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The Rules and Directives Branch
Office of Administration
US Nuclear Regulatory Commission
Washington, DC 20555-0001

Attn: Mr. Michael T. Lesar

Subject: Westinghouse Owners Group
Westinghouse Owners Group Review and Comment on "Draft
Regulatory Guide DG-1110 (Proposed Revision 1 to Regulatory
Guide 1.174)" (MUHP-6073)

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In response to NRC's solicitation notice in the Federal Register (July 18, 2001, Vol. 66, Number 138, page 17497), for comments on "Draft Regulatory Guide DG-1110 (Proposed Revision 1 to Regulatory Guide 1.174)," the Westinghouse Owners Group (WOG) is providing the following set of comments. In this proposed revision, NRC is suggesting substantial changes to a Regulatory Guide that has become a key component of the risk-informed regulatory framework, and which must reflect review and input from the user community in order for this framework to continue to be beneficial to all. Therefore, the WOG members appreciate NRC's consideration of public comments in the early stages of development of such proposed changes to existing Regulatory Guides, and believe that such input will help to strengthen the resulting final documents.

The attachment to this letter provides the WOG comments. We are particularly concerned that NRC has not provided an explanation of the need to undertake the proposed revision at this time. Given the progress that has been made in the development and formal approval of industry consensus standards for PRA, it seems to us that a more appropriate approach is to wait until such standards are available. This would allow them to be formally referenced within the Guide, so that the relationship of the guidance in the Regulatory Guide and in the standards (to the extent they are endorsed by NRC) is consistent.

Please consider the attached comments in your review process prior to issuing any revision to the existing Regulatory Guide 1.174.

If you have any questions regarding these comments, please contact Mr. Barry Sloane, Westinghouse, at (412) 374-4047, or myself (316) 364-4127.

Very truly yours,

Maurice E. Dingler
Chairman
Systems & Equipment Engineering Subcommittee
Westinghouse Owners Group

attachment

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Template = ADM-013

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Call = M.T. DROVIN (MXD)

A. Beranek (AFB)

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cc: Westinghouse Owners Group Primary Representatives (1L, 1A)
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WESTINGHOUSE OWNERS GROUP COMMENTS ON NRC PROPOSED REVISION TO REG. GUIDE 1.174

In response to NRC's solicitation, via notice in the Federal Register (July 18, 2001, Vol.66, Number 138, pg.17497), for comments on "Draft Regulatory Guide DG-1110 (Proposed Revision 1 to Regulatory Guide 1.174)," the Westinghouse Owners Group (WOG) is providing the following set of comments. The WOG member utilities appreciate the NRC's consideration of public comments in the early stages of development of revisions to what has become, since its original issuance three years ago, one of the cornerstones of the risk-informed regulatory process. It is very important to the WOG that a stable risk-informed regulatory framework that the industry can work with be established, with Reg. Guide 1.174 (and SRP 19) as key components. We recognize that the current versions of these guidance documents were issued with the intent that experience gained during the initial applications would ultimately be factored into the process. But it is essential that the proposed (and any subsequent) revision of the Reg. Guide and SRP maintain requirements and risk metrics that are consistent with the original versions. Otherwise, licensees would need to continually rework their PRA models and applications to meet changing requirements, and this would be a large burden.

General and Technical Comments

1. DG-1110 includes numerous and, in some cases, extensive revisions to the existing Regulatory Guide, but provides no rationale for the proposed changes.
 - a) The existing Regulatory Guide 1.174 provides a useful framework for using probabilistic risk assessment (PRA) to support making changes to a plant's licensing basis. In the three years since its formal issuance, it has been used to guide the preparation and review of numerous risk-informed requests for licensing basis changes, both plant-specific and generic. Licensees, including our members, have become familiar with this process, and have not indicated a need to change the process or guidance provided in the existing guide. Thus, we are concerned about whether and how the proposed changes may affect the risk-informed licensing basis change request process, and how the resulting changes will benefit the various stakeholders. Although it was noted in SECY-00-0162 ("Addressing PRA Quality in Risk-Informed Activities", July 2000) that NRC intended to eventually update RG 1.174 with information from the attachments to that document, there was no clear statement in that SECY that NRC was implementing that guidance into its review process with respect to RG 1.174-based submittals. If in fact NRC has been using this "supplemental guidance" as part of the RG 1.174 review process since issuing SECY-00-0162, then this should be clearly stated in DG-1110, and examples of how this supplemental guidance is being used should be provided. If not, then a discussion of the anticipated impact on this review process should be provided.
 - b) The Draft Guide has been issued with no markings to indicate where a revision is being proposed to the existing guide. This might be an appropriate approach when the proposal is for a new regulatory guide to address a new topic, but it is not appropriate for a revision to a guide already in use. In fact, it is not clear why a "draft guide" format is being used at all, since the actual regulatory guidance has already been issued and is being implemented. All proposed changes to the existing guide should be

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highlighted in the proposed document to ensure that they may be appropriately considered by all interested parties.

