

**Washington Public Power Supply System**

P.O. Box 968 3000 George Washington Way Richland, Washington 99352 (509) 372-5000

June 26, 1981  
G02-81-0157

Docket No. 50-397

Mr. R. H. Engelken, Director  
U.S. Nuclear Regulatory Commission  
Region V  
Suite 202, Walnut Creek Plaza  
1990 North California Blvd.  
Walnut Creek, CA 94596



Dear Mr. Engelken:

Subject: SUPPLY SYSTEM NUCLEAR PROJECT NO. 2  
REPORTABLE DEFICIENCY -10CFR50.55(e)  
LOCAL OVERSTRESS CONDITION OF PIPE  
BEARING ON FLAT PLATE

In accordance with the guidelines for the reporting of 10CFR50.55(e) conditions your staff was informed on March 9, 1981, of a potentially reportable condition regarding local overstress condition on pipe bearing on flat plate. An interim report describing the deficiency and our approach to the resolution was submitted per G02-81-76, dated April 10, 1981. The WNP-2 project has completed its evaluation and has determined this condition to be reportable under the provisions of 10CFR50.55(e).

Attached is our report on this deficiency. Please contact us if you have additional questions.

Very truly yours,

  
R. G. MATLOCK  
Program Director, WNP-2

TAS:dm

cc: WS Chin -BPA  
ND Lewis -EFSEC, Olympia  
TA Mangelsdorf-Bechtel-954K  
RE Snaith -B&R NY  
AD Toth -NRC Resident Inspector  
JJ Verderber-B&R NY  
A. Schwencer-NRC  
WNP-2-FILES

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FINAL REPORT  
REPORTABLE DEFICIENCY  
AND CORRECTIVE ACTION

WPPSS NUCLEAR PROJECT NO. 2  
POSSIBLE LOCAL OVERSTRESS CONDITION  
OF PIPE BEARING ON FLAT PLATE

WASHINGTON PUBLIC POWER SUPPLY SYSTEM  
DOCKET NO. 50-397  
LICENSE NO. CPPR-93

Nature of Deficiency

Piping reaction forces on pipe support RHR-127 were originally identified as being distributed into the pipe over a relatively small contact surface. Formulas for stress in thin-walled cylinders bearing on a flat surface result in line contact with the piping, exceeding ASME Code allowable stresses.

Safety Significance

If this type of deficiency were to remain uncorrected, ASME Code allowable stresses could be exceeded during faulted conditions. The potential failure could adversely affect the safe operation of the plant.

Corrective Action

- (1) Initially a finite element analysis was run on a segment of pipe at support RHR-127; the results were found unacceptable due to stress levels. Pipe stress levels obtained by finite element analysis have been reviewed for other cases and found acceptable for pipes smaller than 14".
- (2) A comprehensive field walk was completed which identified 119 similar type pipe supports at WNP-2. This list was reduced to 15 pipe supports requiring further investigation. All 15 pipe supports were ASME III/2, III/3, or B31.1 and were analyzed by finite element analysis. No support of this type of condition exists on any ASME Section III Class I Systems.
- (3) An ANSYS finite element analysis was performed on the 15 supports of which four (4) were determined to have design deficiencies. These have since been redesigned and reissued for construction. Design criteria have been issued governing the design of future hangers, to ensure that this potential design deficiency will not be repeated.