

# Commonwealth Edison Company

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May 21, 1971

Dr. Peter A. Morris, Director  
Division of Reactor Licensing  
U.S. Atomic Energy Commission  
Washington, D.C. 20545



Subject: Supplementary information to Proposed Change  
No. 3 to Appendix A, DPR-25, AEC Dkt 50-249

Dear Dr. Morris:

On May 11, 1971 we submitted to you Proposed Change No. 3 to Appendix A of DPR-25 (Dresden Unit 3). Item 5 of our letter proposed a change to the Bases for the APRM 15% scram setting and the IRM scram setting. That portion of the Bases starting on page 3 of our letter should be changed to read as follows:

"The IRM system consists of 8 chambers, 4 in each of the reactor protection system logic channels, arranged in the core as shown in Figure 7.4.4 of the FSAR. The IRM is a 5 decade instrument which covers the range of power level between that covered by the SRM and the APRM. The 5 decades are covered by the IRM by means of a range switch and the 5 decades are broken down into 10 ranges, each being  $\frac{1}{2}$  of a decade in size. The IRM scram setting of 120 divisions is active in each range of the IRM. For example, if the instrument were on range 1, the scram setting would be at 120 divisions for that range; likewise, if the instrument were on range 5, the scram setting would be 120 divisions on that range. Thus, as the IRM is ranged up to accommodate the increase in power level, the scram setting is also ranged up. In the start-up/hot standby mode, a scram at 120 divisions on the instrument is less than 15% power, except for range 10 on the instrument. Thus, the scram setting on the IRM is also less than the 15% scram on the APRM, except in the 10th range. The IRM scram provides protection for changes which occur, both locally and

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over the entire core. The IRM, because of the scram arrangement discussed above, thus provides additional or back-up protection to the APRM 15% scram in the start-up and hot standby mode. The most significant sources of reactivity change during the power increase are due to control rod withdrawal. For in-sequence control rod withdrawal, the rate of change of power is slow enough due to the physical limitation of withdrawing control rods, that heat flux is in equilibrium with the neutron flux and an IRM scram would result in a reactor shutdown well before any safety limit or the APRM 15% scram occurred. For the case of a single control rod withdrawal error this transient has been analyzed in Section 7.4.4.3 of the FSAR. In order to ensure that the IRM provided adequate protection against the single rod withdrawal error, a range of rod withdrawal accidents was analyzed. This analysis included starting the accident at various power levels. The most severe case involves an initial condition in which the reactor is just subcritical and the IRM system is not yet on scale. This condition exists at quarter rod density. Quarter rod density is illustrated in Section 7.4.5 of the FSAR. Additional conservatism was taken in this analysis by assuming that the IRM channel closest to the withdrawn rod is bypassed. The results of this analysis show that the reactor is scrammed and peak power limited to 1% of rated power, thus maintaining heat flux within those values specified in the safety limit for this condition of plant operation. Based on the above analysis, the IRM provides protection against local control rod withdrawal errors and continuous withdrawal of control rods in sequence and provides back-up protection for the APRM."

The above information provides additional information concerning the IRM scram setting which has been discussed with members of your staff.

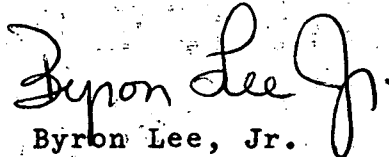
Dr. Peter A. Morris

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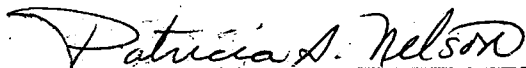
In addition to three signed originals, 19 copies of this supplementary information are also submitted.

Very truly yours,



Byron Lee, Jr.  
Assistant to the President

SUBSCRIBED and SWORN to  
before me this 21<sup>ST</sup> day  
of May, 1971.

  
Patricia A. Nelson  
Notary Public