Codes and Standards

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June 3, 2002

Mr. Samuel J. Collins
Director, Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Comments on 10 CFR 50.69 Draft Rule Language as of April 3, 2002

Reference: Letter from John H. Ferguson, Vice President, ASME Nuclear Codes & Standards to Secretary, U.S. Nuclear Regulatory Commission Rulemakings and Adjudications Staff, *Comments on 10 CFR 50.69 Rulemaking Proposal*, dated December 20, 2001

Dear Mr. Collins,

The NRC recently made public an updated version of draft rule language for 10 CFR 50.69, *Risk-Informed Treatment of Systems, Structures, and Components,"* dated April 3, 2002. This letter provides comments from the American Society of Mechanical Engineers on the April 3 draft rule language (Attachment 1). Note that these comments supplement those previously submitted in the referenced letter related to an earlier version of the NRC draft document. We recognize that the formal public comment period will occur following issuance of the proposed §50.69 rule later this year. Attachment 2 contains implementation issues that ASME would like the NRC to consider in the development of the rule.

In principle, ASME agrees with risk-informing regulations. The proposed rule §50.69 should permit focused stakeholder attention to treatment requirements consistent with their importance to safety. However, there are some ASME Code related issues that need to be addressed as outlined in more detail in our attached comments, particularly related to the exemption of ASME requirements for proposed risk-informed safety class-3 (RISC-3) systems, structures, and components (SSCs).

As members of NRC staff and Industry who are involved with the applicable Codes and standards are aware, ASME has developed risk-informed options in Codes and Standards that are intended to complement and integrate with the requirements and guidance on this risk-informed regulatory initiative. Some specific examples are risk-informed Code Cases addressing inservice testing, inservice inspection, and repair/replacement activities.

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We believe that the use of these Code Cases, developed through the ASME consensus process, can substantially reduce unnecessary regulatory burden and maintain safety commensurate with the risk importance of the SSCs.

We have not completed our evaluation of the impact of the latest draft rule language not making use of ASME Code Cases that can be utilized within this new regulatory framework. We expect to complete this evaluation and develop a position on this impact during the ASME Board on Nuclear Codes and Standards meeting in Minneapolis, MN on June 12-13, 2002. Once ASME has had the opportunity to discuss and formulate a position on these matters, ASME would be willing to work with the NRC Staff to address them.

The attached comments are being provided in advance of this meeting and the issuance of an ASME position to allow the NRC to consider some of the issues associated with the current draft language for §50.69, along with other items, related to ASME Codes and Standards.

Should there be questions regarding these comments, please direct them to Mr. Gerry M. Eisenberg, ASME Director, Nuclear Codes and Standards at the above address or by phone at 212-591-8510.

Sincerely Yours,

John H. Ferguson

John H. Ferguson
Vice President, Nuclear Codes & Standards

Cc: Members, ASME Board on Nuclear Codes and Standards
Members, ASME BNCS Risk Management Task Group

Attachment 1

ASME comments on the 10 CFR 50.69 draft rule language (as of April 3, 2002) are provided below.

(1) Reference to ASME Codes and Standards

The Foreword of the ASME Boiler and Pressure Vessel Code acknowledges that regulatory bodies may make additions or deletions to the Code, but states that – "the intent of the Code might not be attained....Accordingly, inquiries regarding such laws or regulations are to be directed to the issuing enforcement or regulatory body." Comment (2) below reflects issues that arise when the complete requirements of a Code are not utilized in the regulation. Using excerpts from a Code in lieu of citing the full requirements can result in an inconsistent or inappropriate application of the intended Code provisions. The excerpts cited in a federal regulation, which is intended to be a long standing document, may be quickly out-of-date as the ASME Committee continues to enhance the Code requirements based on experience from the users in applying the Standard. This latter issue should be expected when excerpts of requirements of Code Cases are cited in the regulation, which is the situation given in Comment (2).

Referencing recently approved specific ASME Code Cases and other Standards in §50.69, such as those provided in our December 2001 letter (see reference in cover letter), could result in another regulation requiring frequent updates associated with the identified ASME Codes and Standards. However, ASME is still evaluating whether the Codes & Standards, particularly those that have been specifically developed to address the framework outlined in the draft rule language for §50.69, should be directly endorsed in the regulations or should another appropriate regulatory vehicle be used to specify these requirements.

