

July 27, 1982

Docket No. 50-029
LS05-82 -07-070

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

Dear Mr. Kay:

SUBJECT: SEP TOPIC V-11.A, REQUIREMENTS FOR ISOLATION OF HIGH AND
LOW PRESSURE SYSTEMS AND V-11.B, RHR INTERLOCK REQUIREMENTS
FINAL SAFETY EVALUATION REPORT FOR YANKEE

The enclosed staff final safety evaluation report has been revised to reflect the comments provided by your letter of June 18, 1982. This evaluation is consistent with the findings in our contractor's evaluation of Topics V-11.A and V-11.B. As a result of our safety evaluation of Topics V-11.A and V-11.B, we propose modifications to the RHR isolation valve control circuitry.

The need to actually implement these changes will be determined during the integrated plant safety assessment. This topic assessment may be revised in the future if your facility design is changed or if NRC criteria relating to this topic are modified before the integrated assessment is completed.

Sincerely,

Ralph Caruso, Project Manager
Operating Reactors Branch No. 5
Division of Licensing

Enclosure;
As stated

cc w/enclosure:
See next page

SE04 *Add: M. Boyle*
DSU USE EX(11)

8207300216 820727
PDR ADOCK 05000029
P PDR

OFFICE	SEP-B:DL	SEP-B:DL	SEP-B:DL	SEP-B:DL	ORB#5:PM	ORB#5:BC	AD-SA:DL
SURNAME	<i>RSchiff:dk</i>	MBoyle	RHermann	WRussell	RCaruso	DCrutchfield	GLainas
DATE	7/27/82	7/20/82	7/20/82	7/20/82	7/27/82	7/27/82	7/23/82

Mr. James A. Kay

cc

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SYSTEMATIC EVALUATION PROGRAM

YANKEE ROWE

TOPICS: V-11.A, REQUIREMENTS FOR ISOLATION OF HIGH AND LOW PRESSURE SYSTEMS
V-11.B, RHR INTERLOCK REQUIREMENTS

I. INTRODUCTION

Several systems that have a relatively low design pressure are connected to the reactor coolant pressure boundary. The valves that form the interface between the high and low pressure systems must have sufficient redundancy and interlocks to assure that the low pressure systems are not subjected to coolant pressures that exceed design limits. The problem is complicated since under certain operating modes (e.g., shutdown cooling and ECCS injection) these valves must open to assure adequate reactor safety.

II. REVIEW CRITERIA

The review criteria are presented in Section 2 of EG&G Report 1350F, "Electrical Instrumentation and Control Features for Isolation of High and Low Pressure Systems."

III. RELATED SAFETY TOPICS AND INTERFACES

The scope of review for this topic was limited to avoid duplication of effort since some aspects of the review were performed under related topics. The related topics and the subject matter are identified below. Each of the related topic reports contain the criteria and review guidance for its subject matter.

V-3	Overpressurization Protection
V-10.B	RHR Reliability
VI-4	Containment Isolation
XV-19	Loss of Coolant Accidents

IV. REVIEW GUIDELINES

The review guidelines are presented in Section 7.3 of the Standard Review Plan.

V. EVALUATION

As noted in EG&G Report 1350F, Yankee Rowe has two systems with a lower design pressure rating than the RCS that are directly connected to the RCS. These are the Reactor Heat Removal (RHR) and the Chemical Volume Control (CVCS) Systems.

The RHR system and CVCS are not in compliance with current licensing requirements for isolation of high and low pressure systems as noted below.

- (1) The RHR system isolation valves do not have any interlocks to prevent opening when RCS pressure exceeds RHR system design pressure as required by BTP RSB 5-1;
- (2) No interlocks are provided to automatically close any RHR system isolation valves if RCS pressure increased above RHR system design pressure during RHR system operation as required by BTP RSB 5-1; and
- (3) The isolation valves for the CVCS do not have interlocks to prevent CVCS overpressurization as required by BTP EICSB-3.

The CVCS letdown is isolated by two remote, motor operated, manually controlled valves in series inside of containment and an air operated automatic valve outside of containment. The air operated valve automatically closes on low pressurizer level.

The positive displacement charging pumps and the charging pump discharge line are designed for reactor system pressure. The discharge line is isolated by two remote, motor operated, manually controlled valves, one valve is inside of containment. The other is outside of containment.

The design of the CVCS letdown and charging system is similar to Palisades and Ginna. The radiological consequences of a break in the CVCS system was evaluated under Topic XV-19 for these plants and found to be acceptable. The valving arrangements in these plants was also found to be acceptable.

VI. CONCLUSIONS

The RHR system isolation valve control circuitry should be modified to prevent opening when RCS pressure exceeds RHR system design pressure as required by BTP RSB 5-1.

Interlocks to close these valves if RCS pressure increases above RHR system design pressure during RHR system operation are not necessary because of the overpressure protection system.

Pending a detailed review under SEP Topics VI-4 and XV-19, the isolation of the CVCS system is acceptable based on previous reviews of similar systems.