

WOLF CREEK

NUCLEAR OPERATING CORPORATION

Otto L. Maynard
Vice President Plant Operations

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WO 96-0075

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station PL-1 37
Washington, D. C. 20555

Subject: Docket No. 50-482: Special Report 96-002

Gentlemen:

The attached Special Report is being submitted in accordance with Wolf Creek Generating Station Technical Specification 3.4.9.3, Action Statement (d) concerning use of a power-operated relief valve to mitigate a Reactor Coolant System pressure transient.

If you should have any questions regarding this response, please contact me at (316) 864-8831, ext. 4450, or Mr. William M. Lindsay at extension 8760.

Very truly yours,



Otto L. Maynard

OLM/jad

Attachment

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Special Report 96-002

This report describes the use of a power-operated relief valve (PORV) to mitigate a Reactor Coolant System (RCS) pressure transient.

Background Information

The Wolf Creek Generating Station (WCGS) Pressurizer is equipped with two PORVs, 455A and 456A. Two wide range channels monitor RCS pressure and provide signals to the PORVs. The setpoint for PORV 455A is 445 psig and 455 psig for PORV 456A. The Technical Specification (TS) Cold Overpressure Mitigation System (COMS) maximum allowable setpoint, for RCS temperatures between 0° and 177° Fahrenheit (F), is 485 psig. To prevent fracture of the RCS pressure boundary, the TS Heatup and Cooldown Curves RCS pressure limit is 600 psig.

Description of Event:

On March 27, 1996, at 0000 CST, WCGS was in MODE 5 coming out of the eighth refueling outage. The RCS was filled and vented. The RCS temperature was 129.8°F and RCS pressure was 50 psig. Control Room Operators proceeded to raise RCS pressure in preparation for Reactor Coolant Pump (RCP) operation.

At 0545 CST, with RCS pressure at approximately 335 psig, Control Room Operators started the "D" RCP. An RCS pressure decrease of approximately 5 psig was observed followed by a pressure increase. Control Room operators were expecting this evolution and took mitigating steps by increasing letdown flow through the Residual Heat Removal System. However, the pressure increase was slightly faster than the rate at which the Operator was responding in an effort to reduce RCS pressure.

The wide range channel computer point (BBPO405) for PORV 455A indicated 449.4 psig, exceeding the COMS pressure setpoint of 445 psig, but below the maximum COMS setpoint of 485 psig. The computer point (BBPO403) for PORV 456A indicated 444.6 psig. The PORV alarm in the Control Room flashed in and out and the plant computer indicated PORV 455A opened for one second. The PORV functioned per design requirements.

Root Cause

Control Room Operators expected RCS pressure to fluctuate when the first RCP was started coming out of the refueling outage.

The RCP start caused mixing of cooler water in the reactor vessel with the warmer water in the four Steam Generators. As the RCP came up to speed, the cooler, denser water, in the vessel was warmed and expanded as it flowed through warmer components. The resultant water expansion caused the RCS pressure rise to just above the WCGS setpoint of 445 psig for PORV 455A. The RCS pressure did not approach the TS limit of 485 psig. The RCS pressure subsequently stabilized at approximately 335 psig.

Corrective Actions

The RCS pressure transient was corrected by operator action to increase letdown flow, the momentary lifting of the PORV, and continued RCS water circulation.

The circumstances initiating the RCS pressure transient, operator response, and PORV response will be discussed in Operator Regualification Training, "Plant and Industry Events," from April 22, 1996, through May 31, 1996.