REQUEST FOR ADDITIONAL INFORMATION AND COMMENTS ON:
INDUSTRY'S DOCUMENT "RISK-MANAGED TECHNICAL SPECIFICATIONS (RMTS) GUIDELINES," INTERIM REPORT, OCTOBER 2003;
AND INDUSTRY'S RESPONSE TO THE STAFF'S ACCEPTANCE REVIEW COMMENTS, DECEMBER 2003

1. An important element of the proposed process, which is applicable to emergent conditions, is the ability to promptly consider and resolve common cause issues. Guidance is needed on how to identify potential common- cause issues and on strategies and actions to promptly resolve any such issues. Is (will be) plant shutdown an option in this strategy? Please discuss.

2. Guidance is required to ensure that the increase in LERF (when equipment important to LERF is out of service) is assessed and considered in the decision-making process when an AOT/CT extension is considered. This guidance should address the adequacy of PRA models for detailed assessments and acceptable bounding-type calculations.

3. Guidance is needed to ensure that uncertainties in PRA models and data do not have a significant impact on the decision-making process. The staff believes that the PRA quality evaluation is not expected to fully address this issue. Please discuss.

4. Guidance is needed on acceptable ways of calculating and managing the risk increases used in RG 1.174 and other risk criteria. Examples are: (1) Issues related to assessment of configuration risk vs. risk associated with the AOT/CT extensions, (2) credit for contingency actions and compensatory measures, (3) risk increases measured from the "zero maintenance" baseline or the "average maintenance" baseline, (4) bounding calculations and qualitative arguments, (5) tracking aggregate risks, (6) documentation of risk assessments, (7) accounting for uncertainties, (8) areas where plant-specific guidance will be developed, and (9) interfacing with NRC reactor oversight process. Also, if the risks associated with AOT/CT extensions are not assessed separately from the overall configuration risks, please explain how the guidance of RG 1.174 will be implemented. Discuss how cumulative risk can be used as a managing metric.

5. The resolution of the staff's RAIs and comments on the CEOG and STP pilots should be incorporated into the RMTS guidance, as appropriate.

6. On page 2-1 it is stated: *"Risk informed front-stop times will be established based on single SSC outage guidelines of RG 1.177 or using the traditional non risk-informed standard Tech Specs."* Please clarify this statement. The general nature of this statement, and the use of future tense, implies that the industry intends to request major revisions to the current TS AOTs/CTs. Is this the intent?

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7. On page 2-1 it is stated: *" .... the overall use of the RMTS process will be periodically assessed to demonstrate compliance with RG 1.174 guidance for small risk impact plant modifications (i.e., yearly change less than 1E-5 per year)."* Please clarify this statement. Are you referring to permanent changes to the baseline risk (plant modifications) or risk increases due to outages (plant configurations)? Also, provide the basis for interpreting a yearly increase in CDF of up to 1E-5 as small risk impact. Please discuss.

8. On page 2-1, statements, such as "risk-informed CT (RICT) targets and limits" and "The RICT will have an ultimate maximum CT limit...," are made. Please define the terms, "limit," "max limit" and "ultimate maximum limit" and clarify the relationship among them. The staff expects this document, as a guidance document, to be precise and clear.

9. On page 2-1 it is stated: "The RICT is the time from the initiation of a maintenance configuration until....." This definition fails to link the RICT to the time of a specific equipment outage. A simple and clear definition could just state: "The RICT is the time interval that starts when the specific equipment is taken out of service until...." Also, the definition of "maintenance configuration" provided in Appendix A (Glossary of Terms), is confusing. Please discuss.

10. On page 2-1 it is stated: ".....application of RICTs for individual maintenance configurations....." Please define the term "individual maintenance configurations."