(2) ASME Code Requirements for Repair/Replacement

ASME recognizes the need to move forward with the proposed risk-informed initiative. In direct support of this effort, ASME has two proposed Code Cases nearing final approval that will assist the NRC and the industry in implementing the proposed §50.69 regulation by removal of nuclear special treatment requirements in the repair and replacement of low safety significant SSCs. These proposed Code Cases are Code Case N-658, *"Risk-Informed Safety Classification for Use in Risk-Informed Repair/Replacement Activities,"* and Code Case N-660, *"Alternative Repair/Replacement Requirements for Items Classified in Accordance With Risk-Informed Processes."* Direct use of these proposed Code Cases, once approved by ASME, will allow Licensees to meet appropriate technical and administrative requirements of the B&PV Code that are significantly less burdensome than current requirements. Based on ASME's involvement in developing these repair and replacement consensus Code Cases, comments on the portions of the proposed rule addressing repair and replacement requirements are provided below. The comments are based on the version of the Code Cases that were recently approved by the ASME Boiler & Pressure Vessel Standards Committee.

Paragraph §50.69(d)(2)(iv) allows RISC-3 and RISC-4 SSCs to be exempt from the ASME Section XI inservice inspection, and repair and replacement, requirements for ASME Class 2 and Class 3 SSCs in §50.55a(g). This exemption, however, is affected by provisions in paragraph §50.69(d)(3)(i) related to design controls. The provisions in (d)(3)(i) relative to ASME Class 2 and 3 SSCs appear to be modified portions of an earlier version of ASME's proposed Code Case N-660. Proposed Code Case N-660 provides alternative requirements for pressure retaining RISC-3 SSCs, and their supports, so that structural integrity continues to be maintained while eliminating special treatment requirements, consistent with the goals of Option 2. For pressure retaining RISC-3 SSCs and their supports, maintaining structural integrity should meet the requirement of (d)(3) to provide reasonable confidence in the capability of RISC-3 SSCs to perform their safety-related functions under design-basis conditions when challenged. However, including only portions of the proposed Code Case N-660 does not provide the same assurance that structural integrity will be maintained and does not adequately address performance of repair/replacement activities in operating nuclear power plants.

Section XI was specifically written to address inspection and performance of repair/replacement activities in an operating plant. Construction Codes only cover construction of new plants and new components and parts and the furnishing of new materials. Construction Codes are not appropriate to be used to replace Section XI for performance of repair/replacement activities because of operating plant conditions and because of the unique legal responsibility held by a Licensee. A fundamental principle in Section XI is that Owners (Licensees) may perform repair/replacement activities without the need for compliance with ASME conformity assessment programs, which are designed for manufacturers and suppliers furnishing materials, parts and components. Without the use of proposed Code Case N-660 to assure a set of workable requirements for implementing Option 2, there may be numerous implementation difficulties regarding compliance with Construction Codes, especially if the third and fourth sentences in (d)(3)(i) continue to be part of the proposed rule.

Although the third sentence in (d)(3)(i) appears to be a modified portion of an earlier version of proposed Code Case N-660, the sentence as proposed creates several concerns:

a) In proposed Code Case N-660, items procured as replacements can meet one of three options: i) meet the original requirements for the existing item, ii) meet the requirements of an alternative Construction Code applicable to the procured replacement (this allows the use of non-nuclear codes and standards that do not contain nuclear special treatment requirements), or iii) for replacement materials, parts, piping subassemblies, and supports where the existing items were constructed to Section III, these replacement items can be procured to the technical requirements of Section III and the administrative requirements of a Construction Code applicable to the procured replacement item. Option iii was included in the proposed Case to allow materials and parts (materials and parts are ASME BPV Code terms for sub-component items, i.e., pieces that go into a component, but do not include a complete component such as a vessel, pump, valve, or piping system) to be procured for installation into an existing component

constructed to Section III, without the need to completely redesign the component to an alternative Construction Code. Option iii was added to the Case to minimize the impact on Licensees when procuring replacement materials and parts by allowing the existing design to continue to be used. Option iii is not to be used for procuring complete components. If a complete replacement component were to be procured, it would be procured under Option ii. Option iii does not eliminate administrative requirements, but does allow non-nuclear administrative requirements to be used in lieu of Section III administrative requirements that contain nuclear special treatment requirements.

