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December 2, 1979

ELECTRIC ENGINEERING
DEPARTMENT

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

Attn: Mr. Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

POOR ORIGINAL

Subject: Calvert Cliffs Nuclear Power Plant
Units Nos. 1 & 2, Reactors Nos. 50-317 & 50-318
Environmentally Unqualified Electrical Equipment

Reference: (a) NRC IE Bulletin 79-01, 2/18/79
(b) NRC letter dated 11/5/79 from A. F. Lundvall, Jr.
to R. W. Reid, IE Bulletin 79-01/01A

Gentlemen:

In our continuing effort to identify electrical equipment which does not have evidence of proper environmental qualification pursuant to Reference (a) and as last reported in Reference (b), our staff identified a specific component on November 29, 1979 which did not appear to be qualified for its environment. Additional research that day and the next has led us to conclude that the coils in the solenoid actuated unloader valves for the main steam isolation valve (MSIV) hydraulic systems in both units at Calvert Cliffs are not properly qualified for existing ambient temperatures in their installed locations. This finding was reported to our NRC Project Manager on November 30, 1979 by telephone. That telephone message and this letter constitute our 24 hour report pursuant to Reference (a).

Component Identification and Function

The solenoid-actuated unloader valve is located downstream of the high pressure pump which is used to (a) pressurize the MSIV accumulator upon receipt of a low-pressure actuation signal, and (b) to provide fluid directly to the MSIV actuator to maintain the valve in a shut position. When the solenoid is energized, and the pump is operating, the valve closes causing the pump discharge pressure to increase and thus forcing the fluid through to the MSIV or into the accumulator, as required. The system will reset when accumulator pressure is restored. When the solenoid is not energized and the pump is operating, fluid is recirculated through the normally open valve back to the reservoir. The solenoid coils, rated as Class "B", are only qualified for an ambient temperature of 70°F. The location of the valves requires that the coil be qualified for ambient temperatures of up to 120°F.

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Safety Analysis

We have performed an analysis of the potential consequences of a failure of an unloader valve solenoid to function properly. We have concluded that there is no immediate safety concern associated with this deficiency. This conclusion is based on the following points:

- 1) The coils are normally deenergized and not required for normal functioning of the MIV hydraulic system as long as accumulator pressure is above the high pressure pump actuation signal;
- 2) An alarm warns the operator if the high pressure hydraulic pump does not maintain discharge pressure, as it would not if the solenoid coil was to fail to operate;
- 3) If the accumulator pressure can't be restored, the license Technical Specifications provide Action Statements to ensure plant safety (7.2.3.7.1.5 MIV Operability);
- 4) The MIV's and hydraulic system are exercised monthly to ensure operability;
- 5) System design as described precludes the possibility of a need to shut the MIV's concurrent with the existence of inadequate hydraulic pressure to shut the valves;
- 6) The vicinity of the plant where the unloader valves are located is normally expected to be in an ambient temperature range of 60°-90°F and is not expected to exceed 120°F;
- 7) The plant operators have been alerted to the potential problem with the unloader valve solenoids and will monitor their operation until the deficiency is corrected.

Continued Plant Operation

Based on the analyses summarized above, we feel there is ample assurance that both Calvert Cliffs units can continue to operate without any degradation of overall plant safety while a resolution to this problem is determined. We are actively investigating the purchase of new, environmentally-qualified valves since the original valve supplier, Control Concepts Corporation, does not manufacture environmentally-qualified coils, and another brand of environmentally-qualified coil assembly will not fit into the existing valves due to dimensional limitations.

We will keep you informed of our progress in correcting this deficiency.

Very truly yours,

R. F. Ash

Chief Nuclear Engineer

Electric Engineering Department