11. On page 2-2 it is stated: *"Risk assessments should be performed in accordance with the plant's Maintenance Rule program and supported by a plant's PRA and other risk management tools (e.g., plant safety monitor or risk monitor software, risk matrices, lists of pre-analyzed maintenance configurations, PRA sensitivity studies, etc.) for specified hazards and operational plant states."* The staff believes that this statement needs clarification through the use of exact wording and explanation of terminology. For example, it appears that risk assessments should be performed in accordance with guidance provided in this document (RMTS Guide) while the requirement to perform a risk assessment will be in accordance with the Maintenance Rule program. Also, terms, such as, "plant safety monitor," "risk monitor software" and "risk matrices" need to be defined and characterized. In addition, acceptance criteria and guidance for using the above listed risk management tools should be provided. Please discuss.

12. On page 2-2 it is stated: *"Once the LCO is entered, the functional impact.....of the inoperability will be considered within the scope of the risk assessment. For example, HPSI inoperability may vary in risk significance, dependent on the degree of residual capability .....of the system."* What is meant by "the scope of the risk assessment?" Please clarify this statement.

13. On page 2-2 it is stated: *"For emergent conditions (or for forced, unscheduled extension of planned maintenance) a maximum RICT equivalent to an ICDP of 1.0E-5 is identified."* What criteria are there to ensure that "forced, unscheduled extension of planned maintenance" will not be used for operational convenience? Also, the phrase ".....RICT equivalent to an ICDP....." should be replaced by the phase ".....RICT based on an ICDP....." Please discuss.

14. Please clarify the statement (page 2-2): *"The use of administrative maintenance target risk values at levels significantly below the RICT will ensure adequate margin to unanticipated concurrent failures."* Provide examples, if necessary.

15. On page 2-2 it is stated: *"If, during application of a specified RICT, the plant transitioned to a different maintenance configuration....., then that RICT would be required to be recalculated and revised within a specified time period (24 hours, for example) after the change in configuration. It is important to note that this 24-hour ...period is simply an example applied in this report."* See also a similar statement on page 3-3. Please discuss the following:

    – What is the basis (or even the point) for the stated 24-hour example period? The staff requested clarification of this issue also in its acceptance review comment #45. However, the industry's response does not appear to answer the staff's question. It is stated: *".....RITC re-calculation time will be required to be within the associated relevant front-stop CT for the maintenance configuration of interest."* How is this possible for emergent conditions? Please clarify. The staff believes that for emergent configuration changes the acceptability of the new configuration should be verified expeditiously (e.g., within one hour) to ensure that it is safe to operate the plant in that configuration until a more detailed risk assessment is performed. A longer period (e.g., 24 hours) can be allowed to perform and document the more detailed risk assessment. Guidance for identifying "high risk" configurations in a timely manner is needed. Please discuss.

    – Will the plant be allowed to transition to a different planned maintenance configuration during application of a specified RICT? Please provide discussion supporting your answer.

    – Discuss how a plant will utilize the I4b RICT process to manage risk for situations in which there are entries into multiple LCOs without exceeding any of the plant stops.

16. On page 2-2 it is stated: *"Case-specific re-assessment periods applied within a plant-specific RMTS program will need to be consistent with the application of associated front-stop CT requirements."* The staff is unable to understand this statement. Please clarify, providing examples if necessary.

17. On page 2-3 it is stated: *"If a revised RICT were found to exceed a RMTS threshold, the plant would re-evaluate the impact and enter a plant shutdown process. If the revised RICT exceeds the upper-level RMTS threshold based on specified ICDP/ILERP limits (see... Table 3-2), the plant would be required to take the actions required for "ACTION NOT MET" for the affected Technical Specifications."* Describe the process, including criteria, for initiating a plant shutdown. How will this process address the proposed removal of current constraints to plant operation at power imposed by the fixed AOTs/CTs? The staff believes that the guidance provided in maintenance rule (a)(4) regarding the initiation of plant shutdown needs improvement to compensate for

the proposed removal of current constraints to plant operation at power imposed by the TS fixed AOTs/CTs. The staff believes that a risk-informed shutdown process based on clear generic principles and criteria is needed. Please discuss.

