

CT-1640

PDR 09/983

**Battelle**

Pacific Northwest Laboratories  
P.O. Box 999  
Richland, Washington U.S.A. 99352  
Telephone (509) 375-2223  
Telex 15-2874

August 8, 1983

Mr. Paul A. Boehnert  
Senior Staff Engineer  
Advisory Committee on Reactor Safeguards  
U. S. Nuclear Regulatory Commission  
Mail Stop H-1016  
Washington, D. C. 20555

Dear Paul:

SUBJECT: CRBR PLANT-SEISMIC MARGINS IN SMALL HEAT TRANSPORT SYSTEM PIPING

I reviewed the package supplied by CRBR as well as NUREG/CR-2137. Generally, I tend to agree with Bob Bosnak's letter concerning the relative margins of large versus small piping.

On the basis of comparison, I can accept the approach used by CRBR; however, NUREG/CR-2137 explicitly cites the inapplicability of ASME design procedures in the creep range. I recognize that a code case was used and that creep rates are nominal; however, it is stretching things a bit.

With regard to conservatisms related to the seismic design, there are several applying equally to large and small piping so these factors could be applied across the board.

I would anticipate more failures in small than in large piping for causes other than seismic. I feel that the seismic contribution to piping failures is greatly exaggerated and will be low on the list of piping failure mechanisms.

My only other caveat (because I didn't have the references cited) was the confirmation that the minimum values cited for 316SS at the various temperatures were indeed correct. A cursory check against the ASM Metals Handbook placed them in the ballpark. If I accept their value of 1.10 for spread from mean to minimum, it checks reasonably well. Incidentally, NUREG/CR-2137 is based on the use of minimum values and the CRBR semi-claim that they are throwing in a bonus by using minimum rather than average values isn't valid.

As can be seen, I have some minor reservations, but accept the overall report.

Very truly yours,

*Spencer H. Bush*  
Spencer H. Bush, P.E.  
Senior Staff Consultant

DESIGNATED ORIGINAL

Certified By BPR

8309290393 830808  
PDR ACRS  
CT-1640 PDR