



Washington Public Power Supply System  
A JOINT OPERATING AGENCY

P. O. Box 988 3000 GED. WASHINGTON WAY RICHLAND, WASHINGTON 99352 PHONE (509) 375-8000

Docket Nos: 50-460  
50-513

April 7, 1981  
601-81-098

Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Mr. B. J. Youngblood, Chief  
Licensing Branch

Dear Mr. Youngblood:

Subject: SUPPLY SYSTEM NUCLEAR PROJECTS NOS. 1/4  
APPLICATION OF ASME CODE CASES  
N219 AND N-287

The WNP-1/4 containment design (excluding liner) is based upon the ASME Boiler & Pressure Vessel Code; Section III, Division 2; up to and including the 1976 Winter Addenda.

Article CC-3421-6 of the code states that the peripheral or punching shear stress taken by the concrete on the assumed failure surface shall not exceed  $vc$  and the value of  $vc$  shall be calculated as a weighted average of  $vch$  and  $vcm$ , where

$vc$  = nominal permissible shear stress carried by concrete, psi

$vch$  = allowable shear stress on a failure surface perpendicular to a meridional line

$vcm$  = allowable shear stress on a meridional failure surface perpendicular to the plane of the shell.



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Code Case N-219 states that no peripheral shear reinforcement is required when

$$v_c < v \text{ or } v_u \leq 0.5 \times \sqrt{f'_c}, \text{ where}$$

$v_c$  = nominal permissible shear stress carried by concrete, psi

$v_u$  = nominal total design shear stress, psi

$f'_c$  = specified compressive strength of concrete, psi.

Thus, Code Case N-219 establishes criteria as to when no peripheral shear is required.

Article CC-3421.4 of the code states that the radial shear is caused by self constraint of a cylinder and base slab during pressurization of the containment. Article CC-3421.4.1 provides limits of the nominal shear stress  $v_c$  shall not exceed.

The Code Case N-287 states that no radial shear reinforcement is required when

$$v_c < v \text{ or } v_u \leq 0.5 \times \sqrt{f'_c}$$

Thus, Code Case N-287 establishes criteria as to when no radial shear reinforcing is required.

We presently intend to use Code Cases N-219 and N-287 in the WNP-1/4 Containment Design and request NRC agreement with this course of action. We would appreciate a reply by April 30, 1981.

Very truly yours,

*SD Bouchey*

G. D. Bouchey  
Director, Nuclear Safety

VBM:oe

cc: V. Mani, UE&C-PA  
A. Bournia, NRC  
C. R. Bryant, BPA  
N. S. Reynolds, Debevoise & Liberman