

October 2, 2003

Mr. Anthony Pietrangelo, Director
Risk and Performance Based Regulation
Nuclear Energy Institute
1776 I Street, N. W.
Suite 400
Washington, DC 20006-3708

Dear Mr. Pietrangelo:

The Nuclear Regulatory Commission (NRC) has completed its acceptance review of the Nuclear Energy Institute proposed TSTF-424, Rev 0, "Risk-Informed HPSI AOT/CT Extension (WCAP-15773)," for generic implementation of Risk Management Technical Specifications (RMTS) Initiative 4b, submitted on January 21, 2003, on CE Plants. RMTS Initiative 4b proposes the use of risk-informed AOTs through the application of a configuration risk management program. Enclosed are staff acceptance review comments on the TSTF-424, Rev 0. We are prepared to meet with you to further discuss these comments to ensure that TSTF-424, Rev 0, is acceptable, and to assist in making progress on Initiative 4b.

The proposed TSTF-424 document provides adequate information to be considered as the starting point for a more detailed review and discussion between the NRC and the industry. The staff will provide detailed first round RAIs in the future. Please contact me at (301) 415-1161 or e-mail thb@nrc.gov if you have any questions or need further information on these proposed changes.

Sincerely,

/RA/

Thomas H. Boyce, Section Chief
Technical Specifications Section
Reactor Operations Branch
Division of Inspection Program Management
Office of Nuclear Reactor Regulation

Enclosure: As stated

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ACCEPTANCE REVIEW COMMENTS
TSTF-424, REV 0, RI HPSI AOT/CT EXTENSION
(WCAP-15773)

GENERAL COMMENTS

1. The proposed TSTF-424 document provides adequate information to be considered as the starting point for a more detailed review and discussion between the NRC and the industry. The staff will provide detailed first round RAs in the future. Some acceptance review comments are provided below.
2. There may be inconsistencies between the proposed implementation approach and with respect to guidance provided in RG 1.177 and RG 1.174, as well as with respect to guidance provided in maintenance rule (a)(4). For example, RG 1.177 does not allow an ICDP of 1E-5 (as proposed in TSTF-424), and the maintenance rule (a)(4) criteria for increased risk management actions are based on accumulated risks starting with any plant configuration and not upon entry into an extended AOT (as proposed in TSTF-424). It is not clear why an ICDP of 1E-6, measured from entry into the RMTS, is consistent with the maintenance rule. It appears that if the ICDP were measured from the time the component is taken out for maintenance, the ICDP could be significantly above 1E-6 target for "normal work controls."
3. The NRC endorsed Revision 2 of NUMARC 93-01, "Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants" in Revision 2 of Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Subsequently, the NRC endorsed the February 22, 2000, revision of NUMARC 93-01's Section 11, "Assessment of Risk Resulting from Performance of Maintenance Activities" in Regulatory Guide 1.182, "Assessing and Managing Risk Before Performing Maintenance Activities at Nuclear Power Plants." Still later, NEI incorporated a revised Section 11 into a Revision 3 of NUMARC 93-01. Because NEI has been working toward further revisions to the document, the NRC has not expended resources on comparing the current Revision 3 of 93-01 to Revision 2 of 93-01 plus the revised Section 11. There are differences, the extent of which will be addressed as necessary by RAs. Reference to the rule and various documents is not consistent and not always correct. For example, "Acceptability of risk will be consistent with the Maintenance Rule (Reference 11)" Reference 11 is Revision 3 of NUMARC 93-01; it is not 10 CFR 50.65.

RISK ASSESSMENT COMMENTS

4. No criterion for limiting the allowed instantaneous increase of risk is mentioned in the report. Please explain how instantaneous increases of risk will be limited and managed for both planned and emergent conditions.
5. The staff expects to require more detailed discussion of the plant specific risk assessments discussed in the report (e.g., examples discussed in chapter 6.3.2.3).

