SL-LSSS) to ensure the agreement concepts for TS non-SL LSSS safety-related instrument setpoints and allowable values are addressed. The agreement concepts referred to are those in the Nuclear Energy Institute (NEI) letter to Mr. James Lyons (NRC) from Alexander Marion (NEI) dated May 18, 2005 and the NRC letter response to Mr. Alexander Marion (NEI) from Mr. Bruce Boger, dated August 23, 2005.

Response:

A Reviewer's Note will be added which requires the identification of functions that are not a SL-LSSS. The Reviewer's Note will state: "Where a function does not directly protect a Safety Limit add the following statement, in the function discussion below. The setpoint for this function does not provide an automatic trip setpoint that protects against violating the Reactor Core Safety Limit or Reactor Coolant System Pressure Safety Limit during AOOs. This LSSS is not a SL-LSSS." Each plant currently has a program that verifies Technical Specification channels are functioning as required. The addition of the Notes in this TSTF makes this verification a Technical Specification requirement for a selected set of functions (SL-LSSSs). For all other LSSS functions in the Technical Specifications, the existing programs are consistent with the safety significance of the functions. Therefore, no changes are made to the Bases to document the verifications for functions that are not SL-LSSS.

Disposition:

By designating reactor trip and engineered safety feature automatic protective device instrument function as a SL-LSSS except for manual actuations, interlocks, permissives and automatic actuation logic circuits the need for the Reviewers Note is moot. All other instrument functions are non-SL LSSSs, therefore the TS Bases should identify the location of the requirements for the setpoint verification surveillance tests conducted on these functions including a discussion of the performance-based acceptance criteria (similar to the Notes 1 & 2 for SL-LSSS) used to ensure the agreement concepts for TS non-SL LSSS safety-related instrument setpoints and allowable values are addressed.

3. Correct the TSTF definition of SL-LSSS by deleting the word "directly" to be consistent with the requirements of 10 CFR 50.36 which specify SL-LSSS as variables "on which a SL has been placed." The TSTF definition must be consistent with regulatory requirements. The TSTF justification states that Notes 1 and 2 are applied to Functions which are Safety Limit Limiting Safety System Settings (SL-LSSS), considering the following definition of SL-LSSS: "Trip Setpoints for Functions which provide automatic trips that **"directly"** (emphasis added) protect against violating the Reactor core and the Reactor Coolant System (RCS) pressure boundary Safety Limits during anticipated

operational occurrences (AOOs) are Safety Limit Limiting Safety System Settings (SL-LSSS).”

Response:

The term “directly” is important to the SL-LSSS definition. There may be several different settings, permissives, or Limiting Conditions for Operation that contribute to the protection of the Safety Limit but are not part of the direct success path for accident mitigation and protection of a Safety Limit. Some of these functions may provide alternative, anticipatory, or backup protection for the Safety Limit. The SL-LSSS definition is limited to the function credited in the safety analysis as directly preventing exceeding of the Safety Limit.

Disposition:

Application of the term “directly” to the SL-LSSS definition is an interpretation that establishes a limitation to the requirement of 10 CFR 50.36(c)(2)(ii) Criterion 3: “A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. To satisfy the requirement of 10 CFR 50.36, TSTF-493 should designate each reactor trip and engineered safety feature automatic protective device instrument function as a SL-LSSS except for manual actuations, interlocks, permissives and automatic actuation logic circuits. By designating the above functions as SL-LSSS, the question of “directly” is immaterial.

4. Revise the TSTF Bases Reviewers Note 3 as follows:

“Notes [1] and [2] may not apply to SL-LSSS Functions and Surveillances which test only digital components. For purely digital components, (such as actuation logic and associated relays) there is no expected change in result between surveillance performances other than measurement and test errors (M&TE) therefore, justification is needed to confirm that comparison of Surveillance results does not provide an indication of channel or component performance.”

The NRC staff has issued license amendments that include modified versions of Notes 1 and 2 for Surveillances which test digital components. Similarly, the TSTF guidance should not categorically exclude applying the notes to digital components.

Response:

The TSTF Bases Reviewers Note 3 is revised to state:

”Notes [a] and [b] may not apply to SL-LSSS Functions and Surveillances 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 surveillance performances and any test result other than the identified Technical Specification surveillance acceptance criteria would be considered inoperable. Therefore, the Notes would not apply. Where there is a separate as-left and as-found tolerance established for the SR, the

Notes may not apply if the NRC staff agrees with a licensee's conclusion that they are not required.”

For digital channels or parts of channels where the analog to digital (A/D) or digital to analog (D/A) converter is not a part of the specific Surveillance Test, a digital input (without regard to M&TE tolerance) is input and a state change (trip) is generally the expected result. In this case the test only verifies that the correct values exist in the software and that the corrective action occurs when a test value greater than the setpoint is input. Drift is not a possibility in these specific circuits and the Notes provide no increased assurance in detecting degradation of the channel.

Disposition: Accept

5. Include a second version (Option B) to TSTF-493, Revision 2. The format and content of Option B should be modeled after the Section 3.3 Instrumentation TS in ESBWR Design Control Document, Tier 2, Chapter 16, Technical Specifications and Bases dated 12/15/2006, ADAMS Accession Numbers ML070110098 and ML070110101, respectfully.

Response:

The current TSTF option is sufficient to resolve the NRC's concerns related to the control of Allowable Values, Limiting Trip Setpoints, and the performance of channels during and between calibrations. While the Option B recommendation has many merits, the Owners Group believe it to be essential to resolve the issue based on the work completed over the last 5 years without adding new options to the NRC approval activities.

Disposition: Accepted

6. Incorporate the comments on the TSTF Justification provided in Enclosure 2.

Response:

A revision to TSTF-493 is attached which incorporates the comments with some changes based on industry comments.

Disposition: Accepted with comments.

7. Incorporate the comments of the TSTF Bases provided in Enclosures 3 through 6.

Response:

A revision to TSTF-493 is attached which incorporates the comments with some changes based on industry comments.

Disposition: Accepted with comments.

8. Delete Appendix A, "TSTF 493 History" in its entirety. TSTF Appendix A contains references to non-NRC staff (i.e., TSTF) meeting notes and summaries related to the development of industry and NRC staff agreements that resulted in TSTF-493, Rev. 2.

Response:

The Appendix has been removed from TSTF-493, Revision 3.

Disposition: Accepted