



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

October 9, 1985

MEMORANDUM FOR: J. Ebersole, Chairman
Palo Verde Nuclear Station Unit 2 Subcommittee

W. Kerr, Member
H. Lewis, Member

FROM: D. Houston, Staff Engineer *D. Houston*

SUBJECT: ITEMS FOR CONSIDERATION REGARDING THE COMMITTEE
POSITION ON PALO VERDE UNIT 2

Per the attached memorandum from S. Chilk to R. Fraley dated September 17, 1985, Commissioner Asselstine has requested the ACRS to provide an updated Committee position on Palo Verde Unit 2 prior to the low power or full power license decision if the Committee has a different view from that contained in their December 15, 1981 report on Palo Verde. In the December 15, 1981 report, the Committee stated that a review of the startup experience on Unit 1 should be made prior to fuel loading on Unit 2 and the Committee kept informed. Further, in a letter dated May 13, 1985, the Committee expressed concerns about the depressurization system and agreed to pursue resolution in their review of USI A-45. As stated in my previous memorandum dated September 4, 1985, the anticipated low power license and fuel load date for Unit 2 is November 1, 1985. This is still the anticipated schedule.

Startup Experience

In partial fulfillment of the Committee's request, the Staff has provided a summary of the startup experience up to 50% power (attached memo from T. Novak to R. Fraley dated September 26, 1985). No significant problems were reported. In addition, the Staff planned to discuss further operating experience up to 100% power with the Committee during its November 7-8, 1985 meeting. Had the plant not experienced recent problems, loss of load event (9/12/85) and loss of offsite power (10/3/85), the Staff's proposed presentation seemed appropriate to resolve the current issues.

Loss of Load Event

A preliminary description of the plant problems that were experienced during a planned load rejection test was presented in my memorandum of September 23, 1985. The most significant aspect of the event was that the pressurizer auxiliary spray system would have been unavailable had it been needed to depressurize the reactor coolant system (RCS). This

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system was rendered inoperable due to two sequences in the event: (1) electric power to the motor operated valves that controlled gravity feed to the charging pumps was tripped automatically upon receipt of the safety injection actuation signal, and (2) the charging pumps (all three) lost suction due to an empty volume control tank (VCT). An erroneous level signal indicated that sufficient water was in the VCT. The charging pumps were inoperable for about 45 minutes until manual action in the plant reestablished the flow in the system.

Attached are selected vugraphs used by ANPP in their meetings with the Staff on September 20 and October 8, 1985 and a copy of the Staff's 50.54(f) letter to ANPP on this subject dated October 2, 1985. The Staff's letter discusses their concerns on this issue and requests detailed information in regard to analysis and modifications to resolve the issue. Also attached is a copy of Region V's Confirmatory Action Letter dated September 20, 1985 that lists the short term compensatory measures being taken to allow Unit 1 to continue operation. As a minimum, the Staff will require these same measures at Unit 2.

The utility has planned three modifications to overcome the problem. These are:

- (1) Power supply for the valves that control gravity flow will be modified to allow continued control following loss of power and safety injection actuation signal.
- (2) A second diverse reference leg will be added for VCT level monitoring with an alarm function.
- (3) There will be automatic realignment of the gravity feed valves such that the PWT becomes the primary water source following loss of power.

The Staff is still questioning the utilities reasoning of how this system meets the safety grade requirements. As modified, all of the components appear to be safety grade except for the motors on the gravity feed MOVs. The utility plans to submit a new analysis for the SGTR accident during the week of October 14, 1985 and this will be based on having the auxiliary spray on in 2 hours instead of the current 17 minutes.

Loss of Offsite Power

A preliminary description of the loss of offsite power event on October 3, 1985 is given in the attached vugraph. The event apparently was caused by a malfunction of a common multiplexing monitor system. Bechtel procured the multiplexer from Teledyne and they are reviewing the records to see if other plants might be involved. When trouble

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shooting the multiplexer on October 7, 1985, offsite power was lost again. The plant was in hot standby, the reactor coolant pumps tripped and the EDG's autostarted and loaded. The Staff sent an investigation team to the site on October 8, 1985 to review this issue.

Attachments: As Stated

cc: ACRS Members
ACRS Technical Staff
ACRS Fellows

STARTUP EXPERIENCE

1. Chilk memo of September 17, 1985
2. Novak memo of September 25, 1985