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BYR 91-012

United States Nuclear Regulatory Commission
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Washington, DC 20555

- References:
- (a) License No. DPR-3 (Docket No. 50-29)
 - (b) USNRC Generic Letter 89-19, "Request for Action Related to Resolution of Unresolved Safety Issue A-47 'Safety Implications of Control Systems in LWR Nuclear Power Plants' Pursuant to 10CFR50.54 (f)," dated September 20, 1989
 - (c) YAEC Letter to NRC, "Response to Generic Letter 89-19, Safety Issue A-47, 'Safety Implication of Control Systems in LWR Nuclear Power Plants'," dated March 19, 1990
 - (d) YAEC Letter to NRC, "Response to Commitment to Provide Scope and Schedule for Confirmatory Analysis by January 31, 1991," dated July 2, 1990

Subject: Yankee Nuclear Power Station (YNPS) Response to GL 89-19, Steam Generator Overfill Protection

Dear Sir:

The NRC staff concluded in Reference (b) that all PWR plants should provide automatic steam generator overfill protection to mitigate main feedwater overfeed events during reactor power operation. Reference (b) also indicated that if a plant did not plan to implement these recommendations, appropriate justification should be provided.

Yankee provided a preliminary assessment in Reference (c) based upon the design of the YNPS Feedwater System, steam generator overfill scenarios (including human factors), impact on risk, and other unique factors. The preliminary assessment indicated that additional hardware and procedural modifications to further achieve steam generator overfill protection were not warranted.

Yankee committed in Reference (d) to performance of additional analyses by January 31, 1991 to confirm the conclusions of the preliminary assessment.

Yankee's additional investigations continue to indicate that on a plant-specific basis the potential for safety risk reduction benefit of additional steam generator overfill protection is less than the generic assessment and that the generic cost-benefit assessment is inappropriate for YNPS.

Adol
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ATTACHMENT A

STEAM GENERATOR OVERFILL PROTECTION SYSTEM

SYSTEM DESCRIPTION

General

The new Steam Generator Overfill Protection System will provide the following if a high level condition occurs concurrently on the narrow range level trip channel AND the wide range level indication/alarm channel on any steam generator. (A Hi-Hi Level Trip System):

- A trip of the main boiler feed pumps,
- Opening of the condensate recirculation valve (to maintain vacuum), and
- If power level is greater than 15 MWe, a reactor trip.

Description

The Steam Generator Overfill Protection System consists of a two-out-of-two high level trip system. Two existing instrument channels on each steam generator that are independent of the instrument channels for level and feed control will be used. These channels consists of the narrow range steam generator level reactor trip channel and the wide range steam generator level indication and alarm channel. These channels are safety related and require the application of the full Quality Assurance Program; therefore, the additional hardware, bistable, will meet the same requirements.

The system will operate a trip matrix which is powered from the same source as the other reactor protective equipment. On a Hi-Hi level on any steam generator this will operate an auxiliary relay to initiate the trip functions described above. Additionally, a main control board annunciator will be actuated, and a signal will be sent to the sequence of events recorder. A power monitoring relay will annunciate on the main control board in the event of loss of power to the trip matrix as is done with the other trip matrices.

The Hi-Hi level trip devices will be powered from the same sources as their respective level channels in which they are installed, i.e., Vital Buses No. 1 and No. 2.

The system will be provided with a TEST BYPASS switch which annunciates on the main control board if in "BYPASS". Procedures will provide for testing the instrumentation on a refueling basis.