

September 14, 1983

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Docket No. 50-29

Mr. James A. Kay
Senior Engineer - Licensing
Yankee Atomic Electric Company
1671 Worcester Street
Framingham, Massachusetts 01701

Dear Mr. Kay:

SUBJECT: NUREG-0737, ITEM II.B.1, REACTOR COOLANT SYSTEM VENTS

Yankee Nuclear Power Station

By letters dated July 22, 1980, July 14, 1981 and June 15, 1982, Yankee Atomic Electric Company has provided information and details relating to the design of the reactor coolant system vents (RCSV) for Yankee. However, the implementation, schedule and requirement for a pre-implementation review have been superseded by the requirements of 10 CFR 50.44(c)(3)(iii). All operating reactors, in order to provide the improved operational capability required by the rule, must have the RCS vents installed, operational, procedures established and personnel trained in accordance with the schedule provided in the rule. An exemption is necessary if the specific design or scheduler requirements of 10 CFR 50.44(c)(3)(ii) cannot be complied with.

The guidance in NUREG-0737, Item II.B.1, provides an acceptable means of meeting the design requirements of the rule for the RCS vents. Prior to promulgation of the rule, we reviewed your responses identified above. The enclosed Safety Evaluation Report (SE) is based on the Technical Evaluation Report (TER) prepared by our consultant, Lawrence Livermore National Laboratory, and additional items which were outside the scope of the TER. The TER is attached to the SE. You will note our evaluation identifies specific items which are being addressed in conjunction with other on-going NRC actions and areas where deficiencies may exist or confirmation is necessary to assure conformance with the rule.

We are providing the results of our review for your information. In addition, we have provided the information to Region I to assist them, as they deem appropriate, in determining your compliance with the requirements of 10 CFR 50.44 (c)(3)(iii). If you have any questions relating to the enclosed SE, please contact Mr. James Lyons the NRC Project Manager for your facility.

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We consider NUREG-0737, Item II.B.1, actions to be completed based on the requirements and promulgation of 10 CFR 50.44(c)(3)(iii).

Sincerely,

Original signed by
Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

Enclosures:
As stated

cc w/enclosures
See next page

**See Previous Concurrence page*

OFFICE	DL:ORB #5	DL:ORB #5					
SURNAME	JLyons:jc*	DCrutchfield					
DATE	9/13/83	9/14/83					

We consider NUREG-0737, Item II.B.1, actions to be completed based on the requirements and promulgation of 10 CFR 50.44(c)(3)(iii).

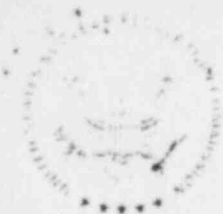
Sincerely

Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

Enclosures:
As stated

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OFFICE	DL:ORB #5	DL:ORB #5					
SURNAME	JLyons:jc	DCrutchfield					
DATE	9/13/83	1/83					



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

Enclosure 1

SAFETY EVALUATION
YANKEE NUCLEAR POWER STATION
YANKEE ATOMIC ELECTRIC COMPANY

INTRODUCTION

The requirement for RCS vessel head and high point vents is stated in 10 CFR 50.44 paragraph (c)(3)(iii). Guidance is provided in NUREG-0737 "Clarification of TMI Action Plan Requirements," November 1980, Item 11.B.1 Reactor Coolant System Vents and NUREG-0800 "Standard Review Plan," (SRP) July 1981, Section 5.4.12 Reactor Coolant System High Point Vents. The requirements of 10 CFR 50.44 for RCS high point vents specifically provide that the vent system shall: (1) be designed to ensure low probability of inadvertent or irreversible actuation and a high probability of operating when needed, (2) be remotely operable from the control room, (3) not aggravate the challenge to containment on the course of the accident, and (4) meet the requirements of Appendix A and B of 10 CFR 50.

The licensee has responded to the above requirements in references 1 through 3. These responses have been evaluated by Lawrence Livermore Laboratory under contract to the Nuclear Regulatory Commission (NRC). The results of this evaluation are presented in the enclosure entitled "Reactor Coolant Systems Vents (NUREG-0737, Item 11.B.1), Final Technical Evaluation Report for Yankee."

The NRC staff review is based upon the Technical Evaluation Report (TER) and has been extended to items outside the scope of the TER, as specifically identified herein.

Certain items identified below may be subject to confirmatory requirements including a post-implementation review and audit to ensure compliance with 10 CFR 50.44 (c)(3)(iii).

EVALUATION

The staff concurs with the TER recommendation that the Yankee vent system design is acceptable provided the following items are satisfactorily resolved:

NUREG-0737 Item II.B.1 Clarification A (12) concerning human factor analysis requires consideration of the addition of vent system controls to the control room. Although this was discussed in the TER, the human factor analysis of control room modifications will be further addressed on an audit basis as part of the review of TMI Item I.D.1 "Control Room Design Reviews".

The construction codes and standards for the piping and valves used in the Reactor Coolant System Vents be identified and available for NRC audit.

The licensee confirms that continuous and positive indication of valve position is available in the main control room during normal operation in accordance with the requirement A(5) of NUREG-0737, Item II.B.1.

