

UNITED STATES GOVERNMENT

Memorandum

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

DATE: July 19, 1963

FROM : Charles D. Luke, Chief
Criticality Evaluation Branch, DLR *CDL*

SUBJECT: MARTIN COMPANY, DOCKET NO. 70-58, APPLICATION FOR RENEWAL
DATED MARCH 28, 1963

SYMBOL: DLR:TCM

We have reviewed the subject application and have concluded that there is insufficient information to determine the adequacy of the applicant's procedures to prevent a condition of accidental criticality.

In order that we may continue our analysis, the following additional information is required:

1. Sufficient information has not been presented to verify the U-235 work area mass limits as established by the applicant in Table IV B-1D. Examples of information required which have not been included are percentage void fraction, moderation control and reflector description used in the calculation. In addition, there is apparent discrepancy between the use of some of the basic formulae and subsequent steps followed, as well as confusion as to the numbering of steps. Therefore, we require the applicant clarify the steps followed in the use of the basic formulae. Finally, we request submission of representative calculations and the derived curves of mass versus fuel density and volume percent of fuel.
2. "Work area" as described by the applicant is not sufficiently definitive to assure nuclear safety. As an example, a cubic array of an unsafe number of units may be formed and still adhere to the applicant's definition of work area. Therefore, we request the applicant re-evaluate this term and provide a definition which will assure nuclear safety. It would be helpful to our nuclear safety analysis if the various work areas were identified in plan drawings.

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3. Procedures for preventing unsafe U-235 concentrations during chemical cleaning, pickling and any other operations in which U-235 may go in solution, and the associated nuclear safety analysis.
4. The information delineated in paragraphs IV, 1, 2, 4, 6, 7, 8, 9 and V.5, of "Information to be Contained in an Application for Renewal of a Special Nuclear Material License . . .". Also included should be an engineering assessment confirming the integrity of the packaging based on calculations, accident experience or results of testing programs.
5. The description of the storage areas and vaults as presented by the applicant is not sufficiently clear and in some instances inconsistent. The maximum permissible number of units in cubic array as shown in Table VI - 1, page 33, does not agree with any of the generally accepted limits for cubic arrays. Therefore, we require a more detailed description and nuclear safety analysis of each storage area and vault including the information delineated in paragraph II 2.B of "Information to be Contained . . .".
6. The information delineated in paragraph II 2(e) of "Information to be Contained . . .".
7. The procedures for handling and storage of the requested 2 kgs of plutonium and 500 grams of U-233.
8. Apparently contract operations are to be conducted in the same facility. Therefore, we request that the applicant include the information on combined operations in accordance with paragraph III of "Information to be Contained . . .".
9. Finally, we suggest that you send the applicant a copy of "Information to be Contained . . .", and ask him to revise the subject application including, for example, the information on receiving shipments requested in paragraph II - 2.