The proposed third sentence in (d)(3)(i) significantly departs from the provisions in the proposed ASME Code Case. The proposed third sentence allows complete replacement components, such as vessels, pumps or valves, as well as replacement materials and parts to be procured to the technical requirements of Section III, without any administrative requirements. The administrative requirements of commercial codes and standards are used by other industries and there appears to be no reason why the NRC should eliminate administrative requirements that are successfully applied to industries outside of nuclear. For replacement components, only the second option in the proposed third sentence should be allowed.

Therefore, for the specific area of procuring replacements, the first option in the third sentence should be rewritten similar to that provided in the proposed ASME Code Case.

b) There is an error in the third sentence of (d)(3)(i). It should read as follows: "For RISC-3 SSCs where the code of record is Section III of the ASME Boiler and Pressure Vessel (BPV) Code, in lieu of meeting the administrative and technical requirements of [insert "of Section III of"] the ASME BPV Code,..." The intent is to allow an alternative to the Section III special treatment requirements, not the entire BPV Code. Without the addition of the words "Section III of", the proposed sentence would prohibit meeting Section VIII of the BPV Code, which is considered an acceptable nationally-recognized Code for vessels.

c) The words "of record" in the first option of the third sentence should be deleted. The deletion of "of record" is important to allow the use of later editions and addenda of Section III, beyond the original code of record for the item. Allowance for use of later editions and addenda is standard practice, is currently allowed by Section XI and therefore the current NRC Regulations, and should not be prohibited by these words in the rule.

d) The proposed ASME Code Case N-660 defines administrative requirements so that users correctly implement the intent of the Case. If the NRC is going to separate technical and administrative requirements without reference to the proposed Code Case, definitions of these terms should be included in the

proposed rule, or there may be inconsistent or inappropriate application of these provisions.

e) Section III should be identified as the "construction code of record". As noted earlier, Section III only covers construction of new plants and new components and parts and the furnishing of new materials. It does not apply to the performance of repair/replacement activities in a completed and operating nuclear plant.

The 4th sentence of §50.69(d)(3)(i) should be revised. It appears to be encouraging Licensees to select alternative codes and standards other than those originally used for construction of their plants. This may be appropriate where the original code was ASME B31.7, ASME Draft Pump and Valve Code, or other codes and standards that are no longer being published. However, there should be no problem with, or need to address, the use of non-nuclear construction codes and standards in the proposed 50.69. The use of non-nuclear construction codes and standards continues to be acceptable and reasonable and there are no nuclear "special treatment" requirements involved that pose a burden to Licensees.

(3) Scope and Intent of §50.69

The draft rule language states that – "Under the alternative framework, licensees, using a risk-informed process for categorizing SSC(s) according to their safety and risk significance, could remove SSCs of low safety significance from the scope of these certain identified treatment requirements." It has been our understanding that the scope of a §50.69 application would be expected to involve a number of plant systems resulting in the removal of a significant number of SSCs from the scope of several special treatment requirements. From deliberations within the ASME committees on the development and approval of the above mentioned Code Cases N-658 and N-660 to risk-inform ASME repair/replacement activities, it is well understood that licensees do not want to be required to implement the risk-informing of special treatment requirements for the whole plant.

The April 3, 2002 version of the draft rule language appears to allow a licensee to address one type of SSC for one special treatment requirement. For example, check valves in a few systems could be selected so that these SSCs could be removed from one special treatment requirement, e.g., inservice testing. In essence, the draft rule language in its present form allows use of alternatives to the Code & Regulations already established for specific applications in Option 1 for risk-informing the regulations. To help eliminate potential conflict and confusion between Option 1 and Option 2 applications per §50.69, ASME recommends that some clarification of the scope and intent of §50.69 should be provided regarding selective implementation.

Attachment 2

ASME comments that relate to implementation issues of the 10 CFR 50.69 draft rule language (as of April 3, 2002) are provided below for consideration in the development of the rule.

