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U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NO. 50-445
AUTOMATIC OPERATION OF PRESSURIZER PORV
IN RESPONSE TO AN LTOP SIGNAL
SPECIAL REPORT NO. 1-SR-90-002-01

Gentlemen:

Enclosed is a supplement to Special Report 1-SR-90-002 submitted in accordance with CPSES Unit 1 Technical Specification 3.4.8.3, "Reactor Coolant System Overpressure Protection Systems".

This supplement provides a revision to Section 4 of the Special Report by eliminating the statement instructing the use of decay heat for establishing a pressurizer bubble.

A reevaluation was performed, based on plant experience, to determine the feasibility for establishing a pressurizer bubble using decay heat and pressurizer heaters prior to starting the Reactor Coolant Pumps. It was concluded that the system design is not conducive to utilizing decay heat for uniform Reactor Coolant System heatup.

Sincerely,

William J. Cahill, Jr.

JET/fds

Enclosure

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TU Electric
Comanche Peak Steam Electric Station, Unit 1
Docket No. 50-445

Automatic Operation of Pressurizer Power Operated Relief Valve in Response to a Low Temperature Overpressure Protection Signal

Special Report No. 1-SR-90-002-01

1.0 REPORT REQUIREMENT

On February 21, 1990, a Reactor Coolant System (RCS) pressure transient resulted in the automatic actuation of a Pressurizer Power Operated Relief Valve (PORV). This Special Report is being submitted in accordance with Comanche Peak Steam Electric Station Unit 1 Technical Specification 3.4.8.3, REACTOR COOLANT SYSTEM OVERPRESSURE PROTECTION SYSTEMS LIMITING CONDITION FOR OPERATION. Specification 3.4.8.3 requires that a Special Report be submitted to the Nuclear Regulatory Commission pursuant to Specification 6.9.2 describing any event in which a Pressurizer PORV, or the Residual Heat Removal suction relief valves, or the RCS vents are used to mitigate a RCS pressure transient.

2.0 EVENT DESCRIPTION

On February 21, 1990, at approximately 1317 CST, with the plant in cold shutdown and RCS temperature at 140 degrees F, a Pressurizer PORV automatically opened in response to a Low Temperature Overpressure Protection (LTOP) signal. Just prior to the event the RCS fill and vent procedure had been completed up to the vent of the RCS following the fourth Reactor Coolant Pump (RCP) one minute run. At the time of the event, the RCS was in a water solid condition and was being pressurized to 325 psig in preparation for the RCP ten minute runs. Letdown flow had been reduced to a flowrate less than the charging flowrate, resulting in an increasing RCS pressure. The solid plant pressure response to the reduced letdown flowrate was quicker than anticipated by the Reactor Operator (RO) and resulted in RCS pressure exceeding the target value. The RCS reached a maximum pressure of 436 psig. The system functioned as designed, causing a Pressurizer PORV to open for approximately 4 seconds, preventing the RCS pressure from exceeding the applicable limits. The RO reduced charging flow and increased letdown flow, stabilizing RCS pressure at 260 psig within two minutes. A review of recorded data subsequent to the event verified that the open PORV resulted in a drop in RCS pressure to 350 psig and a corresponding rise in the Pressurizer Relief Tank level.

3.0 CAUSE OF EVENT

The following have been identified as causes for the event:

- The procedure for filling and venting the RCS requires that the operator perform an iterative process, but does not consider the variation in plant response to identical instructions in going from a system containing air to a water solid system. The procedure does not adequately caution the RO of the change in expected plant response

- The process for pressurizing the RCS following a vent had been to completely isolate letdown flow resulting in a loss-of-letdown-flow alarm for the failed fuel monitor. The alarm, which should have alerted the RO to insufficient letdown flow, had become an expected alarm.

4.0 CORRECTIVE ACTION

The pressure transient was discussed with the RO. and the need for increased board awareness during solid plant operations was reinforced. A Lessons Learned summary was reviewed by all crews, and increased sensitivity of the plant to changes in letdown and charging was discussed.

The operating procedure will be revised as follows to incorporate lessons learned from this event:

- Eliminate repetitive steps for which differing plant responses are expected,

- Instruct the operator to avoid completely securing letdown flow, ensuring normal operation of the failed fuel monitor, and adequate operator response to a loss-of-flow alarm.

- Cautions will be added to alert the operator of expected plant responses in transitioning from a system with air to a water solid system.