Enclosure

6. Proposed change, page 5, 4th paragraph - Identify which standard or guidance (i.e., Risk Management Guide) the licensees must use for the risk assessment and risk management.
7. Page 4 of Ref. 1 states that "in all cases, a quantitative assessment is expected to be utilized whenever the capability exist to support this assessment type." The acceptability of the quantitative risk assessment depends on adequate plant-specific risk assessment models and reliable results. For a plant-specific application, the applicable RMTS Bases (such as the Bases for TS 3.5.2 on the requirements of the HPSI) should reference the titles of the reports that document the plant-specific risk management process and control, the certified risk assessment methods and any associated analytical results.
8. An important area in the staff's review is the issue of the "quality" of the PRA models at each CEOG plant. On page B-12 of the submittal it is stated: "The PSA internal events review should be consistent withthe ASME PSA Standard..." However, it is not explained how such a consistency with the ASME PSA Standard will be ensured. The ASME PSA Standard requires that the parts of the plant-specific PRA, which are impacted by the proposed change, be identified and evaluated to determine whether the scope and level of detail are sufficient for the application in order to provide confidence that the results can be used in the decision-making process.

The recent Regulatory Guide DG-1122, which endorses the guidance provided in the ASME PSA Standard, states the staff's expectation regarding licensee submitted "PRA quality" documentation. This expectation includes the following:

1. Documentation that the parts of the PRA required to produce the results used in the decision are performed consistently with the standard or peer review process as endorsed by the staff, or a discussion showing that the impact on the results of not meeting the standard or the criteria of the peer review process is not significant.
2. A characterization of the assumptions and approximations that have a significant impact on the results used in the decision-making process of the specific application, including a discussion of the resolution of the peer review comments.

The staff believes that the above listed documentation is needed to support the proposed TS change, which would allow HPSI CT extension based on the results of risk assessment and management performed by the licensee without prior staff review and approval.

9. 10 CFR 50.65, the maintenance rule, permits risk assessments to be performed quantitatively, qualitatively, or in a blended (mixed) manner. Provide the following information.
 - Discuss what are the qualitative evaluations involved, and explain why and how they can be used to determine the overall plant risk;
 - Page TS B 3.5.2-6 indicates that qualitative evaluations are used to determine the overall plant risk when quantitative tools are not available; discuss.

- On Page 4, it is stated that the methods for determining the associated risk for continued plant operation may vary among the CE fleet and that qualitative assessments should be used where appropriate to not only enhance a quantitative assessment but also to establish a risk significance when quantitative tools are unavailable. Please demonstrate how a qualitative assessment can provide sufficient detail to use to assist in determining risk-informed CTs. Additionally, how can it be determined that a licensee does not have adequate qualitative tools to perform the assessment if quantitative tools are unavailable?
 - Page 2, Section 3.0, next-to-last sentence: “. . . provided a risk assessment ensures continued plant operation results in acceptable risks.” Recommend replacing “ensures” with “demonstrates”; a risk assessment does not ensure anything.
 - Page 5, second full paragraph, last sentence: “Again, the assessment of ILERF, when required to be performed, should be completed quantitatively whenever plant capabilities exist to do so.” How can the assessment of ILERF be performed qualitatively?
10. On page 2-1 it is stated: *“..... the resultant incremental plant risks during the interval beyond the frontstop AOT will be maintained within RG 1.174 guidelines (Regions II and III). Associated guidance for implementation of the RMTS will be maintained as administrative guidance under licensee control.”* The staff requests clarification of this statement by addressing the following comments and questions.
 1. The acceptability of incremental plant risks in Region II (per RG 1.174 guidelines) depends on several factors, such as the plant baseline risk from all sources (internal and external events at power and shutdown operation).
 2. Non-quantified incremental risks (use of qualitative or blended risk assessments) can be a significant contribution to the total incremental risks associated with the proposed TS change.
 3. It is proposed that lower risk increases (CDF increases less than 1E-6/yr and LERF increases less than 1E-7/yr) not be tracked. These increases are associated with CT extensions unlike the ones considered in the MR which consider the whole interval from the equipment outage. Several such increases a year could be a significant contributor to the total incremental risks used in RG 1.174 guidelines. The tracking of lower risk increases would also reduce the likelihood that the proposed flexibility will become part of the culture of normal operation.
 4. The staff needs clarification of the last sentence regarding “administrative guidance under licensee control.” The staff expects that this guidance will be based on principles endorsed by the staff, such as those related to risk metrics, PRA quality, acceptance criteria and acceptable approaches (e.g., for using qualitative or blended risk assessments).
 11. CEOG STS page 3.5.2-1, Condition B, Required Action B.2.3, in the associated Bases, discuss: “or acceptable”; by what criteria?
 12. CEOG STS page B 3.5.2 - 6, first para: “. . . the risk of continued operation may be justified via a risk-informed analysis that follows the guidance in accordance with

