

- I. LER NUMBER: LER/RO 79-39/03L-0
- II. LICENSEE NAME: Commonwealth Edison Company
Quad-Cities Nuclear Power Station
- III. FACILITY NAME: Unit One
- IV. DOCKET NUMBER: 050-254
- V. EVENT DESCRIPTION:

A concern was identified at Commonwealth Edison's Nuclear Fuel Services Department shortly after Unit One Cycle Five startup that fuel segment exposures for certain fuel types were approaching the highest value for which a limit for Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) had been determined. A request was made of General Electric Company to perform high exposure MAPLHGR limit analyses for the fuel types which were expected to exceed the previously analyzed exposure range before the end of Cycle Five. Initially, the major emphasis was placed on developing high exposure limit values for the 7D230 fuel type, since at the time, exposures for this type most closely approached the highest previously analyzed exposure. The analysis results for 7D230 type fuel were received on October 12, 1979, and the new MAPLHGR limit curves were entered into the Station process computer. At the same time it was decided to also enter reduced MAPLHGR limit values at the respective highest analyzed exposures for the other fuel types in both Unit One and Unit Two. The linear extrapolation method used by the Station process computer in determining MAPLHGR limit values provides a conservative margin in the event that segment exposures reached the bound of the analyses.

On December 20, 1979, while reviewing a list of fuel segment exposures for Unit One, 8D250 type fuel with exposures as high as 30,586 MWD/T were found. The highest exposure for which a MAPLHGR limit for 8D250 fuel had been analyzed was 30,000 MWD/T. The results of the high exposure analysis for 8D250 fuel were received from General Electric Company on December 21, 1979. They showed a slight reduction in the MAPLHGR limit beyond 30,000 MWD/T as compared to a linear extrapolation of the current Technical Specification limits. However, the new limits were still significantly higher than the actual operating values calculated by the process computer.

VI. PROBABLE CONSEQUENCES OF THE OCCURRENCE

Since reduced values for the MAPLHGR limit were entered into the Station process computer before any 8D250 fuel exceeded a 30,000 MWD/T segment exposure, the values calculated by the computer were always at least 4.7% conservative with respect to the new analyzed limits. At the maximum segment exposure that was found (30,586 MWD/T), the computer calculated value was 5.2% conservative as compared to the analyzed limit. In addition, the typical margins

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between the actual operating MAPLHGR and its corresponding computer generated limit is on the order of 30% for this fuel type at full power due to its depleted condition. Thus, although 10 of the 324 8D250 type fuel bundles in Unit One Cycle Five contained fuel segments with exposures that exceeded the bounds of the original MAPLHGR limit analysis, the General Electric recommended MAPLHGR limits were never exceeded.

VII. CAUSE:

The cause of this occurrence was the failure to have specific MAPLHGR limits provided for high exposure 8D250 fuel.

VIII. CORRECTIVE ACTION:

The analyzed MAPLHGR limit curve for 8D250 type fuel in Unit One has been extended to 40,000 MWD/T. At this time, MAPLHGR limit analyses have been performed to exposures of 40,000 MWD/T for all fuel types expected to accumulate high exposures during the present cycle on Unit One. Similar analyses will be provided by General Electric Company for Unit Two during Cycle Five. These actions should preclude any future event of this type.