The NRC staff finds, that the use of a non-emergency motor control center (MCC) in powering the pressurizer vent valve is acceptable providing the licensee confirms that all necessary equipment to ensure operability when operating from the emergency bus is in conformance with the requirements of NUREG-0737 Item 11.B.1, subitem A(10) concerning seismic and environmental qualification. Further the licensee will undertake to propose amendments to the Technical Specifications which will provide for operability testing with both off-site and emergency power sources including the related capability of transferring from the non-emergency to the emergency bus within 30 minutes of the loss of the off-site source.

The NRC requires the licensee to identify each of the structures systems and components of the reactor coolant vents system (RCVS) that are part of the reactor coolant pressure boundary (RCPB) and classified as seismic Category 1, in a manner consistent with the guidance of SRP 3.2.1. The completion of this action must be confirmed by the licensee.

With respect to in-service testing, the NRC staff requires the licensee to exercise the RCS vent valves during cold shutdown or refueling, and not every three months. This item must be confirmed by the licensee.

The following items are identified in the TER as being outside the scope of the contractor's review: seismic and environmental qualification, operating guidelines and procedures, technical specifications, and the inservice inspection program. The resolution of these items is as follows:

Seismic and Environmental Qualification: Seismic and environmental qualification will be audited in conjunction with generic audits of the licensee's Seismic and Environmental qualification program

Operating Guidelines and Procedures: NUREG-0737 item II.B.1 requested procedures and analyses for operator use of the vents including the identification of the information available to the operator for initiating or terminating vent usage. The staff review of NUREG-0737 Item I.C.1 includes vent operating guidelines as an integral part of emergency operating procedures guidelines. It is our judgment that the owners group emergency operating guidelines as approved by the staff will provide an acceptable basis for the development of plant specific operating procedures. The plant procedures will be subject to NRC audits. We consider this approach a satisfactory resolution of operating procedures for RCS vents

In addition to the above licensing action on "Emergency Guidelines and Procedures" the NRC staff requires that to prevent irreversible actuation of a vent as required by 10CFR50.44 (c)3(iii), the

licensee shall incorporate into both its normal and emergency operating procedures, provisions for (a) preventing the simultaneous venting of both the reactor vessel head and the pressurizer and (b) preventing the use of the cross connect between the pressurizer and the reactor vessel head vents except during loss of one power supply to the vent valves, or an active failure of one valve. The licensee is required to confirm a commitment to meet these requirements.

Technical Specifications: It is currently proposed to issue a generic letter to all licensees regarding the submittal of Proposed Technical Specifications for a number of NUREG-0737 items, including item II.B.1, which were required to be implemented after December 31, 1981. Technical specification requirements for the RCS vents will be included in this forthcoming licensing action.

Inservice Inspection Program: The vent system is an extension of the reactor coolant pressure boundary and must meet applicable inservice inspection requirements described by 10 CFR 50.55(g). The staff requires that the licensee include the RCS vent system in the inservice inspection program which is subject to NRC review and audit.

CONCLUSION

The staff safety evaluation is based on a review of the Technical Evaluation Report (TER) performed by Lawrence Livermore National Laboratory (enclosure 2), and the staff reviews of additional items

outside the scope of the SER. The staff finds that the vent system at Yankee is acceptable and in conformance with the requirements of 10 CFR 50.44 paragraph (c)(3)(iii) and the guidelines of NUREG-0737 Item 11.B.1, and NUREG-0800 section 5.4.12. Certain items are subject to confirmation including post implementation NRC audit in conjunction with other ongoing actions/programs. These items are: (1) human factors analysis of control room modifications, (2) identification of construction codes and standards, (3) confirm continuous and positive valve indication in main control room (4) confirm that the RCPB elements of the RCSVS have been identified and classified as Seismic Category 1 consistent with the guidance of SRP 3.2.1 (5) confirm that the non-emergency MCC powering the pressurizer vent valve conforms to the requirements of NUREG 0737 Item 11.B.1, subitem A(10) and that the related proposed additions to the Technical Specification will meet the stipulated requirements of this SER (6) confirm change in frequency of exercising RCSVS valves from every 3 months to cold shutdown or each refueling (7) seismic and environmental qualification, (8) operating procedures, including confirmation of a commitment by the licensee to include special provisions within both his normal and emergency operating procedures for the facility to prevent irreversible operation of the vents systems, and (9) the in-service inspection program.

Technical Specifications will be the subject of a separate future licensing action.

REFERENCES

1. Letter, J. A. Kay (Yankee Atomic Electric Company) to D. M. Crutchfield (NRC), "Category 'A' Item 2.19 - Reactor Coolant System Venting," dated July 22, 1980.
2. Letter, J. A. Kay (Yankee Atomic Electric Company) to D.M. Crutchfield (NRC), "TMI Action Plan Item 11.B.1. - Reactor Coolant System Vents," dated July 14, 1981.
3. Letter, J. A. Kay (Yankee Atomic Electric Company) to D. M. Crutchfield (NRC), "Reactor Coolant System Vent System," dated June 15, 1982.