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Docket Nos.: STN 50-454
and STN 50-455

Mr. Louis O. DelGeorge
Director of Nuclear Licensing
Commonwealth Edison Company
P. O. Box 767
Chicago, Illinois 60690

Dear Mr. DelGeorge:

Subject: Request for Additional Information - River Screenhouse Seismic
Response Analysis

The verification of the seismic analysis of the river screenhouse was identified in the Byron SER, Section 2.5.4.3, as a confirmatory item. Enclosed is a request for additional information that is needed to close out this issue.

Please respond within 30 days of the date of this letter.

Sincerely,

Original signed by:
Gordon E. Edison



B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing

Enclosure:
As stated

cc w/encl.: See next page

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ENCLOSURE

Request for Additional Information Byron Station Units 1 and 2

Q362.1

The safe shutdown earthquake for the Byron Station site is based on the postulated occurrence of a maximum Modified Mercalli intensity VIII (body wave magnitude 5.8) earthquake near the site. (See Byron Station Safety Evaluation Report (SER), NUREG-0876). The staff's position as stated in the Byron Station SER is that a Regulatory Guide 1.60 response spectrum with a high frequency anchor of 0.20g at the foundation level of structures founded on rock is an adequately conservative representation of the vibratory ground motion from this size earthquake.

The Byron Station river screen house is founded on soil. Under certain conditions, the presence of soils can amplify vibratory ground motion. The amplitude and frequency of the amplified motion is a function of the physical properties of the material and its thickness.

Demonstrate the adequacy of the design basis for the river screen house by directly calculating a site-specific response spectrum and/or by calculating the amplification of an appropriate rock spectrum resulting from the presence of the soil.

It has been the staff's practice in the past (Sequoyah SER, 1979, Watts Bar SER, 1982; Midland SER, 1982; Fermi SER, 1981) to accept the 84th percentile response spectral level (mean plus one standard deviation) calculated from a suite of accelerograms recorded at distances of about 25 kilometers or less at locations with foundation conditions similar to the site from earthquakes with magnitudes in the range of plus or minus 0.5 units of the target magnitude.

Q241.8

To verify the seismic analyses of the river screen house foundation are sufficiently conservative at higher frequency range, perform a confirmatory seismic response analysis. The staff requires that the higher shear moduli values obtained from the laboratory tests (FSAR, Figure 2.5.89), i.e. the moduli of the reconstituted samples, be used in the analyses. To account for variability of the soil properties, the analyses using the upper bound shear moduli plus or minus 50 percent of their values should also be included. The response to this question is a necessary element of the response to Q362.1 because of the need for proper characterization of the soil conditions for a site specific spectrum or amplification calculation.