Donald A. Nussbaumer, Chief
Source & Special Nuclear Materials Branch, DLR

July 5, 1963

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T. G. McCreless, Jr., Acting Chief
Criticality Evaluation Branch, DLR

UNITED NUCLEAR CORPORATION - DOCKET 70-36, JANUARY 25, JUNE 7, 17, & 27, AND JULY 3, 1963

SYMBOL: DLR:REO

We have reviewed the additional information contained in the applicant's TWX of July 3, 1963. The questions raised by our memorandum, McCreless to Nussbaumer, dated July 2, 1963, have been satisfactorily answered. Therefore, we see no objection to your approval to permit the manufacture of uranium dioxide pellets having enrichments greater than 5 percent and 20 percent enriched UO_2 SO_4 · $3D_2O$.

The applicant described over the telephone in greater detail the pellet manufacturing operation. The pellets after leaving the pressing operation are loaded into 5"x 7"x 2"boats to be sintered. Following sintering the pellets pass in a single line through the centerless grinder. The grinder has a basket to catch any pellets that may fall off during grinding. The basket can not retain water. From the grinder, the pellets are stacked on corregated card board, rolled and placed in storage containers. Also, there is no sprinkler system. We agree with the applicant that a density correction to Table XIV, K-1019, Rev. 5, is not necessary for this operation.

The applicant demonstration by the telephone conversation of July 2, 1963, and the revised values given in his TWX of July 3, 1963, that he can properly apply the density correction criteria. Two errors we called to his attention were using the pellet density instead of the bulk density in calculating (denominator) rho and using the term squared instead of cubed for volume limit corrections.

The applicant in his TWX of July 3, 1963, makes reference to the enrichment allowance factor permitted by Figure 21, TID-7016, Rev. 1. The applicant is well aware the mass curve can be used with Figure 1 (full reflector) at any moderation and the other curves, volume, cylinder and slab, are restricted to the values of Table 1.

DLR:CEB DLR:CEB

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