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ARTHUR E. LUNDVALL, JR.
VICE PRESIDENT
SUPPLY

June 4, 1985

Director of Nuclear Reactor Regulation
Attention: Mr. J. R. Miller, Chief
Operating Reactors Branch #3
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Calvert Cliffs Nuclear Power Plant
Units Nos. 1 & 2; Dockets Nos. 50-317 and 50-318
Post-LOCA Status of Reactor Coolant Pumps

Reference: NRC letter from J. R. Miller to A. E. Lundvall, Jr. (BG&E), dated April 23, 1985

Gentlemen:

The following responds to your request for additional information regarding the proposed trip-two/leave-two guidelines for post-LOCA operation of the reactor coolant pumps:

1. Does any containment isolation signal result in the termination of systems essential for continued operation of the reactor coolant pumps? If so, identify the signals and systems affected.

   Response:

   Cooling water for the reactor coolant pump seals, which is supplied by the Component Cooling Water System (CCW), is interrupted by a Containment Isolation Signal (CIS). A CIS is initiated by a two-out-of-four containment pressure sensor channel trip or manually from the control room.

2. If essential water services are terminated, provide a description of the operator guidelines, training, and procedures in place (or to be implemented) which assure that these services are restored in a timely manner to prevent seal damage or failure, once a non-LOCA situation has been confirmed.

   Response:

   In the context of the RCP trip-two/leave-two strategy, the operator trips the remaining two pumps if he is unable to maintain the RCPs within operating limits. Calvert Cliffs emergency operating procedures remind the operator that CIS isolates CCW to the RCPs and instruct him to stop the pumps if CCW cannot be restored within ten minutes. This is consistent with the generic emergency

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procedure guidelines (CEN-152, Rev. 2) developed by Combustion Engineering for the CE Owners Group.

3. Provide confirmation, including the technical basis, that containment isolation with continued RCP operation will not lead to seal or pump failure.

Response:

As discussed in the response to Question 2, operator instructions in the EOPs preclude a situation where the RCPs would be operated outside their operating limits. However, in the highly unlikely event that the operator fails to follow RCP operating instructions, ignores the associated alarms and indicators, and maintains RCP operation outside of the operating limits (e.g., without seal cooling), it should be realized that these limits were developed with the intent of being conservative with respect to seal reliability and performance. In addition, operating experience and the results of a thirty-minute loss of seal cooling water test with the pump running substantiate the position that RCPs can operate without loss of seal function and without damage to the pumps themselves for time periods significantly in excess of the time periods defined in plant specific RCP operating limits.

4. Since RCP trip will be required for LOCA events, assurance must be provided that RCP trip, when required, will occur. To address this concern, provide the following information:

(a) Identify the components required to trip the RCPs. Include relays, power supplies and breakers. Address reliability and alternate trip methods.

(b) If necessary, as a result of the location of any critical component, include the effects of adverse containment conditions on RCP trip reliability. Describe the basis for the adverse containment parameters selected.

Response:

The components required to manually trip the RCP motors consist of a control switch, a 125-volt dc power supply with associated fuses, and a 13 kV breaker with associated trip coil. With the exception of the 125-volt dc power supply, none of this equipment is safety-related. All of this equipment is located in rooms which will be mild environments after an accident (control room, cable spreading room and switchgear room).

The 125-volt dc power supply is continuously monitored and abnormal conditions are alarmed in the control room. The 13 kV trip coil condition is also continuously displayed in the control room.

An alternate manual RCP trip which requires no power is available at the breaker should the normal trip method described above not be available. The breaker is located in the switchgear room, which is a short distance from the control room.

If you have any further questions, please do not hesitate to contact us.

Very truly yours,

C. E. Rumsey Jr.

AEL/BSM/vf

cc: D. A. Brune, Esq.
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Mr. D. H. Jaffe, NRC
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