

ILLINOIS POWER COMPANY



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L10-81(01-30)-L

500 SOUTH 27TH STREET, DECATUR, ILLINOIS 62525

January 30, 1981

Mr. Robert L. Tedesco
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Tedesco:

This letter is in response to your December 19, 1980, request for Ice Condenser and Mark III containment owners to conduct a detailed analysis of the effects on containment integrity of a potential hydrogen burn.

Upon receipt of your letter, IP initiated a major engineering effort to evaluate the Clinton Power Station design and to assess the effects of a hydrogen burn. This effort has included discussions with TVA personnel and engineers in our sister plants, Perry and Grand Gulf. We expect General Electric and Sargent & Lundy to assist us in detailed design analysis of the effects of a hydrogen burn.

The results of our work tentatively indicate the following:

1. The CPS ultimate containment strength is perhaps three times its design pressure. However, there exists a great deal of conservatism with respect to its capability to withstand a potential hydrogen burn and the subsequent increased pressures.
2. The CPS containment volume is relatively large with respect to core thermal output when compared to other Mark III plants. This should result in less hydrogen concentration under post-accident conditions than other plant designs. Hence, the probable effect of a hydrogen burn is expected to be less than other plants.
3. We feel that further risk assessment should be factored into any decision-making process with respect to the hydrogen mitigation and control systems. Taking into consideration the present conservatisms in our plant design such as equipment redundancy, quality assurance, inservice inspection, maintenance and conservative operational management will be an important part of our overall consideration of the hydrogen problem.

Addressing the dynamic aspects of your request will require understanding the mechanism of hydrogen release and detonation. This phenomena is not fully understood and is presently the focus of a great deal of industry-wide attention. A dynamic analysis started at this time would require critical assumptions concerning the hydrogen release. To base our work on these assumptions may lead to erroneous results.

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In consideration of the above, we are presently engaged in a major engineering effort to evaluate and address the hydrogen issue. We do not have, at this time, adequate information from our engineers, Sargent & Lundy and General Electric Company, to comply with your request. Hence, we request an additional four months to develop a schedule to perform the ultimate strength analysis. This request should not present a problem for licensing review since our fuel loading date is January, 1983. The additional time will allow us to obtain better information from our engineers and also will allow us to obtain a better understanding of the hydrogen generation phenomena.

Sincerely,



L. J. Koch
Vice President

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