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September 19, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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

References (a): May 5, 1982 letter from T. R. Tramm to H. R. Denton.

(b): October 5, 1982 letter from B. J. Youngblood to L. O. DelGeorge.

(c): January 6, 1983 letter from T. R. Tramm to H. R. Denton.

(d): June 17, 1983 letter from T. R. Tramm to H. R. Denton.

Dear Mr. Denton:

This letter provides additional information regarding fire protection systems at Byron and Braidwood stations. NRC review of this information is necessary to close Outstanding Item 13 of the Byron SER.

In references (a) and (d) Commonwealth Edison provided information to resolve NRC concerns documented in section 9.5.1.5 of the Byron SER regarding fire suppression systems for the Byron/Braidwood cable spreading rooms. At the time the SER was prepared, the NRC Staff felt that water suppression systems were needed in the cable spreading rooms. Gas suppression systems were already being installed. Through discussions with the NRC Staff, we understood that the justifications provided and changes described in references (a) and (d) were adequate to justify this deviation from NRC fire protection guidelines.

Recently, it has come to our attention that the NRC's acceptance of the automatic CO_2 suppressions systems in the lower cable spreading rooms was based, in part, on an understanding that there were separate, manually actuated CO_2 systems in these areas. The automatic CO_2 systems in the lower spreading rooms do have provisions for manual actuation but completely redundant and separate manual systems have not been provided. To resolve this discrepancy we propose to modify the lower cable spreading

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room fire protection systems as described in Attachment A to this letter. Additional manually actuated control valves would be installed to provide redundant flow paths. With these modifications, fire suppression system operation is assured, even when single active failures are assumed. These changes, in conjunction with other Byron/Braidwood fire protection features provide more than adequate protection against fires in the lower cable spreading rooms.

If the NRC Staff determines that the Byron/Braidwood lower cable spreading room fire suppression systems are acceptable with the modifications described here, those modifications will be implemented prior to fuel load on all units except Byron 1. The Byron 1 changes would be made within approximately two months of receipt of NRC approval.

Please direct further questions regarding this matter to this office.

One signed original and fifteen copies of this letter are provided for NRC review.

Very truly yours,

T. R. Tramm

T. R. Tramm
Nuclear Licensing Administrator

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ATTACHMENT A

PROPOSED MODIFICATIONS TO LOWER CABLE

SPREADING ROOMS CO_2 SYSTEM

As presently designed, the Byron/Braidwood CO_2 suppression system consists of a single 10 ton storage tank, a single tank discharge valve and header, and individual zone discharge valves and piping for each hazard zone. For the lower cable spreading rooms each hazard zone has a large (1 1/2" to 4") initial discharge pipe with zone discharge valve and a smaller (3/4" to 1") extended discharge pipe with its own discharge valve. The zone discharge piping is sized on the basis of room size. This is shown diagrammatically on the attached Figure 1, in which the existing system is shown in solid lines.

The existing tank and zone discharge valves have three modes of actuation: 1) they can be automatically actuated upon actuation of the hazard zone detection system; 2) they can be manually actuated from local pushbutton stations (two per hazard zone); and 3) they can be manually actuated by operating a lever on the electromanual pilot control (EMPC), one of which is provided for each tank and zone discharge valve. The first two modes are accomplished electrically, and will result in a normal discharge cycle which will automatically terminate after a preset time interval. The last mode of operation will result in continuous discharge of the system until either the valve is manually closed or the CO_2 supply is exhausted.

The existing system, a standard Cardox system, is adequate to protect the rooms involved. However, in order to address a staff concern and expedite licensing of Byron Unit 1, the following modification is proposed to increase the reliability of the system by providing redundancy for active system components. This modification will also be applied to Byron Unit 2 and both Braidwood Units.

The active components in the system are the tank and zone discharge valves. We propose to provide redundant tank and zone discharge valves as represented on Figure 1 by the dashed lines. The new valves and associated equipment will be U.L. listed. The modifications will be implemented in accordance with NFPA 12. A redundant zone discharge valve is provided for the initial discharge line only. Redundant extended discharge valves are not required because the capacity of the storage tank is such that multiple shot capacity is provided for even the largest hazard zones, providing adequate redundancy for the zone discharge valves.

The new tank discharge valve will have two modes of operation: 1) it will have manual pushbuttons located near each lower cable spreading room which it protects which will electrically operate its EMPC; and 2) it can be manually actuated by a lever on the EMPC. The new zone discharge valves will only be operable by a manual lever on the EMPC, since they will be located near the hazard zones which they protect. These new valves are expected to be used only in the event of failure of the normal tank or zone discharge valves. The Pre-Fire Plan strategies will be modified to include the use of this additional backup capability if required.

These proposed modifications have been reviewed and endorsed by qualified fire protection engineers who have agreed that these modifications represent an acceptable additional backup capability. If these modifications are approved by the staff, they will be implemented on Byron 1 within approximately two months from the date when approval is received.

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Figure 1

LOWER CABLE SPREADING ROOM CO_2 SYSTEM

ALL VALVES NORMALLY CLOSED

EXISTING VALVES HAVE THREE OPERATING MODES : AUTOMATIC, MANUAL ELECTRIC, MANUAL MECHANICAL

NEW VALVES ACTUATED BY MANUAL MECHANICAL ACTUATOR.

TWO REDUNDANT INDEPENDENT DETECTOR TRAINS INDICATE IN CONTROL ROOM