2 pgs

Docket: 70-36
Project: S-8

Donald A. Nussbaumer, Chief
Source & Special Nuclear Materials Br.

February 15, 1963

Charles D. Luke, Chief
Criticality Evaluation Br.

UNITED NUCLEAR CORP. - SNM-33 EXTENSION TO PERMIT MANUFACTURE OF URANIUM DIOXIDE PELLETS HAVING ENRICHMENTS GREATER THAN FIVE PERCENT - DOCKET 70-36

DLR:RHO

References: (1) Ltr, United Nuclear, 12/10/58
(2) Ltr, United Nuclear, 1/30/59
(3) Ltr, United Nuclear, 1/25/63

We have reviewed the subject application, reference 3, and see no objection to approval of the proposed processing operations. However, in order that we may complete our criticality evaluation we will require additional information on material storage.

The location and description of incoming, in-process and finished product storage areas for this material. This should include dimensions and material of construction of the storage arrays, and a nuclear safety analysis (taking into account other SNM) to assure safety of each storage unit and arrays of such units. If this material is to be stored in areas already approved for full enrichment, then it will be sufficient for United Nuclear to identify these areas and demonstrate that the subject materials will be stored in accordance with the approved procedures, stating the mass limits for the various enrichments and showing that these mass limits are allowable considering the spacing to be provided between units.

Upon receipt of this information, we shall be pleased to complete our evaluation of this application.

DLR:NS:CEB
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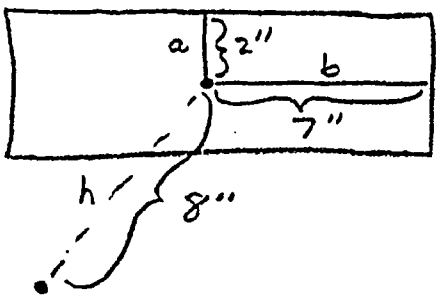
DLR:NS:CEB
CDLuke
2/15/63

B-119

United Nuclear

2-13-63
RHO
Docket 70-36
appl. dtd 1-25-63



$$\Omega = 4 \sin^{-1} \frac{\left(\frac{a}{2}\right)\left(\frac{b}{2}\right)}{\sqrt{\left(\frac{a}{2}\right)^2 + h^2}\sqrt{\left(\frac{b}{2}\right)^2 + h^2}}$$

$$= 4 \sin^{-1} \frac{1 \times 3.5}{\sqrt{1+64}\sqrt{(3.5)^2 + 64}}$$

$$= 4 \sin^{-1} \frac{3.5}{8.06 \times 8.74}$$

$$= 4 \sin^{-1} (0.0497)$$

$$= 4 \times 0.52$$

$$= \underline{2.08} \text{ steradians}$$