

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/95

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TEXT (if more space is required, use additional NRC Form 368A's) (17)

DESCRIPTION OF EVENT

In June 1985, it was discovered the pressurizer pressure transmitters (PT 455, 456, 457, 458) were incorrectly calibrated in that the hydrostatic head of the reference leg had not been accounted for. The discovery was made while reviewing calibration records in response to a question raised by the NRC Resident Inspector. The height of the reference legs range from 45.21 ft to 46.63 ft with corresponding pressure heads ranging from 19.5 to 20.1 psig. The pressure head resulted in the indicated pressure being higher than the actual pressure in the pressurizer vapor space.

Immediate action was taken to evaluate the safety significance of the calibration error. The evaluation demonstrated the error was of negligible safety significance. Based on this determination the decision was made not to recalibrate the transmitters until the 1986 refueling outage at which time the transmitters are scheduled to be replaced.

On August 20, 1985, an independent review of this issue identified a potential conflict with the plant Technical Specifications. A decision was made to raise the reactor trip setpoint by 20 psig to account for the calibration error while the bases for the Technical Specifications were evaluated. This action was completed on August 21, 1985. On August 22, 1985, it was determined that the accident analyses were based on pressure in the pressurizer vapor space. In view of this, the low pressure reactor trip, safety injection and overtemperature delta temperature (OTAT) setpoints and the Departure from Nucleate Boiling (DNB) parameters from the Technical Specifications were evaluated for compliance.

The reactor trip setpoint had been set at 1870 psig with a minimum allowable trip value of 1855 psig (Technical Specification Table 2.2-1). With the 20 psig error the trip would occur at an actual pressurizer pressure of 1850 psig which is in violation of the Technical Specification.

The minimum allowable value to initiate the low pressure safety injection signal is 1755 psig (Technical Specification Table 3.3-4). Due to instrument inaccuracies in a harsh environment, the minimum allowable trip value is being administratively controlled at 1831 psig. The actual setpoint had been set at 1835 psig. Considering the 20 psig error the actual pressurizer vapor space pressure to initiate a safety injection signal would be 1815 psig. With the potential harsh environment instrument inaccuracies, the actual pressurizer vapor space pressure could have been below the Technical Specification limit of 1755 psig under post-LOCA conditions.

The OTAT setpoint was computed with the 20 psi calibration error included and the indicated trip setpoint did not exceed the computed trip setpoint by more than 2 percent as specified in Technical Specification Table 2.2-1.

Technical Specification 3.2.5, "DNB Parameters", requires pressurizer pressure be maintained ≥ 2220 psia in Mode 1. Normally system pressure

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is maintained at 2250 psia (2235 psig). With the 20 psig error accounted for, normal system pressure was being maintained at 2230 psia. Since the normal pressure variation is ± 15 psi, the actual pressure could have dropped below the Technical Specification limit without the Action Statement being followed.

CAUSE OF OCCURRENCE

The hydrostatic head from the reference legs was not accounted for due to a deficiency in the data sheet used for instrument calibration during initial plant startup. The original transmitter calibration specification did not account for the hydrostatic head when specifying the transmitter calibration span.

CORRECTIVE ACTION

Corrective action was taken to raise the low pressure reactor trip and safety injection setpoints by 20 psig to 1890 psig and 1855 psig, respectively. The pressurizer master controller was also adjusted to increase system pressure approximately 20 psig.

The pressurizer pressure transmitters are scheduled to be replaced during the 1986 refueling outage. The replacement transmitters will be correctly calibrated. A review of other safety related transmitters is being conducted to determine if this same problem exists elsewhere.

It has been recognized that the length of time to complete the evaluation of this event was excessive. When a problem was discovered in the course of responding to the NRC Resident Inspector's inquiry, insufficient action was taken to enter the problem into one of PGE's formal corrective action processes. The individuals involved have been made fully aware that events of this nature need to be entered into a corrective action system to ensure all aspects of the event are evaluated in a timely manner. In August a new event evaluation procedure was issued which is aimed at improving the evaluation of such events.

SIGNIFICANCE OF OCCURRENCE

The Trojan accident analyses were performed using pressurizer vapor space pressure and the high and low pressure protective functions were established based on these analyses. With the pressure instrument indicating a higher pressure than actually exists in the pressurizer vapor space the high pressure protective functions would be initiated earlier or more conservatively. The actuation of the low pressure protective functions (including OTAT), however, would be delayed or less conservative compared to the present accident analyses assumptions. The effect of this delay was determined to be of negligible safety significance.

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The small break loss of coolant accident was reevaluated with the 20 psig pressure error and it was determined an increase of less than 10°F in peak clad temperature (PCT) would result. This increase still leaves available margin to the maximum allowable PCT.

Technical Specification Bases 3/4.2.2 and 3/4.2.3 indicate the design Departure from Nucleate Boiling (DNB) Ratio includes 20.2% margin for conservatism. Part of this margin is accounted for by rod bow (10.6%) and upflow conversion (2.5%) penalties. The 20 psig calibration error equates to an additional 1.5% penalty which still leaves available margin.

The corrective actions taken alleviate the above concerns about the reduction of margin to safety limits.



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US Nuclear Regulatory Commission
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Washington, DC 20555

Gentlemen:

Licensee Event Report No. 85-11 is attached.

Sincerely,

W. S. Orser
General Manager

WSO/RPS/DRK/SAB:bb
Attachment

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