

January 8, 2003

Mr. John L. Skolds, President  
Exelon Nuclear  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: BYRON STATION, UNITS 1 AND 2, AND BRAIDWOOD STATION, UNITS 1 AND 2 - REGARDING LICENSE AMENDMENT FOR CONTROLLING UNFAVORABLE EXPOSURE TIME RELATED TO AN ATWS EVENT (TAC NOS. MB4671, MB4672, MB4669, AND MB4670)

Dear Mr. Skolds:

By letter dated March 28, 2002, Exelon Generation Company, LLC (Exelon) requested license amendments for Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2, to revise the method of controlling the fuel cycle unfavorable exposure time (UET) related to an anticipated transient without scram (ATWS) event. The staff transmitted a request for additional information (RAI) regarding this proposed license amendment via a letter dated September 26, 2002. The staff subsequently met with Exelon on November 19, 2002 to discuss this license amendment request. As a result of those discussions, and due to the complexities of the subject matter in terms of its technical and regulatory aspects, the staff committed to re-evaluate Exelon's license amendment request and the staff's RAI. The staff has completed its evaluations, and, for the reasons discussed below, confirmed that the original RAI request is necessary to complete its review. Thus, Exelon needs to address the RAI for this license application.

The current method of controlling the UET is through a technical specification that restricts the design of the fuel so that the UET is calculated to be less than 5 percent of the fuel cycle for a specific plant operating configuration. The Exelon license amendment proposes to replace this technical specification restriction with a configuration management structure for the key equipment important to ATWS prevention and/or mitigation. The intent of the staff's review is to ensure that the ATWS equipment configuration management structure proposed by Exelon will continue to provide reasonable assurance of adequate protection of the health and safety of the public. Consistent with this intent, the staff's RAI seeks to obtain the plant-specific information that forms the bases for Exelon's proposed ATWS equipment configuration management structure and information on how this structure will be managed, controlled, and implemented to ensure UET conditions are avoided as much as is reasonably practical. There are also a number of items in the RAI that seek to clarify ambiguities in Exelon's submittal and/or to ensure the information provided properly reflects the ATWS Rule, its technical bases, and related materials.

The staff believes that an UET condition should not be allowed to exist for any significant length of time, whether by voluntary entry into those conditions or due to found equipment unavailability. Though the actions identified in Exelon's submittal might prevent a worse plant condition, they do not address the fact that the plant would already be in an unprotected configuration if an ATWS event were to occur. Therefore, Exelon needs to provide more specificity regarding the ATWS equipment configuration management structure and its underlying supporting analyses. Specifically, Exelon should address compensatory actions that will be taken whenever UET conditions arise to alleviate the conditions, how long an UET condition will be allowed prior to taking these compensatory actions, how the response will be controlled and implemented, and any supporting analyses for the recommended response. Further, without additional information from Exelon supporting otherwise, the staff does not believe there is sufficient basis to accept the position that there will be no administrative requirements to shut down the plant or extend an outage if an unplanned unavailability of an ATWS-related equipment/system function occurs.

As an alternative to the current and proposed means of controlling the UET at the Byron and Braidwood stations, Exelon could propose other approaches, such as voluntarily implementing at these stations the diverse scram system (DSS). Based on the analyses of the three pressurized water reactor (PWR) manufacturers at the time of the ATWS rulemaking, the UET was concluded to be generally maintained at about 1 percent for Westinghouse PWRs and at about 50 percent for Combustion Engineering (CE) and Babcock & Wilcox (B&W) PWRs. As a result, CE and B&W PWRs were required in 10 CFR 50.62 (the ATWS Rule) to install a DSS to ensure a reactor trip and to compensate for their longer UET. Westinghouse PWRs were not required to install the DSS, primarily due to their lower UET and greater pressure relief and heat removal capabilities, and rulemaking relating to this aspect was dropped. The implementation of DSS would achieve regulatory consistency between the PWR manufacturers regarding ATWS UET considerations; provide more flexibility to Exelon in fuel design, cycle length, and plant operation; and make unnecessary the staff's RAI regarding the proposed license amendment.

Please advise the staff of the direction Exelon plans to pursue on this subject.

Sincerely,

/RA/L. Raghaven for

Keith I. McConnell, Project Director  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-454, STN 50-455,  
STN 50-456, and STN 50-457

Byron/Braidwood Stations

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