

Washington Public Power Supply System

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April 24, 1984
G01-84-0124

Responds to: -
Response required by: -

Mr. J.B. Martin
Regional Administrator
Nuclear Regulatory Commission
Region V
1450 Maria Lane, Suite 210
Walnut Creek, CA 94596

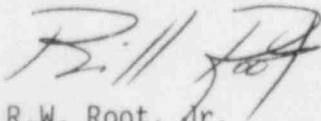
Subject: NUCLEAR PROJECTS NOS. 1 AND 4
DOCKET NOS. 50-460 and 50-513
POTENTIALLY REPORTABLE CONDITION 10CFR50.55(e)
OPERATING CHARACTERISTICS OF MAIN STEAM
AND FEEDWATER ISOLATION VALVES

Reference: Telecon, C.R. Edwards, Supply System, to R.T. Dodds, NRC, same subject,
dated March 26, 1984.

In the reference, the Supply System informed your office of a potentially reportable deficiency under 10CFR50.55(e).

Attachment A provides a statement of the identified condition and a brief description of our planned actions to correct the identified deficiency. Based on the current construction status at WNP-1/4, the Supply System will not be able to issue a final report at this time. An update will be provided at construction restart.

If you have any questions or desire further information, please advise.



R.W. Root, Jr.
WNP-1 Program Director (821)

RWR/LCO/cmh

Attachment

cc: TA Mangelsdorf, BPC (862)
V Mani, UE&C (899)
EC Haren, UE&C (895)
NRC Document Control Desk
FDCC (899)
ORM (847)

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ATTACHMENT A
DOCKET NOS. 50-460 - 50-513
POTENTIALLY REPORTABLE CONDITION PER 10CFR50.55(e)
OPERATING CHARACTERISTICS OF MAIN STEAM AND FEEDWATER
ISOLATION VALVES

Description of Deficiency

The WNP-1/4 design has two steam generators per plant. Each steam generator is isolated from the Feedwater System by two Feedwater Isolation Valves (FWIV's) in series for a total of four FWIV's per plant (FWS-V-16B, 17A, 28B, and 29A). Each steam generator has two outlet lines containing one Main Steam Isolation Valve (MSIV) per line for a total of four MSIV's per plant (MSS-V-1C, 2C, 3C, and 4C). These eight valves per plant are all located just outside containment in the Main Steam and Feedwater Isolation Area (MSFIA) which is an enclosed structure. All eight valves were supplied by Anchor Darling Valve Company.

The emergency closure design requirements of these valves include a fast closure mode at the abnormal minimum postulated environment temperature of 55°F. The environmental conditions for the MSFIA structure were defined in the technical specification as:

Normal Maximum	90°F
Normal Minimum	55°F
Abnormal Maximum	420°F

Note that an Abnormal Minimum temperature was not specifically given. Anchor Darling used 60°F as the abnormal minimum temperature when designing and calibrating the valves for the fast closure mode. As these valves use hydraulic fluid (Fryquel 220), the fast closure time of the valves may not be met due to the increased viscosity of the hydraulic fluid at 55°F.

Specifically, the MSIV and FWIV's are required to close in 4.5 to 5.0 and 11.5 to 12.5 seconds respectively in the fast closure mode at abnormal conditions. Preliminary calculations by Anchor Darling indicate that closure times may be closer to 7 and 17 seconds respectively.

Analysis of Safety Implication

The eight valves in question isolate the secondary side of the steam generators (OTSG's) during normal and off normal conditions. Although the immediate effects of a slow valve closure depend on the event and specific circumstances, several generalizations can be made.

Effects of slow closure of MSIV's include the following:

- Increase in Main Steam dump to atmosphere
- Potential for increased depressurization of OTSG's

Effects of slow closure of FWIV's include the following;

- Increase in mass and energy release to containment
- Increase in feedwater inventory in OTSG
- Reduction in transient pipe loadings.

Due to the complexity of the analyses required to analyze the cooling transients and radiological effects caused by slow valve closure, the Supply System is currently unable to determine the exact safety implications.

Cause of Deficiency

Anchor Darling improperly interpreted the technical specification when determining the abnormal minimum environmental temperature. Although the MSFIA structure is normally heated, the heaters are not safety class. In summary, Anchor Darling should have used 55°F as both the normal and abnormal minimum environmental temperature.

Corrective Action

The valve closure times are based on needle valve settings in the hydraulic operator of the valve. The Supply System is shipping one Main Steam and one Feedwater valve actuator back to Anchor Darling for recalibration at 55°F. As all four MSIV's are identical and the four FWIV's are identical it is only necessary to calibrate one of each type. Anchor Darling will determine correct needle valve settings and forward the data to the Project. The valves will then have to be properly adjusted in order to close out the nonconformance reports that have been issued (1-BNCR-87-03 and 4-BNCR-87-04).

Action to Prevent Recurrence

As these eight valves are the only hydraulic operated safety related valves of this type with critical closure times, this is an isolated case and no further actions are necessary.