- c) NRC has not stated anywhere in this document, or in the accompanying Federal Register notice, why this particular set of revisions is being proposed. Some of the proposed changes appear to be intended to clarify the meaning of existing wording (e.g., the frequent substitution of “technical acceptability” for the existing “quality”), other proposed changes appear to be intended to clarify staff positions (e.g., the discussion on page 2 of NRC’s ability to request an analysis of a change in risk in “special circumstances”), while others are substantial additions (e.g., the new Appendix A, “PRA Characteristics and Attributes”). While we recognize that many of these changes relate to information that was published in SECY-00-0162, it appears that others do not. As a result, it is difficult to provide meaningful comments with respect to any of the proposed changes, since we are not confident that we have sufficient information to fully understand the NRC’s basis for suggesting each change. A discussion of the rationale for each proposed change (or at least each category of change) should be provided in supporting documentation.
2. Section 2.2.3.3 (PRA Technical Acceptability) of DG-1110 notes that “Appendix A provides a summary of the characteristics and attributes of a PRA acceptable to the staff. Several different approaches may be used to assess the technical acceptability of a PRA. Regardless of the approach chosen, they all must assess technical acceptability against characteristics as described in Appendix A.” Appendix A briefly notes (first paragraph of A.1) that a PRA’s requisite scope, level of detail, and technical acceptability to give the appropriate level of confidence in results used in regulatory decisionmaking can vary depending on the specific decision under consideration. But the rest of the appendix lists characteristics and attributes for a full scope Level 2 PRA, covering internal and external events, and all plant operating states. Since Appendix A provides no guidance relative to matching PRA scope and capabilities to the requirements of the decision under consideration, the requirement in Section 2.2.3.3 that PRA technical acceptability must be assessed against the Appendix A characteristics implies the need for a full scope PRA for any application. This is obviously inconsistent with the manner in which the current risk-informed regulatory process works. The proposed Appendix A guidance, and the proposed references to Appendix A from other sections of the revised Reg. Guide, should be revised to better reflect the intended usage.
3. The proposed regulatory guide revision contains PRA scope criteria and peer review expectations in Section 2.2.3 and Appendix A which are currently beyond what is necessary to cost-effectively support most risk-informed regulatory applications. The implication is that a full-scope PRA is required for any risk-informed decision-making, whereas in fact the PRA scope and level of technical capability required of a PRA is a function of the intended application. Further, these scope and peer review expectations would eliminate the usefulness of licensees’ external event, low power, shutdown, and complete Level 2 PRAs in risk-informed regulatory applications until some form of peer review process can be developed and implemented by the industry to incorporate the additional scope required by the prescriptive criteria in Appendix A. While the proposed revision allows licensees to utilize an integrated decision making panel to qualitatively supplement unmet or unreviewed

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PRA scope criteria, it appears that the Guide would effectively require all licensees to convene an integrated decision making panel for every application to ensure the criteria in Appendix A are addressed. The proposed change to the regulatory guide should establish graded PRA quality criteria commensurate with the application, as in the industry peer review process and draft ASME PRA standard.

4. Section 2.2.3.3 and Appendix A both include references to ongoing PRA Standards activities (e.g., ASME and ANS). At least some of the referenced standards are approaching their anticipated issuance milestones, and likely would be publicly available in final form within a short time after issuance of a revised Reg. Guide 1.174. (For example, the ASME internal events PRA Standard is expected to be available as a national standard by early next year.) Given that a process is in place using the existing Reg. Guide 1.174 that appears to be working from both a regulatory and licensee perspective, NRC should consider waiting to revise this guidance until one or more of these new standards becomes available. This would allow Appendix A to be aligned with those portions of the standards that NRC may decide to endorse, prior to issuing the revision, so that it is clear what the interrelationship is among the various sets of characteristics, attributes, detailed requirements, and processes for use.

5. DG-1110 appears to be proposing introduction of a requirement to assess long-term containment integrity as an aspect of risk characterization when considering risk-informed changes to a plant's licensing basis, but the various references to such a requirement are not consistent and do not provide clear guidance. For example, in Section 2.2.3.1, Table 1, page 14, lists, without explanation, long-term containment integrity as an attribute of Risk Characterization under the desired scope for Level 2. In the same section, the third paragraph notes that "The metrics used for risk characterization in risk-informed applications are CDF and LERF (as a surrogate for early fatalities). Issues related to the reliability of barriers, in particular containment integrity and consequence mitigation, are addressed through consideration of defense in depth. ... A limited Level 2 PRA is needed to address LERF and may be helpful in addressing issues ... related to long-term containment integrity." Thus, Table 1 and the latter part of the quoted passage imply that the PRA is expected to allow characterization of long-term containment integrity, whereas the initial portion of the quoted passage clearly state that CDF and LERF are the required metrics, and that containment integrity is a defense in depth consideration. Adding to the confusion is the discussion in Appendix A of Level 2 Quantification (page 48), which states that "This quantitative evaluation reflects the different magnitudes and timing of radio-nuclide releases and specifically allows for identification of the LERF and the probability of a large late release."

