

UNITED STATES GOVERNMENT

# Memorandum

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

FROM : *Francis K. Durlan for*  
Charles D. Luke, Chief  
Criticality Evaluation Br.

DATE: June 14, 1962

SUBJECT: MARTIN MARIETTA CORP. APPLICATION TO AMEND LICENSE SNM-53  
TO INCREASE MASS LIMITS OF ENRICHED URANIUM DIOXIDE POWER  
IN BLENDING OPERATION FROM 800 GRAMS U-235 TO 3.5 KGS CONTAINED  
U-235. MAY 3, 1962 - DOCKET 70-58

Ref: DLR:FKD

Reference: (1) Report MND-2603 dtd 7/18/61  
(2) Ltr fm Martin Marietta to USAEC-DLR dtd 5/3/62  
(3) Report MND-2788 dtd 5/2/62

In response to your memorandum of May 8, 1962, we have reviewed the subject application (references 2 and 3).

The Martin Marietta Corporation requires a larger blended batch (3.5 kgs contained U-235 in the form of highly enriched uranium dioxide power) for reasons of (1) accuracy in sampling, and (2) maintenance of specified particle distribution prior to break-down from outside vendor birdcage to permissible storage limits.

The blending will be accomplished in the manufacturing area in ventilated hoods and no other special nuclear material will be present in this area during the sequence of the blending process. The elbow blender is an L-shaped construction, 3 3/4" in diameter. The wall thickness of the 8" long, stainless steel tubular arms, is 1/16".

In view of the fact that the 3 1/4" diameter blender has a total capacity limit of approximately 2.2 liters, the process is considered safe and within the nuclear safety limits of Figures 2 and 3 of TID-7016, Rev. 1. In addition, 3.5 kgs of contained U-235 in the form of compounds or mixtures is a safe mass with  $2 < \frac{H}{X} < 20$ , according to Table IV of TID-7016, Rev. 1. Assuming limited moderation, the resultant  $\frac{H}{X}$  ratio is less than 20 for the subject material.

We recommend approval of the subject application as proposed.

Attachment:  
Ltr fm Martin Marietta dtd 5/3/62

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