



Commonwealth Edison

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May 5, 1988

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

Attn: Document Control Desk

Subject: Braidwood Station Unit 2
Scheduler Exemption Request
for Environmental Qualification
NRC Docket No. 50-457

Reference: (a): April 7, 1988 S.C. Hunsader letter to T.E. Murley
(b): April 15, 1988 F.G. Lentine letter to T.E. Murley

Dear Mr. Murley:

Reference (a) provided Commonwealth Edison's (Edison) request for a temporary exemption from the requirements of 10CFR50.49(j) for certain Bunker Ramo penetration assemblies (four total) installed at Braidwood Unit 2. Reference (b) provided additional information in support of that request. Specifically included in reference (b) were the safety evaluation that contained the detailed failure modes and effects analysis (FEMA) of the instrumentation channels potentially affected by the affected Bunker Ramo penetration [Enclosure 1, Part 2 to reference (b)], and the evaluation of economic impact associated with replacing these Bunker Ramo penetration assemblies at this time instead of at the scheduled surveillance outage. [Enclosure 2 to reference (b)]

The purpose of this letter is to provide additional information in both of these areas. Enclosure 1 to this letter addresses questions raised by the NRC staff concerning the safety evaluation that was presented in meetings held at NRR on May 2-3, 1988.

With respect to the schedule for replacement of the affected Bunker Ramo penetrations, we have previously recommended that the work be performed during the upcoming Braidwood Unit 2 surveillance outage scheduled to begin January 1, 1989. Advancement of that date was previously considered unwise in as much as all pre-outage planning activities were not yet complete. However, our present review of the activities associated with the penetration replacement effort and the coordination of that work with other activities now planned or expected during the surveillance outage indicate

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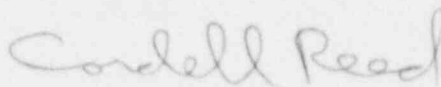
that the earliest start date for the outage is December 1, 1988. Because we are committed to completing all these work activities in an error-free manner, an outage start of December 1, 1988 is considered the best achievable. An earlier date would impose the significant additional management pressure of completing the penetration replacement planning concurrent with the completion of startup testing. The complexity of the replacement activity will require significant management attention to assure the work is conducted properly and the associated post-modification testing is effectively completed. In fact, we remain somewhat concerned that future startup activities on Braidwood Unit 2 may affect our present judgement on the achievability of a December 1, 1988 surveillance outage start. In the event the startup testing program and necessary planning for the surveillance outage (including replacement parts procurement activities associated with work to be accomplished during that outage) introduce presently unidentified problems, we may request additional temporary relief. We will make such a request in a timely manner, to allow adequate staff review, at such time as future circumstances establish a defensible need.

As described in Enclosure 2 to reference (b), the economic impact of replacement of the Bunker Ramo electrical penetrations prior to completion of the Startup Testing program and planning for the Braidwood Unit 2 surveillance outage scheduled to begin January 1, 1989 has three components: replacement energy costs, now estimated at \$20 million, additional direct expenses charged to investment in the amount of \$32 million and additional accrual of allowance for funds used during construction in the amount of \$60 million caused by a delay in the unit's in-service date of 4 months. The additional direct expenses and amounts of AFUDC will either be passed on to the Company's rate payers in the form of higher rates which recover these costs or will be absorbed by the Company's shareholders. The Company has previously proposed a cost cap of \$5.05 billion for both Braidwood units, subject to increased costs which may result from regulatory delay. The Illinois Commerce Commission's acceptance of the cost cap as proposed by the Company has been equivocal and the regulatory treatment of these costs by the ICC is uncertain. The cost cap has been exceeded due to the extended hearings before the Atomic Safety and Licensing Board and the time that Board took to render its decision. Any capital costs (including AFUDC) disallowed by the ICC must be recognized as a charge against the company's retained earnings in the year in which the loss occurs. These costs are unique to Braidwood Unit 2 because of the pendency of the current rate case seeking rates which recover the costs of that Unit. It should be observed that the rate case itself is highly controversial. Even without these costs, the Company is seeking a rate increase of \$1.4 billion while various parties, including the Staff of the ICC, have urged that a rate reduction of hundreds of millions dollars be order. These special circumstances meet the test of 10CFR 50.12(a)(2)(iii).