10 CFR 50.65(a)(4) (Ref 7) and is consistent with NUMARC 93-01 Section 11, Rev 3 (Ref 8), as outlined in RG 1.182 (Ref 9).” NRC guidance will include only endorsed references.

COMPLETION TIME COMMENTS

13. It is stated that for emergent conditions licensees will verify that the completion time extension is acceptable within 24 hours. For emergent configuration changes, such acceptability should be verified expeditiously (e.g., within one hour) to ensure that it is safe to operate the plant at the current configuration until a more detailed risk assessment is performed. A longer period (e.g., 24 hours) can be allowed to perform and document a more detailed risk assessment.
14. On page 1, Section 2 “Proposed Change,” it is stated: *“Provided a risk evaluation illustrates the acceptability for continued operation given the current plant configuration, the CT may be extended for up to 30 days. Contingency actions or compensatory measures may be required to support the acceptable results of the risk assessment.”* The staff requests the clarification of this statement. Is it proposed to quantify the impact of contingency actions and compensatory measures and credit this impact in establishing the acceptability of the risk assessment results? Please explain how contingency actions and compensatory measures will support the results of the risk assessment. Will there be a process for identifying “contingency actions and compensatory measures” and determining their acceptability? Will any such process address both planned and emergent conditions?
15. On TS page 3.5.2-1(sheet 2), the proposed Required Action (RA) B.2.2.1 allows 24 hours for operators to verify that the completion time (CT) extension beyond 72 hours remains acceptable for a discovered plant configuration change. If the CT extension is determined unacceptable, RA B.2.2.2 allows another 24 hours for the operators to take compensatory actions and make the CT extension acceptable. Given the two 24-hour periods in B.2.2.1 and B.2.2.2, an unacceptable plant configuration change could take 24 hours to re-perform the risk assessment and another 24 hours to perform actions to make the extension acceptable. Provide the rationale that demonstrates that 48 hours is a necessary and acceptable time to be in an unacceptable plant configuration, particularly when the total normal CT time is 72 hours. What is the safety implication in terms of the plant risk increase during the extended 48 hours while the plant is operated outside the TS requirements? Why will the extended CT verification and compensatory actions for the operators to make the CT extension take 24 hours for each? The 48 hours seems excessive.
16. With respect to, T.S. B.2.1 - Required Action - “Determine that Completion Time extension beyond 72 hrs is acceptable”; information is needed, in the Bases, on what the performance of a risk assessment is in accordance with, and the fact that the results of the evaluation must be documented.
17. With respect to, T.S. B.2.2.1 - Required Action - “Verify that Completion time extension beyond 72 hours remains acceptable”; information is needed, in the Bases, stating that whenever the plant configuration changes a risk assessment need be performed in accordance with ..., and that the results of the evaluation must be documented.