18. On page 2-3 it is stated: *"Note that, during the time period following the front-stop CT but before the expiration of the applicable RICT, plant actions will escalate to be commensurate with the projected risk during the maintenance configuration period, consistent with the current maintenance rule guidance (Reference 3)."* Please clarify what do you mean by *"plant actions will escalate.....commensurate with projected risk....consistent with the current maintenance rule guidance."* This statement appears to refer mostly to contingency actions and compensatory measures. If contingency actions and compensatory measures are credited in assessing risk increases, risk-informed regulation requires procedures and administrative controls as well as appropriate PRA modeling for such actions and measures. Please discuss how this requirement will be implemented.

19. On page 2-3 it is stated: *"However, the issue of equipment "functionality" (see Appendix A) is broader and relates more directly to the equipment's availability to support its intended risk mitigation function. Equipment functionality will generally be considered in the RMTS program when assessing risk for RICT calculation."* The staff believes that guidance is needed to ensure that "inoperabilities" are properly analyzed, understood and modeled in the PRA.

20. On page 3-1 it is stated: *"The RMTS process shall: .....2. Include procedures for performing a risk assessment when the maintenance items are outside the scope of the quantitative assessment tool."* This statement appears to delegate to the plants full responsibility for developing plant-specific guidance regarding items outside the scope of the quantitative assessment tool. The staff believes that at least some high level generic guidance on this issue may need to be included in the RMTS Guide. Please discuss.

21. On page 3-3 it is stated: *"The timing of the plant shutdown will reflect plant cumulative risks, the likelihood of repair and transition and shutdown risk considerations."* A well-thought, well-understood clear process for shutting the plant down must be included in the RMTS Guide. This process may need to address separately planned maintenance and emergent conditions. Of particular importance is the timing of alternative actions (e.g. continued operation at power vs shutting the plant down). Any credit for avoiding transition risk, should be properly applied in the assessment of alternative actions. Please discuss.

22. On page 3-3 it is stated: *"In addition, risk assessments will be performed to assess the incremental risk of the inoperable equipment associated with maintenance configuration addressed by the extended CT (RICT)."* Please clarify this statement. Do you refer to incremental risks beyond the front stop?

23. A discussion is needed to explain the general process flowchart of Figure 3-1 (page 3-6). Please clarify the following:

- Define “no-maintenance” configuration and explain the purpose of the top square block. Is “no-maintenance” state the same as “no maintenance configuration?”

- Explain the last oval block on the left of the figure *“Establish risk management actions to prevent exceeding the RICT.”* This step appears to emphasize the need for risk management actions to prevent plant shutdown at any cost (no option for shutting the plant down is shown). The concern is that some plants may try to “justify” continued operation at power even when they should shut the plant down. Please discuss.

- The flowchart does not show any outcome requiring plant shutdown. Please explain.

24. On page 3-7 it is stated: *“The risk assessment may use quantitative approaches supported by qualitative approaches.”* This statement appears to imply that in most cases the assessments will be qualitative, which is not the intent. Please clarify.

25. On page 3-8 it is stated: *“Maintenance may involve altering the facility or procedures for the duration of the maintenance activity.....The assessment should include consideration of the impact of these alterations on plant safety functions qualitatively or quantitatively depending on the significance of the alteration.”* The staff believes that guidance is needed to address the issue of “altered facility or procedures” during maintenance due to its potential high risk significance. Also, the link of this issue with Initiative 7 should be established. In addition, it is not clear how facility and procedure alterations are modeled in most PRAs. Please discuss.

