



**Commonwealth Edison**

One First National Plaza, Chicago, Illinois  
Address Reply to: Post Office Box 767  
Chicago, Illinois 60690

October 12, 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  
Emergency Planning  
NRC Docket Nos. 50-454 and 50-455

Dear Mr. Denton:

This is to inform the NRC of completion of an action required by the Byron ASLB Initial Decision with respect to sheltering values of structures in the Byron emergency planning zone. Review of the enclosed letter should make it unnecessary to impose a License Condition on Byron 1.

The enclosed letter dated October 12, 1984 from L. D. Butterfield to Donald Etchison provides information to the Illinois Department of Nuclear Safety which realistically reflects the average generic values of structures in the Byron emergency planning zone. As discussed in the enclosed letter, we believe these average shielding factors are realistic estimates of the sheltering values in the largely rural and suburban Byron area.

The enclosed letter references technical reports which were also sent to the State of Illinois. Those documents are commonly available and are not included here. Copies can be made available upon request.

Please address questions regarding this matter to this office.

Very truly yours,

T. R. Tramm  
Nuclear Licensing Administrator

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cc: Monte Phillips - Region III, I&E

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**Commonwealth Edison**  
72 West Adams Street, Chicago, Illinois  
Address Reply to: Post Office Box 767  
Chicago, Illinois 60690

October 12, 1984

Mr. Donald Etchison, Director  
Illinois Department of Nuclear Safety  
1035 Outer Park Drive  
Springfield, Illinois 62704

Dear Sir:

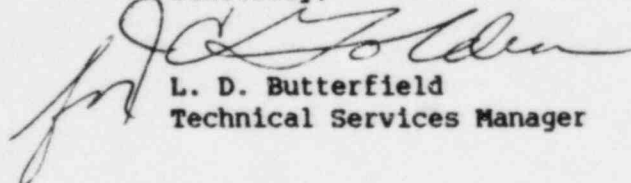
By order of the Atomic Safety and Licensing Board (ASLB) of the Nuclear Regulatory Commission, the Commonwealth Edison Company (CECo) has been directed to provide your agency with our recommendations with respect to average generic sheltering values that are appropriate for structures in the Byron Station emergency planning zone (EPZ). A copy of the relevant portions of the ASLB order is included for your information as Attachment A to this letter. The sheltering values or attenuation factors referred to in the ASLB order are those which form the basis for the sheltering dose reduction factors in the IDNS Standard Operating Procedure 4-SOP-2. As you are aware, the primary function of 4-SOP-2 is to evaluate the relative effectiveness of sheltering or evacuation as possible protective actions for the general public in the event of a significant radiological incident at Byron Station.

In compliance with the ASLB order and after reviewing the various sheltering studies referenced in NUREG-0654: FEMA REP-1 Rev. 1, CECo recommends that IDNS use an average attenuation factor (sheltering value) of 0.6 for small structures in the vicinity of Byron Station and an average attenuation factor of 0.1 for large structures. The small structure factor of 0.6 is representative of a regionally applicable mixture of structures (i.e. structures of wood or brick and with or without basements) for the area around Byron Station. Additionally, as previously discussed with your staff, CECo recommends using a ratio of 90:10 to represent the ratio of small structures to large structures in the vicinity of Byron Station. These recommendations are consistent with the previously developed sheltering data currently in use in IDNS's 4-SOP-2 for the Dresden Station emergency planning zone which we have determined is quite similar demographically to the Byron Station EPZ.

These recommendations are based upon "Public Protection Strategies for Potential Nuclear Reactor Accidents; Sheltering Concepts with Existing Public and Private Structures" (SAND 77-1725), Sandia Laboratory (Attachment B) and "Protective Action Evaluation Part I; The Effectiveness of Sheltering as a Protective Action Against Nuclear Accidents Involving Gaseous Releases" (EPA 520/1-78-001A), U. S. Environmental Protection Agency (Attachment C).

Thank you for your cooperation and assistance in this matter. Please feel free to contact myself or Mr. W.B. Brenner at any time if you would desire any additional information.

Sincerely,



L. D. Butterfield  
Technical Services Manager

LDB/WBB/lmk  
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