



1901 Gratiot Street, St. Louis

May 12, 1988

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

Gentlemen:

ULNRC-1774

DOCKET NUMBER 50-483
CALLAWAY PLANT
RESPONSE TO GENERIC LETTER 88-03
RESOLUTION OF GENERIC SAFETY ISSUE 93,
"STEAM BINDING OF AUXILIARY FEEDWATER PUMPS"

Union Electric Company received the subject NRC Generic Letter 88-03 in February 1988. The Generic Letter requested that Union Electric provide a letter of confirmation indicating that the following procedures are in place and maintained:

- (a) Procedures to monitor fluid conditions within the auxiliary feedwater system (AFW) each shift during times when the system is required to be operable. This monitoring should ensure that fluid temperature at the AFW pump discharge is maintained at about ambient levels.
- (b) Procedures for recognizing steam binding and for restoring the AFW system to operable status, should steam binding occur.

At Callaway a combination of training, administrative controls and design features minimizes the possibility of steam binding in the auxiliary feedwater pumps. The training program incorporates a section on steam binding of auxiliary feedwater pumps in the auxiliary feedwater system lesson plan. This training is required of all equipment operators and licensed personnel.

The Operations Department procedure ODP-ZZ-00016, Watchstation Equipment Logs and Practices, requires a surveillance each shift to perform the following activities:

- (a) Vent the auxiliary feedwater pumps to ensure no steam generator back-leakage to the pumps.
- (b) Immediately notify the Shift Supervisor if any steam or hot water is vented from the pumps.

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(c) Inspect for leakage from check valves between main feedwater and auxiliary feedwater systems.

(d) Check for high temperature in the piping at locations between the check valves.

Monitoring for leakage and for high temperatures provide recognition for a potential occurrence of steam binding. Venting the pumps provides the corrective action necessary for restoration in the event steam binding should occur.

In addition, the following Callaway design features minimize any problems due to a theoretical possibility of steam binding of the AFW pumps.

(a) Three check valves are utilized to isolate main feedwater from the auxiliary feedwater pumps. Although the additional valve does not preclude all backflow, it does reduce the possibility of having excess leakage.

(b) The pumps are situated at a low point in the piping configuration. The steam would preferentially collect in the upper portions of the piping loop rather than travel down the pipe to the pump.

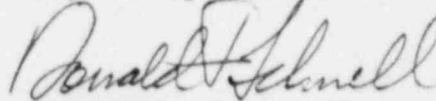
(c) A minimum flow line is connected at the discharge of the pumps and rises above the pump to the condensate storage tank. Excess pressure and steam would relieve through this line if the steam travelled to the pump discharge.

(d) A temperature sensor at the pump discharge line alarms at 190 deg. F for the control room operator. This would signal the operator that feedwater is leaking past the check valves and that appropriate action must be taken.

In conclusion, the probability for steam binding of the AFW pumps and subsequent disabling of the system is very low for Callaway due to the combination of design features, procedures, and training. Should steam binding occur, adequate surveillances are performed to recognize the situation, in addition to the over-temperature alarm. Routinely venting the pumps provides the corrective action to ensure operability.

If additional information is required, please let us know.

Very truly yours,



Donald F. Schnell

STATE OF MISSOURI)
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CITY OF ST. LOUIS)

Donald F. Schnell, of lawful age, being first duly sworn upon oath says that he is Vice President-Nuclear and an officer of Union Electric Company; that he has read the foregoing document and knows the content thereof; that he has executed the same for and on behalf of said company with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By Donald F. Schnell
Donald F. Schnell
Vice President
Nuclear

SUBSCRIBED and sworn to before me this 12th day of May, 1988.

Barbara J. Pfaff
BARBARA J. PFAFF
NOTARY PUBLIC, STATE OF MISSOURI
MY COMMISSION EXPIRES APRIL 22, 1989
ST. LOUIS COUNTY

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