From: Lawrence Burkhart
To: Brian Sepelak; internet: sarvers@firstenergycorp.com; Ron Fedin
Date: 8/2/01 9:38AM
Subject: POWER UPRATE RAI

Please see the attached. Let's plan for a call as soon as possible (if needed).

REQUEST FOR ADDITIONAL INFORMATION
PROPOSED AMENDMENT FOR POWER UPRATE
BEAVER VALLEY POWER STATION, UNITS 1 AND 2

1. Table 3-1 of Enclosure 1 to the reference transmittal provides the NSSS design parameters that are used as the basis for the 1.4 percent power uprate for Beaver Valley Units 1 and 2. In Section 3.6.1, you stated that the vessel outlet temperature increases from 610.4@F to 610.8@F and the vessel inlet temperature decreases from the current 542.0@F to 541.6@F as a result of the 1.4 percent uprate program. Therefore, both the T_{hot} and T_{cold}, variation during normal plant loading and plant unloading are increased. You also stated that the vessel outlet temperature associated with the 1.4-percent power uprate is less than the vessel outlet temperature that was originally analyzed for the Unit I reactor vessel outlet nozzles. Was Unit 2 also using a higher vessel outlet temperature in the original design basis analyses than the vessel outlet temperature associated with the 1.4-percent power uprate in Table 3-1? Provide the original vessel outlet temperatures used for both Units 1 and 2. Also, confirm that there is no change in core flow rate, and LOCA loads.

2. In Section 3.6.1, you indicated that at Unit 2, the vessel inlet temperature associated with the 1.4-percent power uprate provides a temperature variation of 5.4@F during plant loading and unloading. This magnitude of temperature change is less than the 7.0@F change in T_{cold} considered for plant loading and unloading in the original reactor vessel stress report. Therefore, the effects of the revised T_{cold} variation during plant loading and unloading are considered to be bounded by the original analysis. Confirm whether at Unit 1, the variation of the vessel inlet temperature associated with the 1.4 percent power uprate is also bounded by the original analysis.

3. In Section 3.6.3.3, you indicated that the primary input to the evaluations of the reactor internals are the NSSS design parameters given in Table 3-1 and the gamma heating rates. Provide a summary of evaluation results including the maximum calculated stresses and cumulative fatigue usage factors (CUFs) for the critical reactor internal components including the baffle/barrel region components, core barrel, baffle plate, baffle/former bolts, and lower core plate for the 1.4 percent uprated power conditions. Also provide the Code and Code Edition used for the evaluation of the reactor internal components. If different from the Code of record, please justify and reconcile the differences. Also, confirm that there is no increase in the potential for flow induced vibration.

4. In reference to Section 3.6.7, you stated that since certain operating parameters will change due to the 1.4 percent power uprate and 30 percent steam generator tube plugging, scale factors were developed based on the change in operating conditions. The scale factors were applied to the baseline analysis results to develop revised stresses and fatigue usage. Discuss the method, assumptions and technical basis regarding the calculation of the scaling factors, and provide the ASME Code Edition and Addenda used for the evaluation. If different

from the Code of record, justify and reconcile the differences. Also, confirm that there is no increase in the potential for flow induced vibration of the steam generator U-bend tubes due to the proposed power uprate.

5. In reference to Section 3.8.11, you stated that the piping systems evaluated for power uprate effects included the reactor coolant (including primary loop piping, primary equipment nozzles, primary equipment supports, and auxiliary piping), main steam, feedwater, high-pressure heater drains, CCW, and fuel pool cooling piping systems. The evaluations performed have concluded that these piping systems remain acceptable and will continue to satisfy design basis requirements in accordance with applicable design basis criteria, when considering the temperature, pressure, and flow rate effects resulting from the power uprate conditions. Discuss your basis for the above conclusion. Provide information (i.e., existing minimum margin in stress and CUF) to demonstrate that the design basis analysis for the NSSS piping systems reflect sufficient margin to accommodate the changes in the RCS temperatures, or provide the stresses and CUFs in terms of allowable for the most critical piping systems.

REFERENCE

FirstEnergy Nuclear Operating Company Letter to the NRC, "Request For Additional Information, License Power Uprate Amendment Request Nos 289 And 161," dated January 18, 2001, Enclosure 1, "Beaver Valley Power Station, Units 1 And 2, 1.4 Percent Power Uprate Program, FENOC Licensing Submittal."

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