

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of
MAINE YANKEE ATOMIC POWER COMPANY }
(Maine Yankee Atomic Power Station) } Docket No. 50-309

ORDER CONFIRMING LICENSEE'S COMMITMENTS FOR EVENT V

I

The Maine Yankee Atomic Power Company (the licensee) holds Facility Operating License No. DPR-36, which authorizes the licensee to operate the Maine Yankee Atomic Power Station (the facility) at power levels not in excess of 2630 megawatts thermal. The facility, which is located at the licensee's site in Lincoln County, Maine is a pressurized water reactor (PWR) used for the commercial generation of electricity.

II

The Reactor Safety Study (RSS), WASH-1400, identified in a PWR an inter-system loss of coolant accident (LOCA) which is a significant contributor to risk of core melt accidents (Event V). The design examined in the RSS contained in-series check valves isolating the high pressure Primary Coolant System (PCS) from the Low Pressure Safety Injection (LPSI) system piping. The scenario which leads to the Event V accident is initiated by the failure of these check valves to function as a pressure isolation barrier. This causes an overpressurization and rupture of the LPSI low pressure piping which results in a LOCA that bypasses containment.

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In order to better define the Event V concern, all light water reactor licensees were requested by letter dated February 23, 1980, to provide the following in accordance with 10 CFR 50.54(f):

1. Describe the valve configurations and indicate if an Event V isolation valve configuration exists within the Class I boundary of the high pressure piping connecting PCS piping to low pressure system piping; e.g., (1) two check valves in series, or (2) two check valves in series with a motor operated valve (MOV);
2. If either of the above Event V configurations exists, indicate whether continuous surveillance or periodic tests are being performed on such valves to ensure integrity. Also indicate whether valves have been known, or found, to lack integrity; and
3. If either of the above Event V configurations exists, indicate whether plant procedures should be revised or if plant modifications should be made to increase reliability.

In addition to the above, licensees were asked to perform individual check valve leak testing prior to plant startup after the next scheduled outage.

By letter dated March 13, 1980, the licensee responded to our February letter. Based upon the NRC review of this response as well as the review of previously docketed information for the facility, I have concluded that one valve configuration of concern exists at the facility.

The staff's concern has been exacerbated due not only to the large number of plants which have an Event V configuration but also because of recent unsatisfactory operating experience. Specifically, two plants have leak tested check valves with unsatisfactory results. At Davis-Besse, a pressure isolation check valve in the LPSI failed and the ensuing investigation found that valve internals had become disassembled. At the Sequoyah Nuclear Plant, two Residual Heat Removal (RHR) injection check valves and one RHR recirculation check valve failed because valves jammed open against valve over-travel limiters.

It is, therefore, apparent that when pressure isolation is provided by two in-series check valves and when failure of one valve in the pair can go undetected for a substantial length of time, verification of valve integrity is required.

Since these valves are important to safety, they should be tested periodically to ensure low probability of gross failure. As a result, I have determined that actions must be undertaken by the licensee to verify that each valve is seated properly and functioning as a pressure isolation device. Such testing will reduce the overall risk of an intersystem LOCA.

III

The licensee's submittal dated March 9, 1981, committed to implement each of the actions specified in Section IV. We have reviewed the licensee's submittal and determined that it is acceptable because:

1. The licensee's action ensures two in a series closed valves that provide a pressure barrier that isolates the high Pressure Primary Coolant System from the Low Pressure Safety Injection (LPSI) system.
2. The licensee's actions ensure the pressure boundary by leak testing the valves periodically.

Accordingly, I have determined that these commitments are required in the interest of public health and safety and, therefore, should be confirmed by an immediately effective order.

IV

Accordingly, pursuant to Sections 103 and 161i of the Atomic Energy Act of 1954, as amended, the Commission's regulations in 10 CFR Parts 2 and 50, IT IS HEREBY ORDERED EFFECTIVE IMMEDIATELY THAT the license be amended to include the following conditions:

1. The licensee will assure that MOV's LSI-M-11, 21 and 31 remain in their normally closed position during power operation by modifying existing surveillance procedures to include monthly monitoring of the downstream check valve, affix a CAUTION tag to each valve switch, and provide training to the operators relative to the reasons for these modifications including relief from monthly performance testing of these valves. These actions are required until the Maine Yankee Atomic Power Station is shut down for the Spring 1981 Cycle 6 refueling.

2. Prior to returning to power after the Spring 1981 Cycle 6 refueling, the licensee shall (1) install an additional leak tight check valve and its associated leak testing capabilities between the two existing LPSI check valves and (2) obtain approval for appropriate technical specifications for periodic surveillance to verify the integrity of the LPSI check valves.

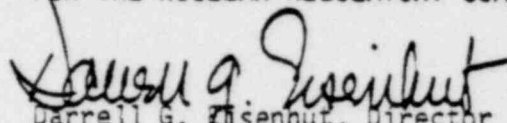
V

Any person who has an interest affected by this Order may request a hearing on this Order within 25 days of its publication in the Federal Register. A request for a hearing shall be submitted to the Director, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. A copy of the request shall also be sent to the Secretary of the Commission and the Executive Legal Director at the same address. If a hearing is requested by a person other than the licensee, that person shall describe, in accordance with 10 CFR 2.714(a)(2), the nature of the person's interest and the manner in which that interest is affected by this Order. ANY REQUEST FOR A HEARING SHALL NOT STAY THE IMMEDIATE EFFECTIVENESS OF THIS ORDER.

If a hearing is held concerning this Order, the issue to be considered at the hearing shall be whether, on the basis of the information set forth in

Sections II and III of this Order, the license should be modified as set forth in Section IV of this Order.

FOR THE NUCLEAR REGULATORY COMMISSION



Darrell G. Zisennut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
this 20th day of April , 1981