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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

October 23, 1979

Docket No. 50-29

Mr. Robert H. Groce
Licensing Engineer
Yankee Atomic Electric Company
20 Turnpike Road
Westboro, Massachusetts 01581

Dear Mr. Groce:

RE: Containment Purging and Venting During Normal Operation

By letter dated November 29, 1978, the Commission (NRC) requested all licensees of operating reactors to respond to generic concerns about containment purging or venting during normal plant operation. The generic concerns were twofold:

(1) Events had occurred where licensees overrode or bypassed the safety actuation isolation signals to the containment isolation valves. These events were determined to be abnormal occurrences and reported to Congress in January 1979.

(2) Recent licensing reviews have required tests or analyses to show that containment purge or vent valves would shut without degrading containment integrity during the dynamic loads of a design basis loss of coolant accident (DBA-LOCA).

The NRC position of the November 1978 letter requested that licensees take the following positive actions pending completion of the NRC review: (1) prohibit the override or bypass of any safety actuation signal which would affect another safety actuation signal; the NRC Office of Inspection and Enforcement would verify that administrative controls prevent improper manual defeat of safety actuation signals, and (2) cease purging (or venting) of containment or limit purging (or venting) to an absolute minimum, not to exceed 90 hours per year. Licensees were requested to demonstrate (by test or by test and analysis) that containment isolation valves would shut under postulated DBA-LOCA condition. The NRC positions were amplified by citation (and an attached copy) of our Standard Review Plan (SRP) 6.2.4 Revision 1 and the associated Branch Technical Position CSB 6-4, which have effectively classed the purge and vent valves as "active" invoking the operability assurance program of SRP 3.9.3.

The NRC staff has made site visits to several facilities, has met with licensees at Bethesda, Maryland, and has held telecon conferences with many other licensees and met with some valve manufacturers. During these discussions, the NRC staff has stressed that positive actions must be taken as noted above to assure that containment integrity would be maintained in the event of a DBA-LOCA.

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As a result of these actions, we have learned from several licensees that at least three valve vendors have reported that their valves may not close against the ascending differential pressure and the resulting dynamic loading of the design basis LOCA. All identified licensees who are affected have proposed to maintain the valves in the closed position or to restrict the angular opening of the valves whenever primary containment integrity is required until a re-evaluation is provided which shows satisfactory valve performance under the DBA-LOCA condition.

Recently, a report under 10 CFR Part 21 was received by the NRC from the manufacturer of butterfly valves which are installed in the primary containment at the Three Mile Island Unit 2 Nuclear Station. These butterfly valves are used for purge and exhaust purposes and are required to operate during accident conditions. The report discusses the use of an unqualified solenoid valve for a safety-related valve function which requires operation under accident conditions. The solenoid valve is used to pilot control the pneumatic valve actuators which are installed on the containment ventilation butterfly valves at this facility. Your re-evaluation of valve performance for conditions noted in the previous paragraph must consider the concerns identified in IE Bulletin 79-01A.

As the NRC review progresses, licensees which might have electrical override circuitry problems are being advised not to use the override and to take compensatory interim measures to minimize the problem.

In light of the information gained during our review of your submittal dated January 8, 1979, and the information cited above, we believe an interim commitment from you is required at this time. This is the case, even though you have reported no purging with primary system above 300 psig since you have not specifically addressed ventilation. For your use, we have provided as an attachment an interim NRC staff position. In addition, our recently developed "Guidelines for Demonstration of Operability of Purge and Vent Valves" were provided by separate letter to licensees of each operating reactor. This letter in no way relaxes any existing licensing requirements for your facility.

Because of the potential adverse effects on the public health and safety which could result from the postulated, DBA-LOCA while operating with open purge or vent valves, we believe your prompt response to this letter is required. In accordance with 10 CFR 50.54(f), you are requested

to inform us in writing within 45 days of receipt of this letter of your commitment to operate in conformance with the enclosed interim position and to provide us with information which demonstrates that you have initiated the purge and vent valve operability verification on an expedited basis. The information provided in your response will enable us to determine whether or not your license to operate Yankee Rowe should be modified, suspended, or revoked.

Sincerely,

Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Enclosure:
Interim Position for Containment
Purge and Vent Valve Operation

cc: w/enclosure
See next page

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cc w/enclosure:
Mr. Lawrence E. Minnick, President
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Westboro, Massachusetts 01581

Greenfield Community College
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Greenfield, Massachusetts 01301

INTERIM POSITION FOR CONTAINMENT PURGE AND VENT VALVE OPERATION PENDING RESOLUTION OF ISOLATION VALVE OPERABILITY

Once the conditions listed below are met, restrictions on use of the containment purge and vent system isolation valves will be revised based on our review of your responses to the November 1978 letter justifying your proposed operational mode. The revised restrictions can be established separately for each system.

1. Whenever the containment integrity is required, emphasis should be placed on operating the containment in a passive mode as much as possible and on limiting all purging and venting times to as low as achievable. To justify venting or purging, there must be an established need to improve working conditions to perform a safety related surveillance or safety related maintenance procedure. (Examples of improved working conditions would include deinerting, reducing temperature*, humidity*, and airborne activity sufficiently to permit efficient performance or to significantly reduce occupational radiation exposures), and

2. Maintain the containment purge and vent isolation valves closed whenever the reactor is not in the cold shutdown or refueling mode until such time as you can show that:

   a. All isolation valves greater than 3" nominal diameter used for containment purge and venting operations are operable under the most severe design basis accident flow condition loading and can close within the time limit stated in your Technical Specifications, design criteria or operating procedures. The operability of butterfly valves may, on an interim basis, be demonstrated by limiting the valve to be no more than 30° to 50° open (90° being full open). The maximum opening shall be determined in consultation with the valve supplier. The valve opening must be such that the critical valve parts will not be damaged by DBA-LOCA loads and that the valve will tend to close when the fluid dynamic forces are introduced, and

   b. Modifications, as necessary, have been made to segregate the containment ventilation isolation signals to ensure that, as a minimum, at least one of the automatic safety injection actuation signals is uninhibited and operable to initiate valve closure when any other isolation signal may be blocked, reset, or overridden.

* Only where temperature and humidity controls are not in the present design.