5.6 FUEL STORAGE

CRITICALITY

5.6.1.1 The spent fuel storage racks are designed and shall be maintained with:

a. A k_{eff} equivalent to less than or equal to 0.95 when flooded with unborated water, which includes a conservative allowance ~~of 3.31% $\Delta k/k$~~ for uncertainties ~~as described in Section 9.1 of the FSAR~~; and

b. A nominal 14 inch center-to-center distance between fuel assemblies placed in the storage racks.

5.6.1.2 The k_{eff} for new fuel for the first core loading stored dry in the spent fuel storage racks shall not exceed 0.98 when aqueous foam moderation is assumed.

DRAINAGE

5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 423 feet 2 inches.

CAPACITY

5.6.3 The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than ~~1060~~ 2940 fuel assemblies.

5.7 COMPONENT CYCLIC OR TRANSIENT LIMIT

5.7.1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7-1.

A nominal 10.32 inch north-south and 10.42 inch east-west, center-to-center distance between fuel assemblies placed in Region 1 spent fuel storage racks and a nominal 9.011 inch center-to-center distance between fuel assemblies placed in Region 2 spent fuel storage racks.

ATTACHMENT B

LICENSING REPORT

2058K

ATTACHMENT C

EVALUATION OF SIGNIFICANT HAZARDS CONSIDERATIONS

Commonwealth Edison has evaluated this proposed amendment and determined that it involves no significant hazards considerations. According to 10 CFR 50.92(c), a proposed amendment to an operating license involves no significant hazards considerations if operation of the facility in accordance with the proposed amendment would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

The proposed amendment involves the replacement of the present spent fuel racks with high density racks. This will increase the spent fuel storage capacity at Byron Station from 1060 to 2940 fuel assemblies including six locations for failed fuel storage.

Accidents previously evaluated for radiological consequences are a spent fuel assembly drop onto the spent fuel pit floor and a spent fuel cask drop. Abnormal conditions which have been previously evaluated with respect to potential for criticality are (1) a dropped fuel assembly laying across the top of a fuel rack and (2) a fuel assembly in transport accidently dropped into a position parallel with stored fuel in the most reactive corner of the racks. The effect of a seismic event was also evaluated with respect to potential for criticality.

All of these events could occur independent of the design and installed configuration of the spent fuel racks. As a result, the probability of these events occurring is not affected by replacement of the spent fuel racks.

The consequences of the previously evaluated events have been evaluated considering the new spent fuel racks. Our review has concluded that the criticality acceptance criterion of maintaining K_{eff} less than or equal to 0.95 will not be exceeded for these events.

The radiological consequences were also evaluated to determine the impact on offsite and onsite doses previously determined. The increase in the storage capacity of the spent fuel pool will neither significantly alter the operating characteristics of the current spent fuel pool nor result in a measurable change in impact on the environment. The design basis fuel handling accidents, described in FSAR Section 15.7.4, were reviewed for possible effects on radiological dose consequences. The review determined that the conclusions in the FSAR will remain valid and that offsite radiological dose consequences will remain within 10 CFR 100 limits. As a result, the consequences of previously evaluated events will not significantly increase as a result of replacing the spent fuel racks.

With respect to the second standard of 10 CFR 50.92(c), the new spent fuel racks only allow closer spacing of the fuel assemblies. No new or different kind of accidents result from this.

Although the new spent fuel racks contain two storage regions, the placement of a fuel assembly in the wrong region is not a different kind of accident from the placement of a fuel assembly parallel to stored fuel in the most reactive corner among the current spent fuel racks. Both of these accidents fall within the category of abnormal placement of a fuel assembly. For these reasons, the replacement of the spent fuel racks does not create the possibility of a new or different kind of accident from any accidents previously evaluated.

Installation of the new spent fuel racks will not result in a significant reduction in a margin of safety as contemplated by the third standard of 10 CFR 50.92(c). A small increase in the spent fuel pool heat load is expected due to the storage capacity expansion. However, the spent fuel pool cooling system design can handle the increased heat load and maintain the temperature peaks of the pool below design values. Installation of the new spent fuel racks will also result in a small increase in the pool reactivity as measured by the neutron multiplication factor (K_{eff}). However, the maximum neutron multiplication factor will be maintained less than or equal to 0.95. For these reasons, increasing the spent fuel pool storage capacity will not significantly reduce a margin of safety.

The NRC has provided guidance concerning the application of the standards of 10 CFR 50.92(c) for determining whether significant hazards considerations exist by providing examples (48 FR 14870 and 51 FR 7751) of amendments that are considered not likely to involve significant hazards considerations. Example (x) relates to an expansion of the storage capacity of a spent fuel pool when all of the following are satisfied:

(1) The storage expansion method consists of either replacing existing racks with a design which allows closer spacing between stored spent fuel assemblies or placing additional racks of the original design on the pool floor if space permits,

(2) The storage expansion method does not involve rod consolidation or double tiering,

(3) The K_{eff} of the pool is maintained less than or equal to 0.95, and

(4) No new technology or unproven technology is utilized in either the construction or the analytical techniques necessary to justify the expansion.

The proposed reracking of Byron Station will replace the existing racks with a design which allows closer spacing between stored spent fuel assemblies and does not involve rod consolidation or double tiering. The K_{eff} will be maintained less than or equal to 0.95. Similar analyses and construction techniques have been used previously for plants that have licensed high density spent fuel racks. These plants include Fermi 2, Quad Cities 1 and 2, Rancho Seco, Oyster Creek, Virgil C. Summer, and Diablo Canyon 1 and 2. Therefore, no new technology or unproven technology has been utilized in this case.

For all the reasons stated above, Commonwealth Edison believes the proposed installation of high density spent fuel racks does not involve any significant hazards considerations.