Commonwealth Edison
Projects and Construction Services
1400 Opus Place, Suite 500
Downers Grove, Illinois 60515

November 20, 1989

Dr. Thomas E. Murley, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Byron Station Units 1 and 2
Braidwood Station Units 1 and 2
DCRDR Implementation
NRC Docket Nos. 50-454/455 and 50-456/457

Dear Dr. Murley:

In the Braidwood Station Safety Evaluation Report Supplement No. 4, the staff concluded that all requirements of Supplement 1 to NUREG-0737 had been satisfactorily completed based on a preimplementation site audit conducted on March 10-11, 1987, except for five items. Two of those items concern the main control board indicating lights. One item regarded the evaluation of the lack of lamp test capability and the second item was the long-term solution of the apparent indicator light bulb burnout problem.

Commonwealth Edison has evaluated the use of a new indicator bulb using LEDs, similar to those used at Pennsylvania Power and Light's Susquehanna plant. Commonwealth Edison's Nuclear Engineering Department looked at numerous LED's over the evaluation period and installed the optimum design into one full panel in the Braidwood Station's main control room. While the LED's were installed, the Braidwood Station Operating Department and the Byron Station Operating Management were asked to comment on the suitability of the LEDs. In addition, the Commonwealth Edison Human Factors Engineering Group evaluated the LEDs. The consensus view was that the LEDs focused the light in the upward direction and the position of the equipment was not asertainable from a distance. The operators were most vocal with their objection of the dimmer LEDs and recommended that they not be installed in the remainder of the main control room.

Throughout the past year, Commonwealth Edison has sampled many different LEDs. In addition to various LED configurations, various lens caps, resistors, voltage combinations, and different sized legend inserts have been evaluated attempting to find a suitable replacement. The configuration of application of indication lights for the Byron and Braidwood Stations drastically differs from Pennsylvania Power and Light's Susquehanna plant where LEDs have been installed. Commonwealth Edison believes that a thorough investigation to find a suitable replacement LED has been performed. Based on the configuration at Byron and Braidwood, implementation is not feasible at this time.

A003
1/0

0162T:57

Although a suitable replacement LED has not been obtained, in the process of performing our investigation, it was discovered that the original high lamp failure and replacement rates at both Byron and Braidwood Stations have drastically declined. The material condition of the stations and the constant manipulation of the controls during the initial construction and preoperational testing stages, increased the failure rate of the incandescent indicating lights in the main control room. Now that the stations are operating, the incandescent bulbs are not being replaced as frequently and the operators have not identified this as a problem.

The Commonwealth Edison standard for use of indicating lights on the main control board is for one of the two lights to always be lit with the only exception being throttled valves. For throttled valves, both lights may be lit when the valve is in a throttled or midway position between closed and open. If neither light is illuminated, the operator can assume the worst case of the red bulb being burned out and take appropriate action or immediately inspect for a burned out bulb. This philosophy of operation eliminates the need for installation of bulb test capability because an indicator light should be lit at all times.

In conclusion, Commonwealth Edison believes that the issue of light bulb replacement rates has been adequately evaluated. The use of LEDs is not a viable option for the Byron and Braidwood Stations. The issue of lamp test capability has also been adequately evaluated. The bulb test feature is unnecessary due to the standard main control board design of having one lamp illuminated at all times and due to the extremely large cost associated with the modification of every indication socket in the control rooms.

Please direct any questions regarding this matter to this office.

Very truly yours,

DL Schuster for

R. A. Chrzanowski
Nuclear Licensing Administrator

cc: Byron Resident Inspector
Braidwood Resident Inspector
L. N. Olshan - NRR
S. P. Sands - NRR
Region III Office

0162T

0162T:58