

September 14, 1982

Docket No. 50-29
LS05-82-09-044

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

Dear Mr. Kay:

SUBJECT: SEP TOPICS III-1, CLASSIFICATION OF STRUCTURES, COMPONENTS AND SYSTEMS; AND VII-3, SAFE SHUTDOWN SYSTEMS FINAL SAFETY EVALUATION REPORT - YANKEE NUCLEAR POWER STATION

Enclosure 1 is the staff's final safety evaluation report (SER) on the electrical aspects of SEP Topics III-1 and VII-3.

Enclosure 2 is our contractor's technical evaluation of your plant. This technical evaluation and your letter of June 18, 1982, are the bases for Enclosure 1.

The staff recommends that an additional electrical source and instrument be provided for the component cooling water surge tank level so that safe shutdown operations can be conducted from the control room in the event of a single failure.

The need to actually implement this change 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,

Original signed by:

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

SEO4
DSU USE (11)
ADD: G. Staley

Enclosures:
As stated

cc w/enclosures:
See next page

9/14/82

OFFICE	SEP B	SEP B	SEP B	SEP B	ORB #5	ORB #5	AD: 87201
SURNAME	McCholl:bl	MBoyle <i>MLB</i>	RHermann	Russell	RCaruso	DCrutchfield	Timbitto
DATE	8/21/82	9/1/82	9/18/82	9/19/82	9/13/82	9/13/82	9/16/82
NRC FOI	8209220300	820914					
	PDR	ADDCK	05000029				
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OFFICIAL RECORD COPY

Mr. James A. Kay

cc
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Chairman
Board of Selectmen
Town of Rowe
Rowe, Massachusetts 01367

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U. S. Environmental Protection
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SYSTEMATIC EVALUATION PROGRAM

TOPICS III-1 AND VII-3

YANKEE NUCLEAR POWER STATION

TOPICS: III-1, Classification of Structures, Components and Systems
VII-3, Systems Required for Safe Shutdown

I. INTRODUCTION

The systems aspects of the review of Systems Required for Safe Shutdown was conducted as part of Topic V-10.B (RHR Reliability). This safety evaluation is limited to the electrical instrumentation and control systems identified as being required for safe shutdown. Plant systems that are needed to achieve and maintain a safe shutdown condition of the plant, including the capability for prompt hot shutdown of the reactor, from outside the control room were reviewed. Included also, was a review of the design capability and method of bringing the plant from a high pressure condition to low pressure cooling assuming the use of only safety grade equipment. The objectives of the review were to assure:

- (1) The design adequacy of the safe shutdown system to (a) initiate automatically the operation of appropriate systems, including the reactivity control systems, such that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences or postulated accidents and (b) initiate the operation of systems and components required to bring the plant to a safe shutdown.
- (2) That the required systems and equipment, including necessary instrumentation and controls to maintain the unit in a safe condition during hot shutdown, are located at appropriate places outside the control room and have a potential capability for subsequent cold shutdown of the reactor through the suitable procedures.
- (3) That only safety grade equipment is required to bring the reactor coolant system from a high pressure condition to a low pressure cooling condition.

In reviewing the SDCS and systems required for safe shutdown, the major electrical components and systems required for the protection of public health and safety were identified.

II. REVIEW CRITERIA

The review criteria are presented in Section 2 of EG&G Report EGG-EA-5986, "Electrical, Instrumentation, and Control Features of Systems Required for Safe Shutdown."

III. RELATED SAFETY TOPICS AND INTERFACES

Review areas outside the scope of this topic and safety topics that are dependent on the present topic information for completion are identified in Section 3 of EG&G Report EGG-EA-5986.

IV. REVIEW GUIDELINES

The review guidelines are presented in Section 4 of EG&G Report EGG-EA-5986.

V. EVALUATION

Section 7 of the EG&G Report lists the major electrical components and systems that are required at Yankee to protect the public health and safety.

As noted in the EG&G Report, the systems required to take Yankee from hot shutdown to cold shutdown, assuming only offsite power is available or only onsite power is available and a single failure, are capable of initiation to bring the plant to safe shutdown and are in compliance with current licensing criteria and the safety objectives of SEP Topic VII-3, except that long-term cooling (RHR) is susceptible single failure because redundant instrumentation is powered from non-Class 1E sources.

The licensee, in a June 18, 1982 letter from J.A. Kay to D.M. Crutchfield, provided the licensee's basis for believing that suitable diverse indication was available and committed to suitable modification of the temperature instruments.

VI. CONCLUSION

A redundant component cooling surge tank level instrument is required to assure that a failure in the surge tank level control system will not result in flooding of surrounding safety equipment.