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October 18, 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
Environmental Qualification of Equipment
NRC Docket Nos. 50-454 and 50-455

Reference (a): July 26, 1984 letter from G. T. Goering to H. R. Denton.

Dear Mr. Denton:

This letter provides additional information regarding the potential effects of a high energy steamline break outside the containment at Byron Station. Justification for interim operation pending further review of this issue is provided.

Earlier this year we were advised by Westinghouse of the potential for superheated steam release during steam line breaks outside of the containment. This could result in temperature which exceed the envelope of environmental qualification test conditions and threaten the operability of equipment necessary to deal with the pipe break. So far, this equipment has been qualified to only saturated steam temperatures. Further plant-specific evaluations are necessary to determine whether or not superheated steam can be released and the consequences of such releases.

As indicated in reference (a), the Westinghouse Owner's Group (WOG) has been working to define mass release rates for use in plant-specific evaluations. A program of more detailed WOG analyses is currently being developed to define the reactor protection system response for various sizes and types of pipe breaks. Completion of that effort will take several months. Commonwealth Edison is supporting this effort and we believe it will result in a satisfactory resolution of all outstanding questions. We understand that the NRC is accepting this approach to the review of this issue for the operating plants.

There is reason to believe that the release of superheated steam may not be a problem for a steamline break at Byron. Conservative calculations on a plant very similar to Byron have shown that steamline isolation would always occur before steam tunnel temperatures exceeded the equipment qualification temperature of the equipment located there. A fracture mechanics evluation demonstrated additional conservatism in those calculations.

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It is unlikely that steamline breaks would occur during the relatively short time it will take to complete the plant-specific evaluations in cooperation with the WOG. The main steam piping at Byron is new piping. It is seismically supported and made of materials resistant to catastrophic failure. Nondestructive examinations of all main steamline shop and field welds included radiography. This piping was recently hydrostatically tested at one and one-half times design pressure.

Any additional actions that might be necessary as a result of the plant-specific evaluation would not be precluded by interim operation of the plant. Equipment located in the steam tunnel is easily accessible during refueling outages.

Based upon these considerations, we believe that Byron 1 can be safety operated until a plant-specific evaluation can be completed. A license condition requiring resolution of this matter is unnecessary because it does not appear to involve a substantial safety issue and there is reason to believe it will be resolved through owner's group efforts which encompass all operating plants.

Please address further questions regarding this matter to this office.

Very truly yours,

T. R. Tramm

T. R. Tramm
Nuclear Licensing Administrator

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