Commonwealth Edison has agreed to remove the Bunker Ramo penetration assembly at the four (4) affected installation locations in Braidwood Unit 2 as a means to obtain resolution of the environmental qualification issue, to allow for the full power licensing of Braidwood Unit 2 to proceed. However, Edison intends to continue its efforts to obtain documented information that supports the environmental qualification of this component. If such information becomes available, we will notify the NRC staff accordingly.

Please address any questions concerning this matter to this office.

Very truly yours,



Cordell Reed
Senior Vice President

/klj

cc: S. Sands (NRR)
A. B. Davis (RIII)
Braidwood Resident Inspector

encl.

ENCLOSURE 1

On May 2 and 3, 1988, Commonwealth Edison met with the NRC staff to discuss the effect of potential erroneous instrument indications on control room operators recovering from various postulated accidents. This documents Commonwealth Edison's response to the additional concerns raised by the NRC staff.

Pressurizer level is a parameter used to verify adequate reactor coolant inventory. This parameter is particularly useful following a small break LOCA or secondary pipe break. Four alternate instruments, not connected to the suspect penetrations, are available to provide an approximate indication of pressurizer level. These instruments are: pressurizer steam space temperature, pressurizer liquid space temperature, pressurizer surge line temperature and pressurizer level (cold calibration channel). An operator's aide will be developed to convert the pressurizer level cold calibration channel indication to an equivalent level for hot conditions. It will also be verified that these 4 instruments have been calibrated within the past 6 months or they will be recalibrated. The operator's aide and any necessary recalibrations will be completed by May 13, 1988.

References (a) and (b) noted that the instruments which monitor neutron flux are affected by the penetrations in question. Upon further review, it has been determined that only spare cables for these nuclear instruments are connected to the suspect penetrations. The source range, intermediate range, and power range neutron flux monitors are actually connected to different penetrations than the ones in question. As a result, operators will not receive an erroneous indication of neutron flux because of the problem with the penetrations.

Steam generator level indication could be affected by the electrical penetration problem. Erroneous indication of steam generator level, along with other erroneous indications, was modelled on the Byron/Braidwood training simulator. Operators were able to deal with these erroneous indications during a simulated small break LOCA, a steamline break and a feedwater pipe break. Steam generator level indication was simulated to read erroneously high. Operators throttled back auxiliary feedwater flow and maintained approximately 50 gpm per steam generator. Auxiliary feedwater flow was not completely terminated by the operators. By observing primary system parameters (wide range pressure and core exit temperature), steam generator pressure and auxiliary feedwater flow together, operators maintained a steam generator level that led them to avoid the need to enter the emergency procedure for loss of heat sink.

As mentioned above, erroneous instrument readings were modelled on the Byron/Braidwood training simulator for primary side and secondary side pipe breaks. Operators were able to successfully recover from these simulated accidents and establish a controlled cooldown rate that would lead to residual heat removal (RHR) cooling. As a result of simulating these

accidents with the erroneous instrument indication, it was confirmed that the existing emergency operating procedures were sufficient to guide operators through the appropriate recovery actions. Additional insights and alternate indications were identified which will form the basis for a special contingency action procedure to be written. This will be a general procedure to address multiple instrument failures and will guide operators to use alternate instruments when necessary. The special contingency action procedure and operator training on the procedure will be completed by May 13, 1988.

Commonwealth Edison believes the existing emergency operating procedures, alternate instrumentation and special contingency action procedure for multiple instrument failure are sufficient to assure operators will take the appropriate recovery actions to reach cold shutdown following a spectrum of primary side or secondary side pipe breaks.