



Washington Public Power Supply System
A JOINT OPERATING AGENCY

P. O. Box 988 3000 GEO. WASHINGTON WAY RICHLAND, WASHINGTON 99352 PHONE (509) 375-5000

G02-78-245
November 6, 1978



Nuclear Regulatory Commission
Region V
Suite 202 Walnut Creek Plaza
1900 N. California Boulevard
Walnut Creek, California 94596

Attention: Mr. R. H. Engelken, Director

Subject: WPPSS NUCLEAR PROJECT NO. 2
DOCKET NUMBER 50-397, CPPR-93
REPORTABLE DEFICIENCY - 10CFR50.55(e)

Dear Mr. Engelken:

In accordance with the provisions of 10CFR50.55(e), your staff was informed by telephone on October 10, 1978, of a reportable deficiency involving Anchor/Darling tilting disc check valves in the Residual Heat Removal System failing to close with gravity when installed in a vertical position which could potentially result in damage to the system or a delay in system response. This problem had been previously identified in IE Circular No. 78-15. Attached is our report on this deficiency.

If you require additional information, please feel free to contact us.

Very truly yours,

D. L. RENBERGER
Assistant Director
Technology

DLR:JAO:cph

Attachment

cc: JJ Verderber, B&R
RC Root, B&R Site
JJ Byrnes, B&R
D. Roe, BPA
E. Volgenau, NRC, Washington, D.C.

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REPORTED DEFICIENCY AND CORRECTIVE ACTION
FOR TILTING DISC CHECK VALVES FAILURE TO CLOSE
WITH GRAVITY IN VERTICAL POSITION

Nature of Deficiency:

Anchor/Darling informed Burns and Roe by letter, dated June 18, 1978, that their tilting disc check valves of a specific pressure class and size may not close by gravity alone once they are fully opened if mounted in a vertical pipe. The cause is that the disc center of gravity travels beyond or is directly above the disc pivot point when the valve is fully open.

This problem has been identified in IE Circular No. 78-15.

We have identified all these valves in safety-related systems, i.e. the Residual Heat Removal (RHR) pump discharge check valves (RHR-V-31A, B and C) and determined that RHR-V-31B will not close by gravity when fully opened.

Safety Implications

Failure of the pump discharge check valve to close will drain the RHR/Low Pressure Coolant Injection (LPCI) discharge piping into the suppression chamber. The water leg pump will not be able to maintain the piping full due to the flow path to the suppression chamber. Subsequent start of the RHR pump may result in water hammer which could disable the RHR/LPCI Loop. Also, the time required for LPCI to inject water into the reactor may be increased beyond the time assumed in the accident analyses, due to the extra time required to refill the discharge piping. An additional single failure would reduce the Emergency Core Cooling Systems below minimum requirements.

Corrective Action Taken and Planned

Anchor/Darling has been contacted by WPPSS about modifying the disc by adding a weld buildup or a lug to the disc counterweight so as not to allow the disc center of gravity to travel over the disc pivot point. The modification will be coordinated with Anchor/Darling and it is expected to be completed by March, 1979. The field Quality Assurance program will inspect and verify after the fix that this valve will close by gravity when fully opened.