26. On page 3-8 it is stated: *“Emergent conditions (or forced, unscheduled extension of planned maintenance) may require action prior to completing the assessment...”* Please define *“forced, unscheduled extension of planned maintenance.”* The staff requested the definition of this term with its “acceptance review” comments (comment #66). However, the industry did not address this question in its response. Also, in its response to comment 66, the industry states that there are *“....no longer separate criteria for emergent and plant maintenance.”* Please discuss how the risk be managed.

27. On page 3-10 it is stated: *“.....The PRA.....must reasonably reflect the plant configuration.”* Please clarify. There is a large number of plant configurations.

28. Internal fires are not listed (at least not explicitly) in Section 3.4.2 “Qualitative Considerations” where other external events are listed. Please clarify.

29. On page 3-11 it is stated: *“.....and to take additional actions beyond routine work controls to address situations where the temporary risk increase is above specified RMTS thresholds (see Table 3-2). These thresholds may be set on the basis of qualitative considerations (e.g., remaining mitigation capability), ...”* Please explain what is meant by setting the thresholds of Table 3-2, which are quantitative, on the basis of qualitative considerations. Also, explain how thresholds may be set on the

basis of qualitative considerations without compromising the desired risk management objectives of the process.

30. On page 3-12 it is stated: *"Plants that implement RMTS should develop measures to assess the aggregate risk relative to the average risk. This assessment could be accomplished through a periodic assessment of previous out-of-service conditions. Such an assessment may involve quantitatively estimating cumulative risks or may involve qualitatively assessing the risk management approach employed."* It is not clear to the staff what measures plants are expected to develop to assess aggregate risk relative to the average risk. Are not aggregate risks measured by the incremental CDP and LERP? What is the reason for plants to develop such measures instead of developing them generically and include them in the RMTS Guide? Why is it proposed to measure increments from the average risk base instead of the "zero maintenance" base? How are increments in CDF and LERF considered in the decision making process? The staff notes that there is not clear discussion on how the process will meet RG 1.174. Please discuss.

31. On page 3-14 it is stated: *"Individual plants may choose to propose application of a similar risk management scheme based on absolute risk metrics versus incremental risk metrics."* Please explain how absolute risk measures can be used to achieve the same risk management objectives as incremental risk measures. In your discussion please address such topics as PRA quality needs, risk management tool needs, tracking and documentation needs.

32. On page 3-15 it is stated: *".....must be able to perform a reasonable bounding analysis of the external events (Reference 20) contribution to configuration risk....."* Does Reference 20 provide adequate guidance on how to perform "bounding analyses" of external events that is suitable for use in the RMTS process? Please discuss.

33. On page 3-18 it is stated: *"The compensatory measures are expected to reduce the overall risk of the maintenance activity; however, the impact of the measures on plant safety functions should be considered as part of the risk evaluation."* Please clarify this statement. If compensatory measures are credited in assessing risk increases, risk-informed regulation requires procedures and administrative controls as well as appropriate PRA modeling for such actions and measures. Please discuss.

34. The 30 day CT backstop needs to be explained and justified in the RMTS Guidance. In general, times need to be justified.

35. The RMTS Guidance must explain that a plants ability to apply RMTS Initiative 4b must be commensurate with its PRA Quality. The plants PRA Quality must satisfy the principles of DG-1122 (trial Reg Guide 1.200) guidance. The minimum scope requirements for a plants PRA needs to be addressed, incuding PRA requirements that go beyond the scope of Reg. Guide 1.200.

36. The level of documentation required for an RMTS Initiative 4b risk assessment must be described.

36. The RMTS Guidance must be consistent with the processes described in the STP and CE pilot plant proposals. Terminology needs to be consistent between the RMTS Guidance, the pilot proposals, and the (a)(4) program.

38. The RMTS Guidance should provide direction on the scope of the process; what LCOs fall within the process.

39. The RMTS Guidance needs to address the nexus between Initiative 4b and the other Initiatives.

40. Personnel qualifications for the operations and support staff needs to be addressed.

41. Quality control requirements for PRAs and risk monitors needs to be addressed.