18. The Completion Time for proposed Required Action B.2.2, on Tables 6.1-1 and B3-1, states "Whenever configuration changes occur that affect plant risk occur." This Completion Time needs to be explained further; such as, the process to determine whether a configuration change affects plant risk needs to be defined, along with the time to make that determination.
19. CEOG STS page B 3.5.2 - 6 and -7: A discussion in the Bases is needed concerning what is an acceptable CT per Required Action B.2.3.
20. The staff feels that 30-day completion time is a very long time for an equipment to be inoperable. Provide justification for requesting a maximum of 30-day completion time for HPSI. The staff believes that most of the maintenance and repairs on the safety equipment can be accomplished within a few days. Since the Risk Achievement Worth (RAW) for HPSI is among the highest of all plant systems, how is a 30 day AOT for HPSI justified? Discuss the availability of dedicated personnel for HPSI maintenance/repair during a 30 day AOT. Discuss the availability of spare parts for HPSI repair.
21. The unavailability of the safety equipment would increase with the proposed backstop completion time of 30 days. Discuss whether the 30 day backstop might be limited by this increase in unavailability in light of the requirements of maintenance rule regarding minimizing unavailability of safety systems.

MISCELLANEOUS COMMENTS

22. Appendix B appears to be a [temporary?] substitute for the Risk Management Guide/Program. Appendix B and the Risk Management Guide need to be reconciled and combined, so that there is only one process for implementing the RMTS.
23. Page A-5 of WCAP-15773 indicates that a section (TS 5.5.X) should be added to TS 5.5, "Program and Manual," to include the description of the risk management program. TSTF 424 does not include 5.5.X and is thereby inconsistent with WCAP-15773. Include specification 5.5.X, Risk Management Program, in TSTF-424, or clarify the inconsistency.
24. NRC staff has been actively involved in all activities connected with Nuclear Power Plant securities following the September 11, 2001, terrorist acts. In light of the recommended long completion time of 30 days which can make the plant vulnerable to terrorist attack, guidance should be provided on what measures the licensees should take in order to protect the plant equipment during this period.
25. TS page 3.5.2-1(sheet 2) defines Condition C as an ECCS condition with two or more subsystems inoperable for reason other than conditions A (one LPSI subsystem inoperable) or B (one HPSI subsystem inoperable). Recommend providing in the Bases section of TS 3.5.2 a list of inoperable "subsystems" that should be considered for determination of whether the plant is in Condition C discussed above.
26. On TS page 3.5.2-1(sheet 2), RA B.2.2.2 requires that the operator perform risk management actions to make the Completion Time extension acceptable. Discuss in the Bases section Tier 2 requirements related to high risk configurations, along with

compensatory and contingent actions that are considered when the operators performs RA B.2.2.2. Discuss the provisions, limitations and compensatory actions that you will be committing to implement to assure adequate defense in depth, during the extended HPSI AOT. Discuss how common cause failures are addressed in the risk assessment/PRA.

27. Entering a TS is evidence of a significant out-of-normal condition. How does the licensee intend to ensure that being in an extended CTs does not become part of the culture of normal operation? That is, how is it ensured that if an extended CT is entered, the maintenance or work required to exit the TS is not postponed within the 30 day period for convenience?
28. Explain how the effect of industry's use of extended RI-CTs on safety can be determined. What would be an effective performance indicator for use with extended CTs; perhaps the incremental risk of the extended CT is less than x, or number of times entered extended CT?
29. On Page 4, it is stated that "the proposed risk-managed TS will obviate (or significantly reduce) the need for NOEDs." Is a reporting requirement (not approval request) proposed to notify the NRC when an extended CT is entered? If not, please explain why.
30. Are procedures (or new steps in procedures) required for reporting configuration changes within the plant to a central risk assessment group to ensure the time "from discovery of each configuration change" is minimal? Discuss internal controls.
31. Page 7, last two sentences before 5.0: These concluding sentences fail to make their point.
32. Page 10, reference 14: What is Appendix A to 10 CFR 50.65?
33. Terminology needs to be defined and used consistent with existing definitions. For example, the terms "functionality" versus "Operability" are used on page B-7 of Appendix B, B3.3 and need to be resolved. On the same page and section it is written, "For a HPSI train, typical failure modes that result in ***partial inoperability*** include, but are not limited to :...". The bold italics are added, to illustrate a term that, if used, needs to be defined. The sentence could possibly be rewritten as, "For a HPSI train, typical failure modes that result in inoperability include, but are not limited to the following partial losses of function:..."?
34. CEOG STS page B 3.5.2 - 6, second para, line 2: Is "unavailable" the best term for use here?