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Director of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Re: Docket No. 50-133
License No. DPR-7
Humboldt Bay Power Plant
Unit No. 3

Gentlemen:

This report is submitted in accordance with Section IX.H.2.a.(4) of the Technical Specifications of License No. DPR-7. Notification of this occurrence was made via telephone to the Region V Office of Inspection and Enforcement on November 13, 1975. This notification was confirmed by telecopier the same day.

Abnormal Occurrence

Report Number: DPR-7/75-3
Occurrence Date: November 12, 1975
Facility: Humboldt Bay Power Plant
Unit No. 3, Eureka, California

Identification: The d-c motor operated emergency condenser condensate return valve did not respond to a remote signal to open during the performance of a special test. This is a 4-inch Chapman 900# WEOS gate valve driven by an SMA-00-10 Limitorque operator with a 125 V. D. C. motor. At the time of the occurrence the reactor was operating at 215 MWt.

Description: On November 8 and 9, 1975 the emergency condenser condensate return valve was manually adjusted to eliminate leakage through the valve. On November 12, 1975 a special test was conducted to determine the operability of the valve. This test revealed that the emergency condenser condensate return valve

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could not be operated electrically from the control room. An operator was dispatched to open the valve manually. The valve was then closed electrically from the control room and the valve test was then conducted twice satisfactorily. Approximately ten minutes after this occurrence the valve was tested and operated successfully. The valve was again tested the morning of November 13 and operated successfully.

Designation of Apparent Cause: The manual adjustment of the valve was apparently done improperly and as a result caused the valve to stick. This manual adjustment has been made several times in the past and has not previously caused the valve to stick.

Background Information: The emergency condenser condensate return valve is closed during normal power operation. The valve is required to open when a reactor pressure of 1200 psig is reached and it is required to provide isolation if a positive pressure of 3 inches of water is reached in the Refueling Building. This valve is of the double seated, split gate design with a large seating surface.

Because of the malfunctions due to sticking previously encountered and reported, an investigation was conducted during the 1975 refueling outage. It indicated that the primary cause of the valve sticking closed was that the valve gate was being wedged too tightly into the valve seat before the valve drive motor was de-energized by the torque switch. Previous attempts to obtain a proper torque switch setting where the valve does not stick and has zero leakage have not been completely successful.

As a result of the above investigation a modification was made that consisted of wiring the spare contacts on one of the gear driven limit switches in series with the torque switch which de-energizes the valve drive motor in the closing direction. The limit switch is set to open just before the valve is fully seated. This de-energizes the valve drive motor and allows the motor rotational inertia to complete the valve closure. The protection afforded the valve operator itself by the torque switch was not changed. Additional protection is provided by de-energizing the valve drive motor just before the valve reaches the valve seat.

Tests to determine a desirable limit switch setting were successfully completed with the reactor both cold and at rated temperature and pressure. The valve had been operating satisfactorily without excessive leakage since this modification and had shown no tendency to stick until November 13, 1975.

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Analysis: If an isolation trip had occurred when the valve was inoperable due to being stuck, the reactor safety valves would have operated to limit the reactor pressure transient and to remove decay heat. The emergency condenser could also have been manually initiated in order to remove decay heat. Since only the opening operation was affected, the valve would have closed automatically when required (on high refueling building pressure). There are no other motor operated valves at the plant that use the same operator. Therefore, this malfunction has no safety implications other than those analyzed above.

Corrective Action: A program of daily exercising of this valve has been initiated and will continue until adequate confidence in valve operability is demonstrated. Present plans call for installation of an additional valve in the condensate return line. This valve would be a globe or plug type and would be used to initiate the emergency condenser for cooling purposes only. The presently installed emergency condenser condensate return valve would be used for isolation purposes only, i.e., it would remain open at all times unless required to perform its isolation function.

Failure Data: This is the fifth occurrence of this type during power operation. The first occurrence was on July 17, 1970, the second on February 5, 1971. Following the second occurrence the valve motor was rewound during the 1971 refueling outage to a higher torque rating (rewound from 10 ft-lb output to 18 ft-lb). The valve motor operated satisfactorily during power operation until March 17, 1975 and May 12, 1975. This present occurrence was the first malfunction since the 1975 refueling outage modification discussed above.

There were no personnel overexposures, injuries, off-site consequences or damage to the facility as a result of this occurrence.

Very truly yours,

Philip A. Brane 

cc: Mr. R. H. Engelken, Director
Office of Enforcement and Inspection
Region V

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