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Add: John O'Brien

DOCKETED USNRC  
RULES & PROCEDURES BR  
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COMBUSTION ENGINEERING

'87 OCT 15 A7:43

October 8, 1987  
LD-87-059

August 28, 1987  
SS FR 32626  
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Mr. David L. Meyer, Chief  
Rules and Procedures Branch  
Division of Rules and Records  
U. S. Nuclear Regulatory Commission  
Room 4000  
Maryland National Bank Building  
7735 Old Georgetown Road  
Bethesda, MD 20014

Subject: Comments on Proposed New SRP Section 3.6.3

Dear Mr. Meyer:

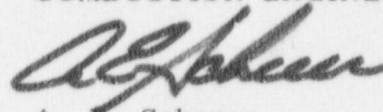
Combustion Engineering has reviewed the proposed new Standard Review Plan (SRP) Section 3.6.3, dealing with leak-before-break evaluations, noticed in the Federal Register (52FR32626). Detailed comments, based on that review, are provided in the Attachment to this letter.

In general, Combustion Engineering finds the guidance in the proposed new SRP section to be reasonable and consistent with current leak-before-break practice. Specific comments are provided, however, with the intent of suggesting ways to clarify some of the guidance and avoid potential over-generalizations which could result in unnecessary restrictions.

If you have any questions, please do not hesitate to call me or Mr. C. M. Molnar of my staff at (203) 285-5205.

Very truly yours,

COMBUSTION ENGINEERING, INC.



A. E. Scherer  
Director  
Nuclear Licensing

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Attachment

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letter sent 10/11/87

Detailed Comments on Proposed New SRP Section 3.6.3

1. Section I, item 2, second line; we believe the word "are" should be "area" so that the sentence reads as follows:

"2. A deterministic fracture mechanics and leak area evaluation."

2. Section II, 3rd paragraph indicates that leak-before-break (LBB) cannot be applied to discrete locations, but must be applied to an entire piping system or analyzable portion thereof to find the most limiting combination of loads and materials, even if all locations pass the stress and fatigue criteria for not having to postulate a pipe break. Conversely, ANS Standard 58.2 takes the position that LBB can be applied to eliminate pipe breaks on a location-by-location basis.

The ANS position precludes having to do unnecessary analysis for piping locations which have already been shown to be low stressed and have a low usage factor. The NRC may be concerned that some atypical combination of materials and/or stresses could exist, where the pipe break stress criteria would not require postulating a break, but the combination would not pass the LBB evaluation. We know of no such case in our experience with Class 1 piping inside containment. Possibly, the NRC is aware of a particular case in Class 2 or 3 piping or non-nuclear piping outside containment. If this is the case, the use of LBB on a location-by-location basis should be allowed at least on Class 1 piping, and perhaps Class 2 piping, if only Class 3 or non-nuclear piping is of concern.

Alternately, if the NRC concern is for materials with atypical properties which would pass the pipe break criteria, but might not pass the LBB criteria, then the only guidance should be to consider materials-loads combinations at locations that do not exhibit some minimum material property. We believe that the proposed guidance is too restrictive because it is written in a general manner to cover all piping. The guidance should be rephrased to address the specific concern(s).

3. We have reviewed Section III, items 1 through 10 and find them to be reasonable and consistent with current LBB practice. Item 10.1, however, presents a cook-book technique for a modified limit load analysis, which seems out of place in an SRP. It is suggested that it be replaced by reference to some published source.



4. In Section III, item 10.1, 1st sentence; replace the words "pipe restraints" with "of dynamic effects of pipe ruptures", which is the more general case.
5. Section V, 7th paragraph, last sentence, which reads "Displacements and rotations resulting from ..... heavy components". This needs further amplification; we do not understand what is intended. The writer seems to have had a specific case or methodology in mind, which is not obvious.  
If the words "Displacements and rotations resulting from" and the words "lateral (horizontal)" are deleted, then we understand the overall intent. However, support failures are not postulated, rather supports are designed so that they will perform their function under the broad spectrum of plant design conditions.

It is recommended that this sentence be deleted as there is sufficient guidance on redesign of supports in the preceding sentences.

6. Section V, item 2, concerning B.1.C(4) of MEB 3-1. Based on discussions with John O'Brien (NRC), it is understood that the second sentence was intended to mean: ..... only the subcompartment pressurizations resulting from a break area equivalent to 1.0 times the cross section of the pipe which results in the highest subcompartment pressure on the structure, assuming a linear break opening time of 3 seconds, .....

With this understanding, our comment is that this appears to be arbitrary and would result in excessive conservatism in the plant design, given that the lines to which this applies have already been demonstrated to satisfy the LBB criteria. We further understand that the specific concern which prompted this guidance has to do with block walls outside containment. The guidance as currently written, however, is not restricted to any particular types of structures or locations. As written, therefore, it could apply to all piping, including PWR main loop piping which has already been shown to be a LBB candidate.

As a minimum, it is recommended that this guidance be limited to piping outside containment. As a more general recommendation, the leakage cracks discussed in Section V, Item 1 are sufficiently conservative for consideration of pressurization effects for lines which have been demonstrated to satisfy LBB criteria based on leak detection capabilities for cracks much smaller than the prescribed leakage cracks. There is sufficient conservatism in the leak detection crack size required in the LBB criteria, that the through wall leakage cracks specified for environmental effects need not have further conservatism added as in the proposed Item 2.

7. While the proposed SRP and reportedly the final broad scope amendment to GDC-4 leaves the door open for relaxation of environmental qualification requirements, it must be accomplished on a case-by-case basis and through a formal exemption request process. We believe this is an unnecessary burden when LBB can be utilized as the basis for determination of more realistic environmental profiles to which safety-related equipment can be purchased and qualified. We urge the NRC, therefore, to take expeditious action to grant regulatory relief in this area and not to persist in the maintenance of an overly conservative approach to equipment qualification. Procurement of equipment to unnecessarily severe standards may result in performance trade-offs which are counterproductive to maintaining a high degree of overall plant safety.
8. Regarding containment design bases; containments (and ECCS equipment) are conservatively designed to accommodate the thermal hydraulic effects of a postulated double-ended pipe rupture. This philosophy provides a high degree of assurance that the safety functions ascribed to this equipment will be successfully completed. Extension of this design assumption, however, such that requirements are imposed to protect this equipment from the dynamic effects of pipe ruptures which have been justifiably eliminated is not warranted. It is suggested that relief from the dynamic affects of pipe breaks be extended to containment structures and that this guidance be explicitly incorporated into SRP Section 3.6.3.