



EDISON DRIVE
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July 28, 1982
MN-82-147

JHG-82-139

United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Attention: Mr. Ronald C. Haynes, Regional Administrator

References: (a) License DPR 36 (Docket 50-309)
(b) USNRC Letter to MYAPCo dated 7-22-82, CAL 82-20
(c) MYAPCo Letter to USNRC dated July 27, 1982 - "Refueling
Water Storage Tank Temperature Upper Limit and Water Level
Lower Limit" - MN-82-146

Subject: Refueling Water Storage Tank Temperature Upper Limit and Water
Level Lower Limit

Dear Sir:

This letter supplements Reference (c).

The setpoint for automatic recirculation actuation at Maine Yankee is at a refueling water storage tank (RWST) nominal volume of 94,000 gal. (The actual setpoint is 96,350 gal. to bound the maximum error that can be introduced in calibrating the level indicator.) As previously indicated, operating procedures call for manual recirculation actuation at 100,000 gal. The 94,000 gal. setpoint was selected to ensure against premature automatic actuation of recirculation which could curtail injection before the assumed volume of 200,000 gal. had been transferred due to instrument error or drift.

With 100,000 gal. of water at 86°F left in the RWST, the NPSH margin for the limiting safeguards pump (LPSI) is about 0.6 ft. H₂O based on calculations of record.

With 94,000 gal. of water at 86°F left in the RWST, the NPSH margin is essentially zero. The margin has been reduced by the reduction in elevation head due to lower level in the tank. The tank water level decreases by one foot for each 9,400 gallons of water removed.

However, some margin remains because the actual setpoint is above the nominal, and because the tank water temperature is being maintained at 80°F or less rather than the 86°F assumed in the calculations.

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Further, the LPSI pumps shut down upon a recirculation actuation signal (RAS). Thus, at the time when the NPSH margin is lowest, the pumps have completed their mission. In addition, experience indicates that most pumps are not harmed by a short period of operation under slight cavitation conditions.

In addition, it appears that the 100,000 gal. residual volume required to be in the tank for manual RAS, and the 94,000 gal. required for auto RAS, includes an unusable volume at the bottom of the tank. Since the RWST level indicator upon which the operators base their RAS manual actuation, and the level switches which actuate auto RAS, are both calibrated on the basis of usable volume, the actual NPSH available appears to be greater by the equivalent of the unusable volume, or roughly by about 1.5 ft. H₂O. This is being verified.

Should RAS actuation take place significantly above the 100,000 gal. action point, there is the possibility that less ECC would be injected than assumed in the safety analysis. This possibility indicates that the RAS setpoint should only be changed when all the balancing factors have been considered.

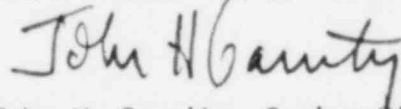
The factors discussed above lead us to conclude that the RWST level setpoint for automatic RAS should not be changed in the short term. This matter is under further investigation in connection with the longer term actions, Items 2-4 of Reference (b).

The "calculations of record" referred to in Reference (c) were performed in 1977 to address concerns about the adequacy of NPSH margins raised by the NSSS vendor. These calculations will be described further in a subsequent letter.

We trust this is satisfactory.

Yours very truly,

MAINE YANKEE ATOMIC POWER COMPANY



John H. Garrity, Senior Director,
Nuclear Engineering & Licensing

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