

October 30, 2003

MEMORANDUM TO: Anthony J. Mendiola, Chief, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

FROM: George F. Dick, Jr., Senior Project Manager, Section 2  
Project Directorate III /RA/  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

SUBJECT: REVISION TO THE SAFETY EVALUATION SUPPORTING THE  
LICENSE AMENDMENTS APPROVING AN INCREASE IN REACTOR  
POWER FOR BYRON STATION, UNITS 1 AND 2, AND BRAIDWOOD  
STATION, UNITS 1 AND 2 (TAC NOS. MA9428, MA9429, MA9426, AND  
MA9427)

On May 4, 2001, the NRC issued license amendments 119 to Byron, Station, Units 1 and 2, and amendments 113 to Braidwood Station, Units 1 and 2, approving an increase in the licensed thermal power for each unit from 3411 megawatts thermal (MWt) to 3586.6 MWt (ML011420274).

In Section 4.10.1 of the Safety Evaluation supporting the amendments, the NRC staff made the following the statements:

“The current Byron and Braidwood licensing basis requires that sufficient CST [condensate storage tank] inventory must be available to bring the unit from full power to hot standby conditions under natural circulation conditions, maintain the unit at hot standby for four hours, and then cool the RCS [reactor coolant system] to the residual heat removal system cut-in conditions within four hours. The results of the licensee’s evaluation for the power uprate conditions concluded that the current TS [technical specification] limit of 200,000 gallons in the CST is sufficient to meet the above stated licensing basis requirement.”

The statements were based on information provided by the licensee in Section 9.3.13.5 of attachment A to the July 5, 2000, amendment application.

Subsequently, during a telephone call, the licensee informed the staff that the CST volume is sufficient to maintain the reactor at hot standby for two hours followed by four hours of cooldown rather than the four hours of hot standby and four hours cooldown previously quoted. The four hour hot standby time stated in the July 5, 2000, submittal was an editorial error. The evaluation of the quantity of water available from the CST for the power uprate conditions was based on maintaining the unit at hot standby for two hours. Further, the licensee stated that the amount of water from the CST dedicated to maintaining hot standby has always been two hours.

Branch Technical Position RSB 5-1, Design Requirements of the Residual Heat Removal System, requires that: "The seismic water supply for the auxiliary feedwater system for a PWR shall have sufficient inventory to permit operation at hot shutdown for at least 4 hours, followed by cooldown to the conditions permitting operation of the RHR system." In Section 5.4.3(5) of the Safety Evaluation Report related to the operation of Byron Station, Units 1 and 2 ( NUREG-0876), the staff reported that "The water supply for the auxiliary feedwater system is provided initially from the nonseismic condensate storage tank. The operator can switch the source of auxiliary feedwater to the seismic Category I service water system." The staff further states in Section 9.2.6 of NUREG-0876, that, "The condensate storage tank provides the normal (preferred) supply to the safety-related auxiliary feedwater system. However, this function is not required to maintain plant safety because the safety-related ESWS serves as a backup water source."

Based on the previous references, the staff concludes that: (1) Branch Technical Position RSB 5-1 regarding the amount of water from a seismic Category I source available to the auxiliary feedwater system was satisfied at the time of plant licensing by the use of essential service water system as backup to the CST; (2) the amount of CST water available to maintain the plant in hot standby for two hours plus permit a four hour cooldown was less than 200,000 gallons; (3) the four hour hot standby time stated in the licensee's July 5, 2000, submittal was most probably an editorial error; and (4) there is a sufficient amount of seismic Category I cooling water available to maintain the reactor in hot standby for four hours followed by a four hour cooldown to RHR cut-in, for operation at the uprated power level.

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and STN 50-457

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