

February 17, 1983

SBN-472  
T.F. B7.1.2

United States Nuclear Regulatory Commission  
Washington, DC 20555

Attention: Mr. George W. Knighton, Chief  
Licensing Branch 3  
Division of Licensing

Reference: (a) Construction Permits CPPR-135 and CPPR-136,  
Docket Nos. 50-443 and 50-444

Subject: Open Item Response: (SRP 4.4; Core Performance Branch)

Dear Sir:

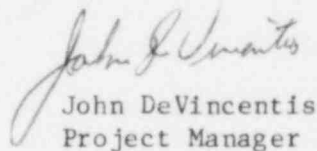
In response to the open item regarding NUREG-0737, Item II.F.2,  
Instrumentation for the Detection of Inadequate Core Cooling, we have enclosed  
a commitment to utilize the following instrumentation:

- o Reactor Coolant Inventory Monitor
- o Saturation Monitor
- o Core Exit Thermocouples

When detailed information on the Inadequate Core Cooling Instrumentation  
becomes available, the OL Application will be amended.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

  
John DeVincentis  
Project Manager

JD/fb

cc: Atomic Safety and Licensing Board Service List

3001

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#### 4.4 ICC Instrumentation

Instrumentation that will be available to provide an unambiguous, easy-to-interpret indication of inadequate core cooling (ICC) include:

- 1) Reactor coolant inventory monitor
- 2) Saturation monitor
- 3) Core exit thermocouples

We are in the process of selecting the instrumentation that will meet the requirements of the NRC letter, dated November 9, 1979 (Saturation monitor, item 2.1.3.b) and NUREG 0737 (Instrumentation for detection of inadequate core cooling (ICC), item II.F.2) with additional clarification for the reactor coolant inventory monitor in NRC Generic Letter 82-28, dated December 10, 1982 (Inadequate Core Cooling Instrumentation System). The following is the available information on the ICC instrumentation. Detailed design information, including the information required by the documents previously mentioned, will be provided when it is available.

- 1) Reactor coolant inventory monitor

The Westinghouse Reactor Vessel Level Instrumentation System (RVLIS) and the Combustion Engineering Heated Junction Thermocouple System (HJTC) are being evaluated for selection of a reactor vessel inventory system. As these systems operate on entirely different principles, further information cannot be provided until a system is selected.

- 2) Saturation Monitor

The saturation monitor will receive inputs from redundant, safety grade, hot leg temperature and reactor coolant pressure instruments as well as core exit thermocouples. There will be a dedicated display to indicate the saturation margin. A pressure-temperature display with a saturation curve will also be available on the plant computer.

The device to calculate the saturation margin has not been selected as the decision may be affected by the reactor coolant inventory monitor selection.

- 3) Core Exit Thermocouples

Core exit temperature is monitored by thermocouples that are part of the fixed/moveable incore detector system. There are 58 thermocouples mounted at the tip of the bottom entry detector string, about 2 inches above the fuel.

All of the thermocouples will be displayed on a spatially oriented core map generated by the plant computer. The display as well as direct readout, hard copy, trends, and selective readings will be available on demand. Appropriate alarms will be available on the Video Alarm System (VAS).

A safety grade backup display will be provided where the readings of at least 16 thermocouples, 2 per quadrant per train, can be obtained in less than 6 minutes. The backup display method has not been determined as the decision may be affected by the reactor coolant inventory monitor selection.

The integration of all of the ICC instrumentation into the Seabrook Station will include consideration of human factors relating to use during normal and abnormal conditions, integration into the emergency procedures and operator training, and the relation to other alarms and indications.