If large late releases are to be a consideration in evaluation of requests for risk-informed changes to a plant's licensing basis, then the Reg. Guide:

- (a) should state this as a requirement unambiguously,
- (b) should explain why such a requirement is needed as an additional surrogate measure of the Safety Goal Policy quantitative health objectives (beyond the existing established risk metrics of CDF and LERF), and
- (c) should establish clear definitions and metrics for reporting of large late release frequency.

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In any case, unexplained references to large late release as a required PRA attribute should be deleted, and the implication that there is a need to calculate full Level 2 results should be eliminated from Appendix A.

6. Section 2.2.3.3 (page 20) introduces a caveat regarding acceptable power level increase requests, based on the analyses underlying the current LERF guidelines. The caveat indicates that resulting power levels must be no greater than 3800 MWt. We note that several currently operating plants were designed to this power rating, and suggest that if restrictions in application of the risk metrics are implied by this caveat, then additional more definitive guidance should be provided to indicate what types of evaluations of LERF impact might be required.
7. Appendix A, Section A.2 (PRA Characteristics and Attributes), includes, under “Level 2 PRA (Containment Response)” a substantial focus on containment system performance, but little emphasis on containment bypass sequences. Since most of the offsite consequence associated with plant risk is associated with containment bypass, it would appear that the focus of Appendix A in this area is unbalanced. If Appendix A is retained, this should be corrected.
8. Appendix A, Section A.2 (PRA Characteristics and Attributes), under “Level 1 PRA (Internal Events), Success criteria analysis” and under “Level 2 PRA (Containment Response), Severe accident progression analysis,” implies that codes used for these analyses must be “validated and verified.” While it is important that codes used to define the bases for success criteria and accident progression be shown to be applicable to the plant and scenario and have appropriate capabilities, formal “V&V” in the traditional design basis sense is not necessary to establish such applicability and capability sufficient for developing realistic PRA success criteria and Level 2 consequences. This should be clarified in Appendix A.
9. Appendix A, Section A.2 (PRA Characteristics and Attributes), under “Level 2 PRA (Containment Response), Source term analysis,” includes the statement “The characterization includes the time, elevation, and energy of the release and the amount, form, and size of the radioactive material that is released to the environment.” This implies that a full analysis of fission product releases be within the capability of the PRA. There are a number of different methodologies for quantifying Level 2 consequences that do not involve detailed plant-specific analysis of fission product releases, but rather rely on certain accident progression elements to distinguish among broad classes of release consequences. One such method is outlined in NUREG/CR-6595. Appendix A should be revised to note that accident consequences can be adequately characterized without the need for plant specific source term analyses.
10. Appendix A, Section A.2 (PRA Characteristics and Attributes), includes, under “Internal Fire, Fire damage analysis”, the statement that “The analysis needs to address components whose failure will cause an initiating event, affect the plant’s ability to mitigate an initiating event, or affect potentially risk-significant equipment” The logic in this sentence should be revised to reflect the need to address fires that both cause an initiating event (e.g., plant trip) and affect the ability of the plant to mitigate the fire-induced plant trip.

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11. Appendix A, Section A.3 (Peer Review) includes an incorrect characterization of the objectives of peer review in the discussion of the peer review process (page 52, second paragraph). In this discussion, the statement is made that "The PRA models are compared against the plant design and procedures to validate that they reflect the as-built and as-operated plant." It is not, under any peer review process with which we are familiar, a function of a peer review to perform such a validation. Checking of models against other plant information is instead within the licensee's quality assurance functions as they apply to the PRA. Peer reviewers would be expected to perform sufficient checks and comparisons to convince themselves that the model has been constructed with the objective of reflecting the as-built and as-operated plant, but would not perform a validation. The noted sentence should be deleted or revised.

Editorial Comments

1. Page 10, Section 2.1.2: "... and (2) consequence (replace "risk" with "consequence") should be considered in addition to likelihood..."
2. Page 15, paragraph 1: "... in addressing issues (delete second occurrence of: "issues") related to long-term containment integrity.."
3. Page 26, end of first full paragraph, "... this requires that the model has to be of relatively high quality." Suggest that use of "quality" is inconsistent with the other changes made in the proposed revision (e.g., "technical acceptability")
4. Page 27, third paragraph, typo (low safety "significanct" instead of "significant")
5. Page 46, Success Criteria Analysis: ".. criteria needed for a function to be successful are (strikethrough: is) dependent on ..."
6. Pages 47-47: Fussel should be spelled Fussell
7. Page 52, Table A-3: "... is a documented process ..."