(1) Risk-Informed Categorization of SSCs

Paragraph §50.69(c) sets forth the requirements of the methodology to categorize SSCs as to their risk-informed safety classes. The ASME has developed methodologies for determining risk-informed safety categories of both active and passive SSCs, i.e. OMN-3 for active components and N-577, N-578, and N-658 for passive components. All four ASME categorization methods broadly agree with the requirements set forth in Paragraph §50.69(c)(1) (i) and (ii). However, the details of the ASME categorization processes differ from other categorization methods such as those suggested in earlier drafts of the proposed Appendix T and NEI-00-04. The ASME recommended treatments for the different risk-informed safety classes were developed in close ties with their respective categorization methodology. As such, care must be exercised that if an ASME recommended treatment is used that the details of the safety categorization methodology conform to the ASME categorization methodology applicable for the SSC.

(2) Risk-Informed Classification of Pressure-Retaining Items

The proposed §50.69 framework requires the use of plant-specific risk assessment (PRA) models along with an Integrated Decision-making Panel (IDP) to properly categorize SSCs into one of four risk-informed safety classifications. While significant experience has been gained in applying these approaches for SSCs with active functions, ASME has also spent considerable effort in developing and approving methods for dealing with the risk-informed safety categorization of pressure-retaining items. These items are generally not explicitly modeled in plant-specific PRAs. Therefore, special approaches, such as use of surrogate component modeling, are needed to categorize these items using risk-informed insights, including particular evaluation by IDPs.

ASME, working with industry and NRC, has developed and approved Code Cases for the use of risk-informed ISI methods for the categorization and examination of piping segments/components. As mentioned previously, Code Case N-658 is nearing approval within ASME for the risk-informed safety classification of pressure-retaining items for repair/replacement activities.

Paragraph §50.69(d)(2)(iv) in the draft rule language allows RISC-3 and RISC-4 SSCs to be exempt from the inservice inspection, and repair and replacement, requirements for ASME Class 2 and Class 3 SSCs in §50.55a(g). It is not clear whether the intent is to include exemption from the pressure testing requirements of ASME Section XI inservice inspection requirements. In addition, it appears that RISC-3 and RISC-4 SSCs other than piping components could also be exempt from examination. At the present time, none of the approved ASME Code Cases provides a risk-informed categorization process to cover

the scope of these exemptions, and we are not aware of any other process that is approved or under development for performing such classification. Some very early discussions have begun on expanding Code Case N-658, once approved, to address pressure testing. Given this situation, it is recommended that further explanation be considered in proposed paragraph §50.69(d)(2)(iv) to clarify the specific SSCs and treatments that are permitted by the exemption.

(3) Inservice Testing Requirements

Paragraph §50.69(d)(2)(iv) allows RISC-3 and RISC-4 SSCs to be exempt from the inservice testing requirements of §50.55a(f). However, §50.69(d)(3)(iii) imposes new requirements for establishing and conducting periodic maintenance, inspection, testing, and surveillance activities, and evaluating the results to verify that the RISC-3 SSCs will perform their safety-related functions under design-basis conditions. These requirements are not consistent with ASME Code inservice testing requirements and can easily be interpreted as being significantly more demanding. The ASME Code does not require that data be obtained to verify that these SSCs will perform their safety-related functions under design-basis conditions. Rather the ASME Codes require that data be obtained to assess the operational readiness of SSCs.

ASME recommends this paragraph be clarified in such a way that the inservice inspection and testing-portions require data or information be obtained to assess the operational readiness of SSCs.

(4) Treatment of Safety Significant SSCs (RISC-1 and RISC-2)

Paragraph §50.69(d)(2)(iv) excludes RISC-3 and 4 SSCs from certain portions of 50.55a. Since §50.69(d)(1) is silent as to 50.55a, the implication is that 50.55a is perhaps applicable for safety significant SSCs categorized as RISC-1 and RISC-2. The ASME developed a set of treatment requirements for safety significant SSCs that, in some cases, differ from the treatment requirements of the current ASME codes and standards. As such care must be exercised in specifying specific ASME treatments for safety significant SSCs.